

ArtfulBits KPI Column

for Microsoft® SharePoint®



User Guide

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Overview

ArtfulBits KPI (Key Performance Indicator) column provides users with the ability to define and measure progress toward predefined goals and display current status by using easy-to-understand graphical indicators. Using of KPI provides with ability to visualize answers to the following questions:

- What am I ahead or behind on?
- How far ahead or behind am I?
- What is the minimum I have completed?

Component uses Microsoft SharePoint KPI idea, but with reworked functionality. Unlike MOSS KPI, solution from ArtfulBits could be added to any custom list as a column, can use both List View and List Item as data source and supports different indicator icons: flags, traffic lights, shapes, marks and other.

You can use traffic light icons to indicate that predefined satisfaction is exceeding, meeting, or failing to meet goals. If predefined satisfaction exceeds a preset goal, the KPI is displayed with a green traffic light icon. If customer's satisfaction is failing to meet minimum goals, KPI is displayed with red traffic light icon. Otherwise, it is displayed with a yellow traffic light icon.

The screenshot shows a SharePoint list view titled "KPI Demo" with a sub-view "By Status". The list contains 11 tasks, grouped into four status categories. Each task row includes a KPI indicator (green circle, yellow triangle, red diamond, or red X), a priority level, and a KPI percentage.

KPI Status	Title	Assigned To	KPI	Priority	KPI %
Status : Completed (3)					
✓	Task #4	Steven Buchanan	●	(1) High	✓ 100 %
✓	Task #5	Andrew Fuller	▲	(2) Normal	✓ 100 %
✓	Task #10	Laura Callahan	◆	(3) Low	✓ 100 %
Status : Deferred (2)					
✗	Task #8	Michael Suyama	▲	(2) Normal	! 30 %
✗	Task #9	Laura Callahan	▲	(2) Normal	✗ 0 %
Status : In Progress (2)					
!	Task #3	Andrew Fuller	▲	(2) Normal	! 10 %
!	Task #7	Laura Callahan	▲	(2) Normal	✗ 0 %
Status : Not Started (3)					
!	Task #1	Steven Buchanan	▲	(2) Normal	✗ 0 %
!	Task #2	Michael Suyama	◆	(3) Low	✗ 0 %
!	Task #6	Andrew Fuller	●	(1) High	✗ 0 %

At the bottom of the list view, there is a link: [+ Add new item](#)

Feature List

Feature	SharePoint 2007	SharePoint 2010	SharePoint 2013
Ability to associate indicator value with item column values	✓	✓	✓
Ability to associate indicator value with data in SharePoint lists	✓	✓	✓
Ability to specify indicator sources and calculation types while adding new items to list	✓	✓	✓
Supports value calculation, such as sum, minimum, maximum, average value, and evaluation of column value of first or last item from subset	✓	✓	✓
Supports tracking of total number of items in the specified list view and percentage of total number of items in one list view to another	✓	✓	✓
Ability to set Goal and Warning values as fixed values as well as values from other columns in list	✓	✓	✓
Column customization (multiple icons set; text customization; different column display modes)	✓	✓	✓
AJAX support enabled	✓	✓	✓
Language pack support (desired localization could be added by request)	✓	✓	✓

Why ArtfulBits KPI Column?

ArtfulBits KPI (Key Performance Indicator) column is simple graphical scorecards that can be used to evaluate business data against business goals. With this column you reduce risk to overlook information about the status of value.

The column automatically calculates the results, and displays one of 3 indicators (OK, Warning, or Problem). You can show the actual value, target value if desired. There are multiple icon sets to select from, so you can choose the one that best fits your application. KPI can show indicator based on data of each individual item in SharePoint list or base on data of SharePoint lists. It is a handy feature for all users that are using SharePoint on daily basis to use this column as a simple way of identifying visually critical items within their lists.

How to Use

To use KPI column you select appropriate option in the list of available columns in the Create Column page. Then you have to specify the associated value of the column and the calculation way. There are four ways to associate data with the KPI: list item, fixed list, dynamic list or user defined list. In the first case, resulting value will be calculated based on the values of other columns of list item of the current list; in the second, indicator value is set per column and calculation is based on the data obtained from the items in the fixed list; third way is similar to second one, but data can be obtained from list dynamically (using sub site which is based on URL reference value of other column); fourth way is similar to second one, but indicator is set per list item and source list and calculation type can be specified while adding new item to list.

