



## KREO HMI TUTORIAL

### Recipes

Tutorial dedicated to the Recipes programming and functionality

Connect  
Ideas.  
Shape  
solutions.



# Introduction

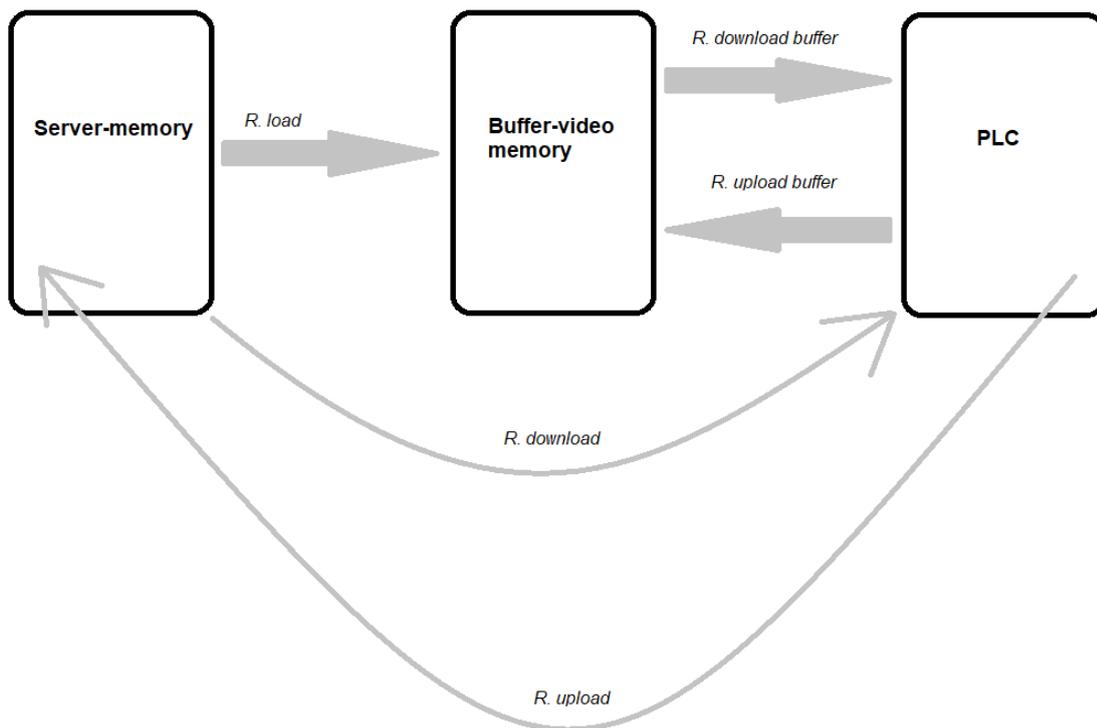
The recipes are nothing more than a set of data exchanged between SERVER-RUNTIME and PLC.

You can think of using them to transfer the setting-machine (multiple variables) with a single download operation.

Before seeing how to configure the recipes let's outline below some ESA concepts and terminologies for recipes.

In short it can be said that the recipes are saved in SERVER-RUNTIME memory, loaded on the screen (BUFFER-VIDEO) and transferred to the PLC.

It is therefore good to keep in mind these 3 areas of memory and the functions associated with them:





## How to do:

Let's see one of the different ways you can use recipes.

