

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.

- 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



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:

H 🖬 📔 File	Edit A	ction T	ools Help																-	ø	×
♪ ► ♥ ₺			N 20				•			e 1	Preview	r: Off/	D	~ [Dic	tionary Ke	¤y] ∽					٩
TESTMANUALE		LIST		* Recipes		+ 	300	su 4	00)0 но 1	. 000	.ec <mark>e</mark> 700	I	\$00	. 591		Widgets Libraries			» 🖓
EW107BA6SP	~																	Q Search			1 🗄
Configuration																		Widgets		<i>/</i>	\$
- Pages	(11)																	-	· · ·	· ·	
Popups	(13)		Decine	Edit						RF	CIPES							By type	× 😐		
C Sequences	(1)		Recipe I													PLC		DataLog			
🗇 Tags	(113)		Ivan	ne		value		?ecine	Save	Re	cineSave	Δς	Recin	e Del				TrendXY			
▲ Alarms	(6)	8-						(ceipe			cipcourt	.,	Recip			Name Box		Trend			
😔 Datalogs	(1)												_		ſ			PieChart			
E Recipes	(1)	8-	1					Recipe	Load	H	Recipe	Downlo	ad		l	\$\$\$\$\$\$\$		ActiveAlarms			
C- Scripts	(0)										<u> </u>				. г			AlarmsHistory			
- Javascripts	(1)	200											_		h	###		AlarmsStats			
Cadgets					_						Recij	peUploa	d		w	###		RecipeEdit			
Timers	(0)	8-													. [
🕅 Tasks	(0)	< 8	Recipe	List											al	###					
Pipelines			RecipeId			Name			11111									Recipel ist		^	
C) CETTINGS		¥-		_																	
SETTINGS																	_				
		8-		-																	
																		CustomFile			
		8-																EventsLog			
									1.1.1									FrameHtml			
		8		_					1.1.1									FileViewer			
		8-																Authorizations			
																		GeoAuthorizations			

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 <u>you can configure multiple recipe structures in</u> a project and multiple tables

T T	ools Help								_ & ×
¢	N 🗆 🗸 🔁 🗸	📈 123 [] 😁		Preview: Off/0	~ [Dictio	nary Key] 🗸			c
LIST	× Recipes	· ·							
1	se 100 150		aso 400 450	.500 nsa 600 nna 1	700 756 4	800 852 900 860 100	Properties		>> <mark>(</mark>
							Recipes(RecipeE	dit)	✓ ⁸
							General		î §
							Behavior		^ <u> </u>
:	Recipe Edit		R	ECIPES	· · · · · · · · · · · · · · · · · · ·		Visibility	🔲 On	े
8-	Name	Value				PLC	ReadOnly	III Off	
			RecipeSave R	ecipeSaveAs R	ecipe Del		Attributes		^
1 8-						Name Box	StrokeColor	Black	✓ O
						\$\$\$\$\$\$\$	StrokeSize	1	ं
*			RecipeLoad	RecipeDownload			Opacity	255	े
8-						h ###			
1				Recipel Inload			Columns	Name; Value	
8-	<u></u> -		4			W ###	Header		
	Recipe List					d ###	HasHeader	III On	
300	RecipeId	Name					HeaderFont	[Default]	~
8-							HeaderFontStyle	None	<u> </u>
°.							HeaderFontSize	14	



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.

							(ImageTextButton	
							On	
							Off	
ecine Edit			RECIPES			(- () - () - () - () - () - () - () -	SwipeLeft	
Name	Value		-			PLC	SwipeRight	
		RecipeSave	RecipeSaveAs	. Recipe Del			SwipeUp	
						Name Box	SwipeDown	
			1			\$\$\$\$\$\$\$\$		
		RecipeLoad	RecipeDow	/nload				
					h	###		
On				×				
+ × • 1					w	###		
E Function		Parameters			d	###		
R 1 RecipeDov		 RecipeStructure:Rec; R 	lecipeNam ~					
			Value RecipeName					×
-								
-		Ţ	Гуре	Reference				~
							Bas	
							Tags	
		l i i i i i i i i i i i i i i i i i i i	lecipeld RecipeName				Rec	
			ChangeDate					
-		c	Comment					
		h						

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:



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

☆ 😩 :

In RecipeList you now see the first saved recipe.

The same step can be repeated to save BOX2 and the following recipes.