Using KPI to track item column values

The unique feature of KPI column is that users are able to associate the KPI column with single item in the list. Formula is specified in the same way as for calculated field. This formula should return numbers. There are some examples how to set KPI for different types of columns below.

The screenshot shows the configuration interface for a KPI column. It is divided into two main sections: "Indicator Data Source" and "Display Rules".

Indicator Data Source:

- List item
- Fixed list
- Dynamic list
- User defined list

Formula:*

Formula (should return numbers):

Insert Column:

- % Complete
- Created
- Due Date
- KPI (70-90)
- Modified
- Priority
- Start Date
- Status
- Title

[Add to formula](#)

Display Rules:

Better values are

Display when value has met or exceeded goal

Goal:*

- Fixed Value
- Column Value

Display when value has met or exceeded warning

Warning:*

- Fixed Value
- Column Value

Display otherwise

Display Value:

Show Value

Goal Text

Status Icons

Marks

Value Text

How to set KPI for Choice column

- 1) Set **Get Indicator value** to **From List Item**
- 2) Specify a formula. The formula is the same as for SharePoint Calculated column, but it should return Number value.

It is recommended using **IF** function to set value for specific choice values. For example, *Issue Status* site column has the following choices by default: *Active*, *Resolved* and *Closed*. Formula may be the following:

```
=IF( [Issue Status] = "Closed" ,2 , IF( [Issue Status] = "Resolved" , 1, 0 ) )
```

This formula returns "2" if *Issue Status* is *Closed*, "1" if *Resolved*, and returns "0" in other cases (*Active* and others).

3) Determine whether better values are **higher** or **lower**.

For previous *Issue Status* column the better value are **higher** (0-Active, 1-Resolved, 2-Closed)

4) Specify **Goal** and **Warning** values.

For this KPI please set **Goal** value to “2”, **Warning** to “1”.

The screenshot shows the configuration interface for a KPI. It is divided into three main sections:

- Indicator Data Source:** Four radio buttons are present: List item, Fixed list, Dynamic list, and User defined list.
- Formula:***: A text area contains the formula: `=IF([Issue Status] = "Closed", 2, IF([Issue Status] = "Resolved", 1, 0))`. To the right, an **Insert Column:** list shows various columns, with **% Complete** selected. An **Add to formula** link is located below the list.
- Display Rules:**:
 - Better values are:** A dropdown menu is set to **higher**.
 - Display** (with a green checkmark icon) **when value has met or exceeded goal**.
 - Goal:***: Two radio buttons are present: Fixed Value and Column Value. The Fixed Value input field contains **2**, and the Column Value dropdown is set to **(None)**.
 - Display** (with a yellow warning icon) **when value has met or exceeded warning**.
 - Warning:***: Two radio buttons are present: Fixed Value and Column Value. The Fixed Value input field contains **1**, and the Column Value dropdown is set to **(None)**.
 - Display** (with a red X icon) **otherwise**.

How to set KPI for SharePoint percentage Number column

- 1) Set **Indicator Data Source** to **List Item**
- 2) Specify a formula. The formula is the same as for SharePoint Calculated column.
- 3) Select the target percentage Number column and click on **Add to formula** link.
- 4) Determine whether better values are **higher** or **lower**. For some indicators, such as “The percentage of tasks completed”, better values are usually higher.
- 5) Specify **Goal** and **Warning** values. For example: In order to display **Problem** icon when value = 0%, **Warning** when $0\% < \text{value} < 100\%$ and **OK** icon when value = 100%, you have to set **Goal** value to 100% and **Warning** value to 0.01%.