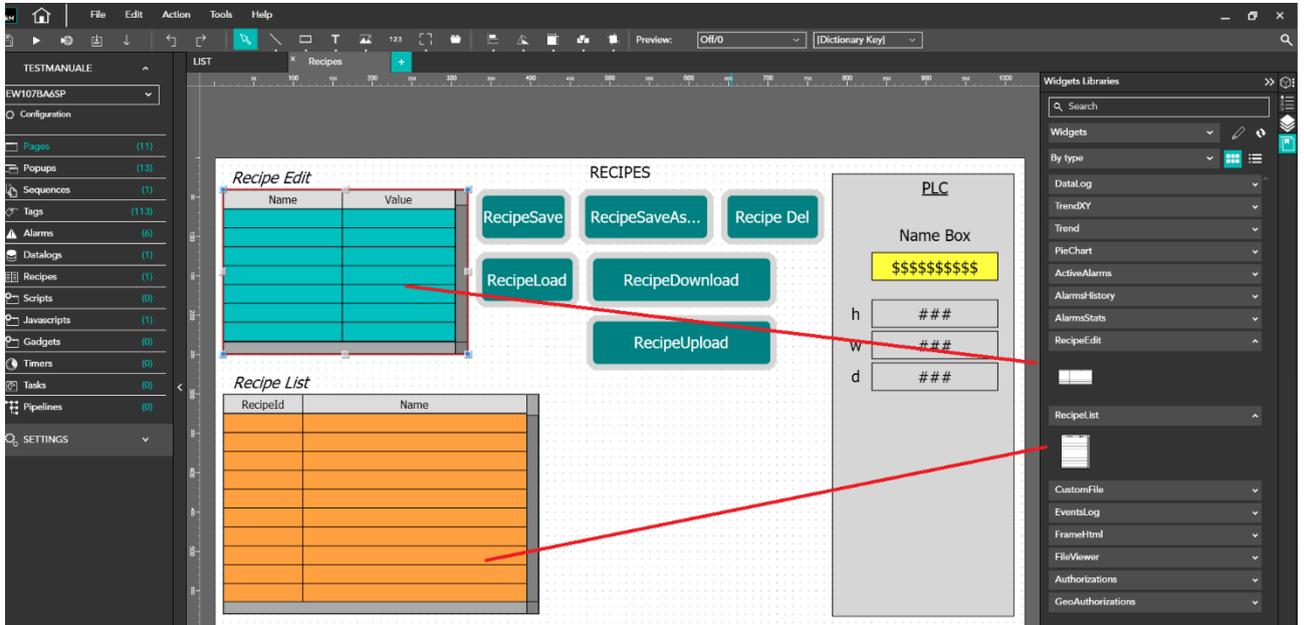
- 1) Suppose you have to set up a machine that produces boxes of various sizes and want to take advantage of the recipes to transfer with 1 click the setting-machine: height (h), width (w) and depth (d).
- 2) Create a new recipe that we will call RECIPE STRUCTURE to configure the 3 tags that define the size of the boxes

	Name	Description	Tag	Display text
1	RecipeId			Recipe Id
2	RecipeName		BoxName	Recipe name
3	ChangeDate			Change date
4	Comment			Comment
5	h		h	h
6	w		w	w
7	d		d	d
8				
9				
10				

In the parameter list you can see the 3 plc tags **h,w,d** (INTEGER) as well as the tag-STRING **BoxName** that will contain the name of the recipe transferred to the PLC.



3) Now you just need to configure the project page with the objects to handle the recipe operations:

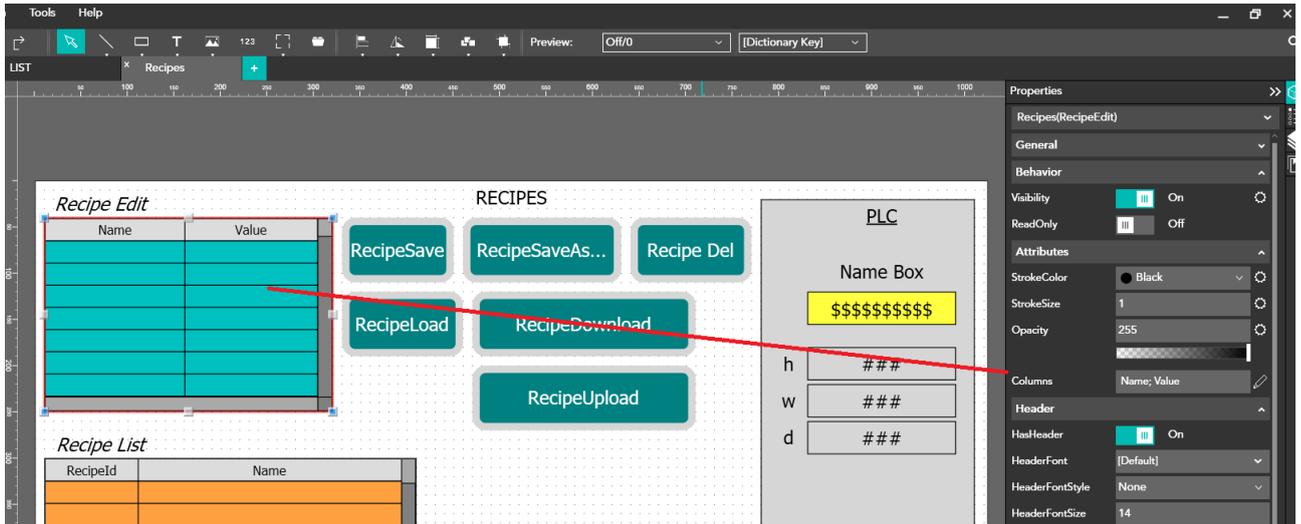


On the project page you can see the following objects:

- RECIPE\_EDIT: where to edit and save the different recipes
- RECIPE\_LIST: where you can see and select the saved recipes
- Some recipe command functionalities such as Recipe Save, Recipe Save As, Recipe Delete, Recipe Load, Recipe Download, Recipe Upload
- The PLC tags area (gray box) that displays the values of the tags of the last recipe transferred to the PLC



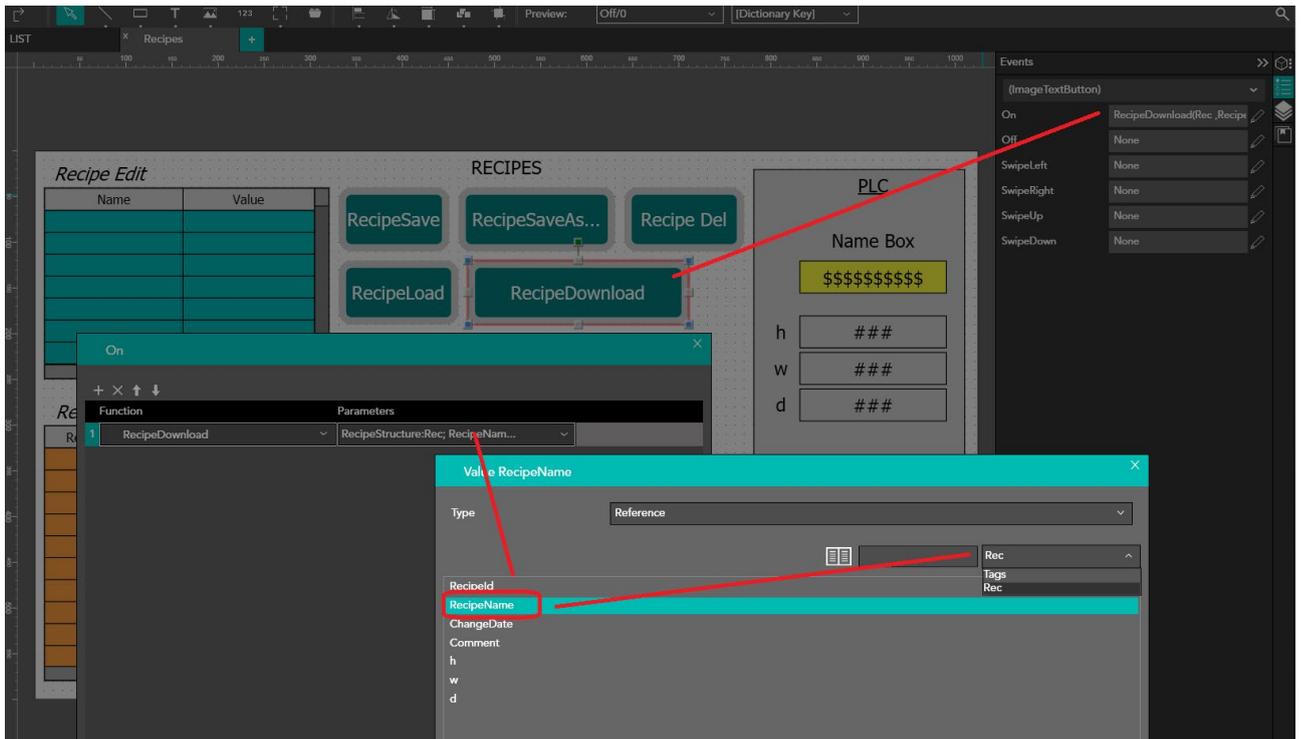
The 2 recipe-tables are associated with the RECIPE STRUCTURE.  
This association must be defined in the COLUMNS property of the widget.  
This is mandatory because you can configure multiple recipe structures in a project and multiple tables