🔳 нмі	× +				o – ø ×
\leftrightarrow \rightarrow G (① localhost:8080/sys/master/master_w	.html			* 😩 :
Rec	cipe has been saved. KECIPE EUIL				
[Name	Value			<u>PLC</u>
	Recipe Id	1	SAVE REC	RecipeSaveAs Recipe Del	
	Recipe name	Box2			Name Box
	Change date	8:57:57 4/6/2021			
	Comment		RecipeLoad	RecipeDownload	
	h	20			
	W	21			h 0
	d	22			
l				RecipeOpload	w 0
	Recipe List				d 0
[RecipeId A	Name			
	1	Box1			
	2	Box2			
l					



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.

o ×	o –				× +	🔳 нмі
) 😩 E	ά ά			w.html	① localhost:8080/sys/master/master_v	← → C (
	DI C				Kecipe Luit	Kee
	PLC			Value	Name	
		RecipeSaveAs Recipe Del	RecipeSave	2	Recipe Id	
	Name Box			Box2	Recipe name	
				8:58:47 4/6/2021	Change date	
		RecipeDownload	LOAD REC		Comment	
				20	h	
	h 0			21	W	
	w 0	RecipeUpload		22	d	
						L
	d 0				Recipe List	
		I		Name	RecipeId ∆	[
				Box1	1	
				Box2	2	
				Box3	3	
		I		Box4	4	
		I				
		I				
		I				
		I				
	h 0 w 0 d 0	RecipeUpload		21 22 Name Box1 Box2 Box3 Box4	w d Recipe List RecipeId Δ 1 2 3 4	



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



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.



Name Value Recipe Id 3 Recipe Id 3 Recipe Id 3 Change date 9:13:12.4/6/2021 Comment RecipeLoad RecipeLoad RecipeDownload w 31 d 32 RecipeUpload RecipeList GridRecipeDnload 1 Box1 2 Box2 3 Box3 4 Box4	C O localhost:8080/sys/ma Recipe has been downloade	ster/master_w.html			Å
Recipe Id 3 Recipe Iane Box3 Change date 9:13:12 4/6/2021 Comment RecipeLoad Name Box3 d 32 RecipeUpload RecipeList RecipeI A Name 1 Box1 2 Box2 3 Box3 GridRecipeDnload	Name	Value			PLC
Recipe name Box3 Change date 9:13:12 4/6/2021 Comment RecipeDownload h 30 w 31 d 32 RecipeUpload RecipeList RecipeI A Name 1 Box1 2 Box2 3 Box3 4 Box4 Name 1 Box3 1 Box3 4	Recipe I	d 3	RecipeSave	RecipeSaveAs Recipe Del	
Change date 9:13:12 4/6/2021 Comment RecipeLoad RecipeDownload h 30 RecipeUpload w 31 RecipeUpload RecipeList GridRecipeDnload RecipeI Δ Name 1 Box1 2 Box2 3 Box3 4 Box4	Recipe na	me Box3			Name Box
Comment RecipeLoad RecipeDownload h 30 RecipeDownload w 31 d 32 RecipeList RecipeId Name 1 Box1 2 Box2 3 Box3 4 Box4	Change d	ate 9:13:12 4/6/2021			
h 30 w 31 d 32 Recipe List Recipe List 1 Box1 2 Box2 3 Box3 4 Box4	Commen	ıt	RecipeLoad	RecipeDownload	Box3
w 31 d 32 Recipe List Recipe List Reciped Δ Name 1 Box1 2 Box2 3 Box3 4 Box4	h	30			
d 32 Recipe List RecipeId A Box1 CridRecipeDnload GridRecipeDnload W 3 Box3 4 Box4	w	31			h 30
Recipe List Minimum 1 Box1 2 Box2 3 Box3 4 Box4	d	32		PagingUpland	
Recipe List d 32 RecipeId Name GridRecipeDnload 32 GridRecipeDnload GridRecipeDnload 4				Recipeopload	W 31
RecipeId Δ Name1Box12Box23Box34Box4	Recipe Lis	st			d 32
1Box12Box23Box34Box4	RecipeId ∆	Name			
2 Box2 3 Box3 4 Box4	1	Box1		GridRecipeDnload	
3 Box3 4 Box4	2	Box2			
4 Box4	3	Box3			
	4	Box4			

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 aprint-screen of the grid commands.



	On				
	г х т т				
	Function		Parameters		
1	GridRecipeDownload ~	•	GridName	RecipesList	\odot
2	^	`			
	GridRecipeCompare GridRecipeDelete GridRecipeDownload GridRecipeDownloadBuffer GridRecipeExportAll GridRecipeImportAll GridRecipeLoadBox GridRecipeSaveAs GridRecipeSaveBox GridRecipeUpload GridRecipeUploadBuffer GridRecipeUploadBuffer				

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

Recipes

RecipeClearBuffer RecipeCompareArchive RecipeDelete RecipeDeleteId RecipeDownload RecipeDownloadBuffer RecipeDownloadId RecipeExport RecipeExportAll RecipeExportDatabase RecipeImport RecipeImportAll RecipeImportDatabase RecipeLoad RecipeLoadId RecipePack RecipeRename RecipeRenameld



Recipe EVENTS table:

Events		>>	\bigcirc
OnRecipeSaved	None		000
OnRecipeLoaded	None		
OnRecipeDeleted	None	ø	
OnRecipeRenamed	None	ø	
OnDownloadStart	None	\square	
OnDownloadCompleti	None		
OnDownloadError	None		
OnUploadStart	None	ø	
OnUploadComplete	None	Ø	
OnUploadError	None	ø	



Connect ideas. shape solutions.

ESA S.p.A. | www.esa-automation.com |