Metrics

Release 15.4.0.2

CONTACT Software

Sep 12, 2018

Contents

Introduction

CONTACT Metrics provides a framework for managing development processes using key performance indicators (KPIs). *CONTACT Metrics* is used to record, analyze and monitor object and process KPIs and thus provide objective criteria for ongoing improvement in the development process. KPI cockpits are available for both types of KPIs. They provide an overview of all the KPIs and dynamically display the history of a KPI and, where applicable, any actions defined for it. Integrated action management also allows targeted corrections to be made in the event of deviations from the target.

Object KPIs record the properties of an individual PLM object (e.g. part or product). Process KPIs (also called class KPIs) can be used to record the average between object KPIs and thus enable the overall evaluation of a PLM process. The exact definition of KPIs, their aggregation and calculation rules and other configurations are described in the administration manual (see Administration manual).

Menu access

This section shows how you can call up the corresponding cockpits. A distinction is made between the Process KPI Cockpit (for managing process and class KPIs) and the Object KPI Cockpit (for managing object KPIs).

For both cockpits, only the data of valid KPIs is displayed. In addition, only those KPIs are displayed for which the user has the appropriate rights and permissions. More detailed descriptions of how KPIs are activated can be found in the administration manual (see Activating KPIs).

2.1 Process KPI Cockpit

As mentioned above, this Cockpit is for managing process KPIs. Since these KPIs refer to an entire PLM process, that is, they are not dependent on a specific object, the Process KPI Cockpit can also be started directly using a button in the navigation bar, free of context.

After calling up the Cockpit and on the condition that valid class KPIs exist that the user is permitted to view, the corresponding Cockpit opens.

When the Process KPI Cockpit is first called up, the *State*, *Business Object*, *KPI*, *Grouping*, *Unit*, *Target range*, *Value* and *Operations* columns are initially displayed in the KPI table.

The state provides the result of the collation of target range and (actual) value and can either assume a positive or negative value, or can be displayed in the two-value traffic light with red or green.

In the *Business Object* column, the name of the class to which the respective KPI was assigned is specified. The descriptions of the KPIs are listed in the *KPI* column.

The unit also refers to the KPI and indicates the unit in which the value of the KPI is entered.

The target range can be defined by formula expressions and thereby indicates a discrete or continuous value range that is to be achieved for the corresponding KPI. This is synchronized with the respective (actual) value (table column), which is always computed for class KPIs.

Finally, a column with additional operations for each table entry, that is, for each KPI, is displayed. Furthermore, the *Position* table column exists; it is hidden when the cockpit is first called up, but can be shown if necessary. The *Functions* (page 4) section includes a detailed discussion of the operation and possible interaction with regard to the table data.

2.2 Object KPI Cockpit

The Object KPI Cockpit can be called up only in the context of objects to which KPIs were assigned. For example, if KPIs were created for projects, the KPI Cockpit can be called up only via the context of a project. It can be called up in a result list (pop-up menu) or via the detail view of projects for one project at a time.

The description of the context object is used in the title of the Object KPI Cockpit and, unlike the Process KPI Cockpit, other table columns are sometimes needed. The columns are identical, except for the additional *Quality Grade* and *Aggregated Value* columns.

However, there are no columns called *Business Object* and *Grouping* in this cockpit. The quality grade is used to describe the value of the respective KPI in more detail. The aggregated value is calculated from a possible substructure for the corresponding object. In the example, this would be the substructure of a project. Prerequisites and necessary configurations for successful aggregation are described in the administration manual (see Class association).

Operations

The first part of this section will begin by explaining and illustrating the basic operations and the operations that are identical in both cockpits. Then the second part will deal with the additional or differing operations in the Object KPI Cockpit.

3.1 Basic operations

After calling up a cockpit you usually get a display of the respective cockpit (for the Object KPI Cockpit see *Object KPI Cockpit* (page 2), for the Process KPI Cockpit see *Process KPI Cockpit* (page 2)).

A table of KPIs and their central properties are displayed in the bottom part of the view area; initially, the first table entry is selected. In accordance with the selected entry, the associated histories (left) and any defined actions (right) are graphically displayed for the KPI in the upper view area. The individual operations of the KPI cockpit are separately explained in detail later in the description.

3.1.1 Sorting

The first time the cockpit is called up, the KPI entries in the table are sorted according to the position of the KPI that was specified when the KPI was defined.

> **Note:** The associated *Position* column is hidden initially (see *Show/Hide* (page 4)).

The first function takes effect here. The table entries in each column can be resorted in ascending or descending order. To do so, simply click the column header in the table header for the column you want to sort. The column is immediately resorted.

3.1.2 Show/Hide

The display of table contents can be influenced by the *Show/Hide* columns. To do so, there is a selection menu on the left side, right above the table. All available columns are listed in this menu with their current setting regarding the display. This means that an icon displays whether the respective column in the table is shown or hidden. If an entry is selected, this symbol is changed accordingly.

3.1.3 Search

A search field is on the right side above the table. You can manually enter search terms here. The table entries are dynamically filtered based on this search term and irrelevant entries are hidden. The search field has to be cleared for all entries to be fully displayed again.

In addition to descriptions or values of KPIs, you can also search for the state. When doing so, you can filter in the search field based on the corresponding traffic light color in text form. If you would like to have all negative states displayed, you have to filter for **red** in the search field. This search also functions the same way for alternative language settings of the client; in the example just given, this means you would have to filter for **rot** if the language is set to German.

3.1.4 Selection

Another basic function is the selection of single or multiple KPI entries in the table. You can select one entry, that is, one KPI by clicking it. When a KPI entry is selected, the corresponding graphics in the upper view area are updated simultaneously.