The buttons that fire the recipes command functions require the recipe name (LOAD / DOWNLOAD / UPLOAD / DELETE) mapped to the "internal" name of the recipe and not to the tag-string of the plc.

The PLC Tag will take the "recipe-name" after the PLC download.



For example the RECIPE-DOWNLOAD function is mapped to the RecipeName of the structure and to the plc tag directly.

4) A classic recipe management can be developed with the following steps:



**SAVE RECIPE:** in the RecipeEdit table you can define the first machine setting (box size) saving the recipe with the name BOX1

Recipe has been saved.

**Recipe Edit**

Name	Value
Recipe Id	1
Recipe name	Box1
Change date	8:57:16 4/6/2021
Comment	
h	10
w	11
d	12

SAVE REC   RecipeSaveAs...   Recipe Del

RecipeLoad   RecipeDownload

RecipeUpload

**PLC**

Name Box

h

w

d

**Recipe List**

RecipeId	Name
1	Box1

In RecipeList you now see the first saved recipe.  
The same step can be repeated to save BOX2 and the following recipes.

Recipe has been saved.

**Recipe Edit**

Name	Value
Recipe Id	1
Recipe name	Box2
Change date	8:57:57 4/6/2021
Comment	
h	20
w	21
d	22

SAVE REC   RecipeSaveAs...   Recipe Del

RecipeLoad   RecipeDownload

RecipeUpload

**PLC**

Name Box

h

w

d

**Recipe List**

RecipeId	Name
1	Box1
2	Box2



**LOAD RECIPE:** among the various recipes saved the user has now to load on the screen (in RecipeEdit) the BOX2 to verify the correct values and then transfer them to the PLC.

You can then insert that name in RecipeEdit and press LOAD RECIPE. In the same table the BOX2 predefined values will be displayed.

The screenshot shows an HMI interface with the following components:

- Recipe Edit Table:**

Name	Value
Recipe Id	2
Recipe name	Box2
Change date	8:58:47 4/6/2021
Comment	
h	20
w	21
d	22
- Recipe List Table:**

RecipeId	Name
1	Box1
2	Box2
3	Box3
4	Box4
- Buttons:** RecipeSave, RecipeSaveAs..., Recipe Del, LOAD REC, RecipeDownload, RecipeUpload.
- PLC Section:** A yellow box labeled "Name Box" and three input fields for parameters h, w, and d, each containing the value 0.



**DOWNLOAD RECIPE**: once the recipe is displayed on the screen you can transfer it to the PLC with the DOWNLOAD button:

The screenshot shows an HMI interface with the following components:

- Recipe Edit Table:**

Name	Value
Recipe Id	2
Recipe name	Box2
Change date	8:58:47 4/6/2021
Comment	
h	20
w	21
d	22
- Recipe List Table:**

RecipeId	Name
1	Box1
2	Box2
3	Box3
4	Box4
- PLC Section:**

PLC  
Name Box  
Box2  
h: 20  
w: 21  
d: 22
- Action Buttons:** RecipeSave, RecipeSaveAs..., Recipe Del, RecipeLoad, DOWNLOAD >> PLC, RecipeUpload

Note that the fields that point directly to the plc-tags (gray area) have now been populated with the same BOX2 recipe previously selected and uploaded to the screen.

The recipe was transferred to the plc.

At this point, once you have saved the recipes in the SERVER memory, simply select them and transfer them to change the setting-machine with 1 click.

The fastest way to download the recipe is to select it in the RecipeList and press the **GridRecipeDownload** button.



Recipe has been downloaded.