Indicator Data Source:

List item Fixed list Dynamic list User defined list

Formula:*

Formula (should return numbers):

=[% Complete]

Insert Column:

- % Complete
- Created
- Due Date
- Modified
- Priority
- Start Date
- Status
- Title

Add to formula

Display Rules:

Better values are

Display when value has met or exceeded goal

Goal:*

Fixed Value Column Value

Display when value has met or exceeded warning

Warning:*

Fixed Value Column Value

Display otherwise

How to set KPI for SharePoint Date and Time columns

- 1) Set **Get indicator value** to **From List Item**
- 2) Specify a formula. The formula is the same as for SharePoint Calculated column, but it should return Number value.
- 3) By the formula below KPI displays: **OK** icon when difference between **Start Date** and **Due Date** is more than 1 day, **Warning** when **Start Date** and **Due Date** is the same day and **Problem** in other cases:

```
=IF([Due Date]<[Start Date],-DATEDIF([Due Date],[Start Date],"d"),DATEDIF([Start Date],[Due Date],"d"))
```

- 4) Determine whether better values are **higher** or **lower**. In this sample better values are **higher**.
- 5) Specify the **Goal** and **Warning** value. In this sample **Goal** value is set to "1" and **Warning** to "0".

Indicator Data Source:

List item Fixed list Dynamic list User defined list

Formula:*

Formula (should return numbers):

```
=IF([Due Date]<[Start Date],-DATEDIF([Due Date],[Start Date],"d"),DATEDIF([Start Date],[Due Date],"d"))
```

Insert Column:

- % Complete**
- Created
- Due Date
- KPI (70-90)
- Modified
- Priority
- Start Date
- Status
- Title

Add to formula

Display Rules:

Better values are **higher**

Display when value has met or exceeded goal

Goal:*

Fixed Value Column Value

1 (None)

Display when value has met or exceeded warning

Warning:*

Fixed Value Column Value

0 (None)

Display otherwise

Using KPI to track data of SharePoint lists

When SharePoint lists contain countable items, items that are part of a workflow, date items, or tasks progress, you can use a KPI to track how long the issues or tasks have been opened, number of opened items, and percentage of completed tasks. You can also keep track of totals, such as the amount of time that an issue has been opened or the total number of sales in a region. You can use KPI for above mentioned purposes in three ways: create indicators for fixed list, dynamic list or user defined list.

Associate indicator value with data of fixed SharePoint list

Status Indicators

Task Progress	Issue Status	% Remaining	Overdue	Absence
52.25%	Count: 3			

To create indicator value based on data from one SharePoint list:

- 1) Set **Indicator Data Source** to **Fixed List**.
- 2) Select site and list that contains data for indicator column.
- 3) Select the view that contains items you want to use in the KPI.
- 4) Under **Value Calculation**, select one of the following ways to calculate the goal of the KPI:
 - a) **Number of list items in the view** (a count of the total number of items in the list).

- b) **Percentage of the number of list items in the selected view to the number of list items in the view above.**
 - c) **Calculation using all list items in the view** (a computation of **Sum, Average, Maximum, or Minimum** of a numerical column in the list).
 - d) **Column value of specified item from the view** (Choose this option if you need to track column value of **First Item** or **Last Item** from selected list view).
- 5) In the **KPI Display Rules** section, under **Display Rules**, in the **Better values are** list, select **higher** or **lower** to indicate which range of numbers will be green (OK).

Indicator Data Source:

List item
 Fixed list
 Dynamic list
 User defined list

Site:*

List:*

View:*

Value Calculation:*

Number of list items in the view
 Percentage of the number of list items in the selected view to the number of list items in the view above

Example:
 Percentage of items in the Active Tasks list view to the All Tasks list view.

Calculation using all list items in the view


 of

Column value of specified item from the view

 Column:


Display Rules:

Better values are

Display  when value has met or exceeded goal


Goal:*

Fixed Value
 Column Value

Display  when value has met or exceeded warning

Warning:*


Fixed Value
 Column Value

Display  otherwise

Display Value:

Show Value

Goal Text

Status Icons 

Value Text

Associate indicator value with data of SharePoint list dynamically

Projects

<input type="checkbox"/> Title	Task Progress	Budget	KPI	Site URL
Project A	 46.67%	\$1,800.00		/sites/kpi/project_a/
Project B	 85%	\$5,200.00		/sites/kpi/project_b/
Project C	 100%	\$1,600.00		/sites/kpi/project_c/

[+ Add new item](#)

If you want to roll up information from some lists on sub sites into a single status list, then

- 1) Set **Indicator Data Source** to **Dynamic list**.
- 2) Choose column (Single line of text or Hyperlink), which contains site URL (full site URL, server-relative URL or site collection relative URL). A server-relative URL begins with a forward slash ("/"), while a site collection relative URL does not begin with a slash.
- 3) Type site-relative URL to target list view
- 4) Specify value calculation

Indicator Data Source:

- List item Fixed list Dynamic list User defined list

Get SharePoint Site from following column:*

Site URL

Choose column which contains site URL.