In addition to selecting one KPI entry you can also select more than one. To do so, click the left mouse button while holding down the control key. As far as graphs are concerned, only the history graph is displayed if multiple KPI entries are selected. Then the chronological changes to the values of all selected KPI entries are displayed in direct comparison.

In this case, a legend for the history graph is displayed in place of the actions graph. You can also select one KPI entry using the arrow keys on the keyboard. With them you can navigate between the (visible) fields of a row and across all rows. In the latter case, the corresponding graph for the currently selected entry is displayed.

3.1.5 Editing

The target range can be manually edited for each KPI in both Cockpits. You have three options available for making changes. You can edit by clicking the mouse, pressing the Enter key or pressing the F2 key.

When using the mouse, simply left-click in the desired target range field in the table.

When using the Enter or F2 key, the focus has to be on the desired target range field. Additionally, under certain conditions the actual value can also be edited in the Object KPI Cockpit for the target range. An exact description of this is provided in the section *Additional operations: Object KPI Cockpit* (page 7). However, the actual value can be edited here only by clicking the mouse or pressing the Enter key.

The formatting information that was specified via the personal settings in the client apply for the entered actual values. This concerns the decimal and thousands separators. The number of decimal places is three.

3.1.6 Target range

The basic behavior when editing the target range is as follows: If a target range has not been defined yet for the corresponding KPI, the field for the target range is filled with a placeholder (text). If a value already exists, it is displayed.

As soon as the field is enabled for editing by one of the methods mentioned (clicking, pressing the Enter key or F2 key), in both cases you can specify any valid expression for the target range or modify existing values. When you confirm with the Enter key and the validity check is positive, the target range expression is saved.

Valid expressions for the target range include combinations of these characters

- >
- <
- (
-)
- >=
- <=

the logical operators

- and

- or

- not

as well as whole and real numbers.

An example of a valid target range expression would be:

- **(> 10 and < 20) or -5**

An entered target value is always checked against the current actual value of the associated KPI. This results in a positive or negative state depending on whether the actual value is in the target range. This state is displayed in the table by a traffic light with two states.

3.1.7 Operations

In the table for KPIs there is an *Operations* column. Specific operations are provided here for each entry, that is, for each KPI. The operations can each be run using a button.

You have the option of taking the aggregated value as the actual value (only Object KPI Cockpit), recording a comment in the Activity Stream for the KPI, calling up the data sheet of the KPI and computing the actual value of the KPI again. The buttons for operations that cannot be executed due to certain constraints are graphically indicated (grayed out).

Note: Activity Stream comments for a KPI are also displayed with the associated Business Object.

3.1.8 History graph

A history of the development of the actual value of each KPI is kept. Each change of the actual value of a KPI creates an entry in the associated history. The value, date and quality grade are recorded. These values enable visualization of a chronological history, which is displayed in the left view area of the cockpit for the selected KPI or KPIs.

If multiple KPI entries are selected, the legend for the history graph is displayed in place of the actions graph. The individual values of each history are displayed as points on the history graph. Each point corresponds to an entry in the history and provides information when you hover the cursor over the respective entry. This information includes the three characteristics of the value, which were already listed (value, date, quality grade) and the names of the KPI.

For a detailed view of the graphs you can zoom in on particular sections. To do so, use the mouse to select an area either right in the view area or in the field right under the graph. To return to the original view, simply click inside the smaller display area.

3.1.9 Actions graph

You can assign actions to a KPI that influence the actual value positively or negatively. In the cockpits, the assigned actions of a KPI and their respective effects in the graph are displayed on the right side of the view area above the table.

Note: Actions can each be displayed only for the simple selection of a KPI entry.

The actions are each displayed as a bar with their respective effects. In addition to the actions, the current actual value and the target value, if specified, are also shown. Thus you get an overview of all essential information for the KPI in question.

As in the history graph, additional information appears when you hover the cursor over the actions bar. This information includes the name of the action, the costs required for implementation, the current state, the person

responsible, the desired completion date for the implementation and, finally, the effect on the actual value of the KPI as a numerical value. Clicking the desired actions bar takes you directly to the action assignment area, in the context of which you can change the effect.

Two buttons are below the graph. These can be used to assign new actions to the selected KPI from the Cockpit as well as to display the optimum mix of actions for reaching the target range. When making the assignment, the action does not necessarily have to already exist. In the same context there is the option of defining new actions and then directly assigning the corresponding KPI. The optimum mix of actions indicates the actions in the graph that are most effective for reaching the target range. Primarily the effect and the costs of the individual actions are taken into account proportionally.

3.1.10 User settings

Each time you exit a cockpit, the personally configured settings are saved and used each time you call up the cockpit again. The settings include sorting, selection of table entries and the associated display of the associated graphs, the search term and the settings regarding the Show/Hide columns.

Note: If filtering a search term results in no more table entries being displayed, this status is not saved in the user settings. When you open the cockpit again, the table is displayed with complete entries.

3.2 Additional operations: Object KPI Cockpit

In the Object KPI Cockpit you can manually modify not only the target value, but also the actual value. A prerequisite for this is that the actual value of a KPI is not automatically computed according to a specified cycle, or that an aggregation was defined for the computation with automatic application of the value determined by this.

For the actual value you can specify positive and negative whole numbers, real numbers and the numerical value 0. Depending on the actual value, the entered quality grade also changes. For computed KPIs or KPIs whose actual value should automatically correspond to the aggregated value, a manual change is not possible. The quality grades are filled accordingly with *computed* or *aggregated*.

If the KPI is one for which an aggregated value is being determined, but which should not be taken over as the actual value automatically, the aggregated value can be taken over for the actual value via the corresponding *operation* (page 6). Then the quality grade is also marked as *aggregated*. In this case it is also possible to enter a value as the actual value manually and directly; the quality grade is characterized as *manually*.