Name	Value
Recipe Id	3
Recipe name	Box3
Change date	9:13:12 4/6/2021
Comment	
h	30
w	31
d	32

Recipe List

RecipeId	Δ	Name
1		Box1
2		Box2
3		Box3
4		Box4

PLC

Name Box

Box3

h 30

w 31

d 32

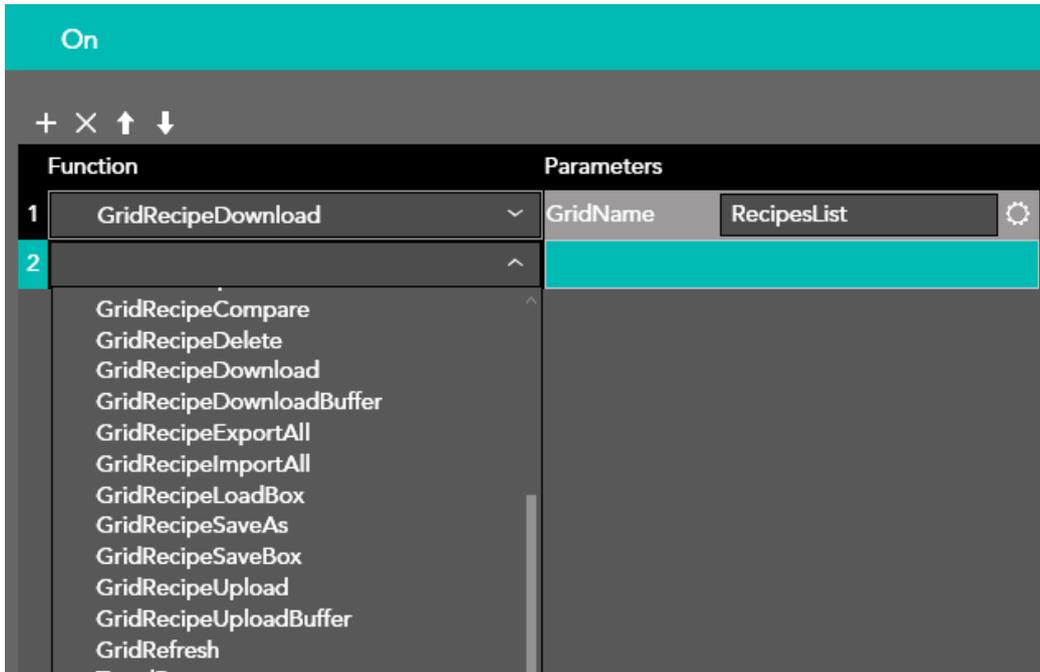
GridRecipeDnload

**GRID** commands refer to operations that can be performed at the specific grid level.

Think for example of multiple recipe structures with multiple RECIPE LIST tables.

You can make different downloads by pointing to different grids.

Below a print-screen of the grid commands.



**Notes:** THE RECIPE STRUCTURES, as mentioned, are not necessarily unique in the project.

In a project you can have multiple structures with different tags.

For example, you can assume to have the first setting-structure with 3 box tags (h-w-d) and a second setting-structure with 5 box tags (h-w-d, color-label, date registered).

The combination of the 2 settings allows you to compose the desired box.



## Default FUNCTIONS Table

Function	
1	
⤴	Recipes
	RecipeClearBuffer
	RecipeCompareArchive
	RecipeDelete
	RecipeDeleteld
	RecipeDownload
	RecipeDownloadBuffer
	RecipeDownloadId
	RecipeExport
	RecipeExportAll
	RecipeExportDatabase
	RecipeImport
	RecipeImportAll
	RecipeImportDatabase
	RecipeLoad
	RecipeLoadId
	RecipePack
	RecipeRename
	RecipeRenameld



Recipe EVENTS table:

Events		>>	
OnRecipeSaved	None		
OnRecipeLoaded	None		
OnRecipeDeleted	None		
OnRecipeRenamed	None		
OnDownloadStart	None		
OnDownloadComplete	None		
OnDownloadError	None		
OnUploadStart	None		
OnUploadComplete	None		
OnUploadError	None		



Connect  
ideas.  
shape  
solutions.

[ESA S.p.A. | www.esa-automation.com](http://www.esa-automation.com) |