List View URL:*

Lists/Tasks/AllItems.aspx

Type site-relative URL to list view.

Example:

Lists/Tasks/AllItems.aspx

Value Calculation:*

- Number of list items in the view
 Percentage of the number of list items in the selected view to the number of list items in the view above

List View URL:

Example:

Percentage of items in the Active Tasks list view to the All Tasks list view.

- Calculation using all list items in the view

Average

Column:

PercentComplete


- Column value of specified item from the view

First Item

Column Name:

Display Rules:

Better values are higher

Display  when value has met or exceeded goal

Goal:*

- Fixed Value

100%

- Column Value

(None)

Display  when value has met or exceeded warning

Warning:*

- Fixed Value

80%

- Column Value



(None)

Display  otherwise

Display Value:

Show Value

Column value

Status Icons   

Dots and Marks




Goal Text

Goal:

Value Text

Indicators with user defined behavior

KPI

<input type="checkbox"/> Title	KPI
Number of critical non-conformances	 Goal: 3 Value: 3
The number of active issues	 Goal: 0 Value: 2
The percentage of tasks completed	 Goal: 100% Value: 25%

To enable to specify indicator source lists and calculation ways when adding new items to list (similar to standard SharePoint KPI):




- 5) Set **Indicator Data Source** to **User defined list**.
- 6) Uncheck **Show KPI user guide in New Item and Edit Item forms** to hide KPI user guide during adding or editing items.
- 7) Specify display settings (**Show Value, Status Icon, Goal Text and Value Text**).

Indicator Data Source:

List item Fixed list Dynamic list User defined list

Show KPI user guide in New Item and Edit Item forms

Display Value:

Show Value	Status Icons   
<input type="text" value="Icon only"/>	<input type="text" value="Dots and Marks"/>
Goal Text	Value Text
<input type="text" value="Goal:"/>	<input type="text" value="Value:"/>

- 8) After that you can create KPIs as many as you need when adding new items to list.

Project Status - New Item

Edit

Save Cancel Paste Copy Attach File Spelling

Commit Clipboard Actions Spelling

Title * Task Status

Description Determines percentage of the number of active tasks to all tasks.

KPI

The indicator value is the number that tracks the progress toward the goal of this indicator.

For example, the indicator value may be:

- The number of issues that are currently active.
- The percentage of tasks completed.

To specify the indicator value:

- Select SharePoint site and list in this site that contains the information for calculating the value of this indicator.
- Select the view of the list that contains the items for calculating the value of this indicator. The view can be used for selecting a subset of items.
- Specify the calculation to perform for the value of this indicator. Choose summary calculation to set the goal to be the total, average, minimum or maximum of a numerical column.
- Select whether better values are higher or lower.
 - For some indicators, such as 'The percentage of tasks completed', better values are usually higher.
 - For other indicators, such as 'The number of active tasks', better values are usually lower.
- Specify Goal and Warning values.

Site:* Projects

List:* Tasks

View:* All Tasks

Value Calculation:*

Number of list items in the view

Percentage of the number of list items in the selected view to the number of list items in the view above

Active Tasks

Example:
Percentage of items in the Active Tasks list view to the All Tasks list view.

Calculation using all list items in the view

Sum of % Complete

Better values are higher

Display when value has met or exceeded goal 100%*

Display when value has met or exceeded warning 40%*

Display otherwise


Save Cancel

KPI column display settings

The KPI display rules determine which icon should be displayed to represent the status of the indicator. For some indicators, such as 'The percentage of tasks completed', better values are usually higher, for other indicators, such as 'The number of active tasks', better values are usually lower. You should specify whether better values are higher or lower and set **Goal** and **Warning** values. It can be fixed value as well as dynamic (values from other columns in this list). There are also special display settings like **Show Value** (you can specify what kind of information should be displayed in KPI column: Icon, Goal value, Column value, both Goal and Column values), **Status Icons** (you can specify the icons of KPI: Dots, Flags, Balls, etc.), **Goal Text** and **Value Text** (you can change the text of the label which will be displayed next to notification icons).


Display Rules:

Better values are

Display  when value has met or less than goal


Goal:*

Fixed Value Column Value

Display  when value has met or less than warning




Warning:*

Fixed Value Column Value

Display  otherwise

Display Value:

Show Value

Status Icons   

Goal Text

Value Text

In the Details Link section type the Web address to the custom page that contains information about this indicator. If there is no custom page selected a list view page or item details form will be displayed when user clicks on the column (depends on chosen value in 'get Indicator value from' section).

Release Notes

Version	Notes
v2.0 (May 6, 2013)	New Features: <ul style="list-style-type: none">• Added SharePoint 2013 Support• Added Russian and German localization
v1.5 (September 15, 2011)	New Features: <ul style="list-style-type: none">• Added dynamic lists support [PRO]• Added support of column value for Goal and Warning• Added First Item and Last Item aggregation functions Improvements: <ul style="list-style-type: none">• Improved KPI value formatting Bugs Fixed: <ul style="list-style-type: none">• Fixed minor issues
v1.43 (August 19, 2011)	Bugs Fixed: <ul style="list-style-type: none">• Fixed "File Not Found" error• Removed caching values for "Get indicator value: Dynamically" option
v1.42 (August 03, 2011)	Bugs Fixed: <ul style="list-style-type: none">• Fixed availability to use "Get indicator value: Dynamically" option for Evaluation and Professional Editions
v1.41 (June 09, 2011)	Bugs Fixed: <ul style="list-style-type: none">• Fixed column settings update
v1.4 (June 01, 2011)	New Features: <ul style="list-style-type: none">• Added ability to specify source lists and calculation ways while adding new items to list [PRO] Improvements: <ul style="list-style-type: none">• Added support for new licensing model (ArtfulBits License Manager v1.4)• Added "Save site as template" support
v1.31 (April 5, 2011)	Improvements: <ul style="list-style-type: none">• Added Document Library support• Improved performance Bugs Fixed: <ul style="list-style-type: none">• Fixed minor issues
v1.3 (November 16, 2010)	New Features: <ul style="list-style-type: none">• Added Russian and German localization

	<p>Bugs Fixed:</p> <ul style="list-style-type: none"> Fixed minor issues
v1.24 (August 18, 2010)	<p>Bugs Fixed:</p> <ul style="list-style-type: none"> Fixed KPI for grouped view (SharePoint 2010 only) Fixed minor issues
v1.23 (August 11, 2010)	<p>Improvements:</p> <ul style="list-style-type: none"> Allowed assembly partially trusted callers <p>Bugs Fixed:</p> <ul style="list-style-type: none"> Fixed Access Denied exception for users with Read Only permissions on item display form
v1.22 (July 8, 2010)	<p>Bugs Fixed:</p> <ul style="list-style-type: none"> Fixed error with 6622 Event ID in Event Viewer (Field type DummyField has duplicated definition)
v1.21 (June 17, 2010)	<p>Bugs Fixed:</p> <ul style="list-style-type: none"> Fixed KPI details link for Internet web site Fixed objects disposing
v1.2 (June 11, 2010)	<p>Improvements:</p> <ul style="list-style-type: none"> Improved Setup Wizard
v1.2 (May 13, 2010)	<p>New Features:</p> <ul style="list-style-type: none"> SharePoint 2010 support added <p>Bugs Fixed:</p> <ul style="list-style-type: none"> Fixed programmatically value getting
v1.1 (April 21, 2010)	<p>New Features:</p> <ul style="list-style-type: none"> Added UpdateRules option Added UpdateValue(item) and InvalidateValue(item) methods to KPIField for programmatically indicator value updating <p>Improvements:</p> <ul style="list-style-type: none"> Improved performance <p>Bugs Fixed:</p> <ul style="list-style-type: none"> Fixed KPI Column for Internet zone Fixed KPI Column header look Fixed KPI field set/get value from Services and Console Application
v1.02	<p>Improvements:</p>

(February 18, 2010)	<ul style="list-style-type: none"> • Improved integration with site templates
v1.01 (February 01, 2010)	Bugs Fixed: <ul style="list-style-type: none"> • Problem with product version (Setup Wizard only)
v1.01 (January 14, 2010)	Bugs Fixed: <ul style="list-style-type: none"> • Problem with some SharePoint language packs
v1.0 (December 25, 2009)	Initial Release

[PRO] – Professional edition only.

See Also



[Cascaded Lookup Column](#)

Cascaded Lookup Column allows building relationship between parent and child columns, the data selected in one field will determine the options presented in another.



[Category Column](#)

Category Column allows tracking, organizing and grouping list items. Outlook 2007 approach for elements categorization, easy indicator color changing and using of advanced tooltip, provide a high professional component style.



[Column Data Adapter](#)

Column Data Adapter is an extension component providing ability to use ArtfulBits Columns in Microsoft Access forms, reports and Microsoft Excel.



[Column Permissions](#)

Column Permissions allows you to manage access to list content on column level. Permissions can be assigned for individual users and for SharePoint groups as well and are effective in forms and list views, as well as in the SharePoint Alerts, RSS, Datasheet and even during exporting to Excel and opening with Access.



[Cross-Site Lookup Column](#)

Use Cross-Site Lookup Column for getting data from any site within site collection. Component includes a powerful function of searching over lookup list. This function provides substring matching in selected column which is very useful for large lists (over 50-100 items).



[Discussion Column](#)

Need to organize well formatted conversation in the list item without enabling list versioning? Discussion Column is the right choice. Component allows entering rich text with formatting, images, tables, hyperlinks and other features.



[Email Web Part](#)

ArtfulBits Email Web Part allows sending e-mail messages directly from Microsoft SharePoint site. You can notify task assigned users, send gratitude or just send regular e-mail message, etc.



[Follow-Up Column](#)

Follow-Up Column enables due date flags similar to Outlook follow-up functionality. Applying of flags to the list item allows adding of visual reminder in a natural way.



[Image Upload Column](#)

Quick and simple way of uploading pictures. Image Upload Column provides with ability to select a picture using file browsing dialog, upload and display it in the list view.



[Link to Document Column](#)

Link to Document Column allows referencing files and folders placed at Document Library and provides easy and intuitive way to download files directly from column. Use this column to provide a browsing interface that allows users to browse to an object to link to instead of typing a URL.



[Parent Selector Column](#)

Parent Selector Column is used for organizing hierarchical relations in SharePoint list. Picker dialog allows choosing data from large lists. Standard Lookup column can be easily converted to Parent Selector column and vice versa.



[Password Change Web Part](#)

Password Change Web Part allows users to change their own passwords from within the SharePoint environment using standard text box interface (current password, new password and confirm new password).



[Password Expiration Web Part](#)

Password Expiration Web Part enables Active Directory users to be notified via Web Part interface that their passwords are about to expire. It also automatically sends out email notifications to users before the password expiration date.



[Professional Calendar Web Part](#)

Professional Calendar Web Part provides following key benefits: it allows combining events from different SharePoint Lists, from any SharePoint Site, in one Calendar view; allows specifying different color sets for different event sources; supports on-the-fly AJAX-enabled editing features in Outlook like style; and other enhanced functionalities.



[Progress Column](#)

Progress Column provides users with the ability to make SharePoint lists more visualized by displaying numerical data on the page using percentage-based progress bar. Professional progress bar style will make your SharePoint list really modern and stylish.



[Video](#)

Video Column and Video Web Part are powerful controls made for uploading, managing, linking and playing video files. These controls support variety of video files that can be uploaded from computer, or linked from SharePoint library or streamed from direct URL.

Remarks

Information in this document may be outdated. Please, visit www.artfulbits.com for the latest product version.