

Sample Templates Document: Blue Open Studio Recipes and MS Access





Document copyright policy:

You agree not to reproduce, other than for your own personal, noncommercial use, all or part of this document on any medium whatsoever without permission of Schneider Electric, given in writing. You also agree not to establish any hypertext links to this document or its content.

Schneider Electric does not grant any right or license for the personal and noncommercial use of the document or its content, except for a non-exclusive license to consult it on an "as is" basis, at your own risk. All other rights are reserved.

All pertinent state, regional, and local safety regulations must be observed when installing and using this product. For reasons of safety and to help ensure compliance with documented system data, only the manufacturer should perform repairs to components.

When devices are used for applications with technical safety requirements, the relevant instructions must be followed.

Failure to use Schneider Electric software or approved software with our hardware products may result in injury, harm, or improper operating results.

Failure to observe this information can result in injury or equipment damage.



Safety Information



Important Information

NOTICE

Read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a "Danger" or "Warning" safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

A CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result** in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

PLEASE NOTE

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation and has received safety training to recognize and avoid the hazards involved.



About the Book



At a Glance

Document Scope

This manual describes how to use this product.

Validity Note

This documentation is valid for this product.

The technical characteristics of the device(s) described in this manual also appear online at <u>https://www.proface.com/en/download/search?fileTypeId=manual</u>.

The characteristics presented in the present document should be the same as those that appear online. In line with our policy of constant improvement we may revise content over time to improve clarity and accuracy. In the event that you see a difference between the document and online information, use the online information as your reference.

Registered Trademarks

Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States and/or other countries.

Product names used in this manual may be the registered trademarks owned by the respective proprietors.

Related Documents

You can download the manuals related to this product, such as the software manual, from our support site at <u>https://www.proface.com/en/download/blue/manual</u>.

Product Related Information

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

In the event this product does not run properly due to whatever reason, it may be difficult or impossible to identify a function. Functions that may present a hazard if not immediately executed, such as a fuel shut-off, must be provided independently of this product. The machine's control system design must take into account the operator being unable to control the machine or making mistakes in the control of the machine.

UNINTENDED EQUIPMENT OPERATION

The application of this product requires expertise in the design and programming of control systems. Only persons with such expertise should be allowed to program, install, alter, and apply this product.

• Follow all local and national safety standards.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

For additional information, refer to NEMA ICS 1.1 (latest edition), "Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control" and to NEMA ICS 7.1 (latest edition), "Safety Standards for Construction and Guide for Selection, Installation and Operation of Adjustable-Speed Drive Systems" or their equivalent governing your particular location.



Table of Contents

Extended Technical Description	6
Section 1 How to use project	6
Section 2 Using Access to Add and Modify Recipe Values	13
Section 3 Using Project with your own Project	14
Section 4 How the Recipe Write and Read Functions	15
Section 5 Adding Ingredients/Variables to Recipes	22



Blue Open Studio Recipes – MS Access, Grid Sample Project V2 Extended

Technical Description

The purpose of this example project is to provide a simple way to manage recipes for small scale recipe projects.

The Project uses an Access Database to contain the Recipes in a single table. You can edit the Recipes in Access or in the BOS Runtime project.

This document will show you how to use the project, how to integrate the project to your use, how the project works and how you can add ingredients to the built in recipes.

Section 1 -How to use project

Running project from local build time.

Opening Screen





Select a desired Resolution. This will check to make sure the current monitor can accept the selected resolution and then change screen to Recipe1_x where x equals selected resolution.

Recipe Send and Receive				
RecipeName	Filter:		(?	
Recipe1	Sort:	None -		
Recipe2				
Recipe3	S	Send		
Preview			PLC Values	
Recipe Name	MyBoolean	M	MyBoolean:	
			MyInteger: 0	
			MyString:	
Recipe, MS Access, Grid			🚎 🗗 🗤 🕑	

This is the Recipe Send and Receive Screen.

This screen is for Sending and Receiving Recipes between the Access database and sudo-PLC variables.

When selecting a Recipe in the RecipeName Grid.

	RecipeName
Recipe1	
Recipe2	
Recipe3	

Will populate the Preview with the Recipe values in the database.



Recipe Send a	nd Receive	
Recipel	Name	Filter:
Recipe1		Sort: ASC ~
Recipe2		Cond
Recipe3		
	Preview	
MyBoolean	MyInteger	MyReal
	123	1.23
<		>

You can also filter and sort the RecipeName Grid. Clicking on the broom icon clears the filter and the ? gives a window showing the different wildcards possible for the filter. The Cycle button refreshes the grid with the filer applied.

Recipe Send and Receive			
RecipeName	Filter:	%2	?
Recipe2	Sort:	ASC ~	
	S	Send Recieve	

The PLC Values Section allow you to enter and view the sudo-PLC values.



	PLC Values
MyBoolean:	
MyInteger:	123
MyReal:	1.230000
MyString:	This is a string

Sending and Receiving Recipes to and from the sudo-PLC Values.

There are two objects on the screen.

Send	Recieve

Send uses the DBSelect Command to read up the values of the selected recipe from the database and transfers it to the sudo-PLC variables.

Receive uses the DBExecute Command to read the values of the sudo-PLC variables and writes them to the selected recipe in the database.

Title, Navigation and Version bar.







Navigates to a Recipe Edit Screen. RecipeEdit_x x is selected resolution.



Navigates back to the Resolution Selection Screen.



Exits the runtime viewer.

Recipe Edit Screen.

Recipe Edit				
3	Filter:			Sort: ASC
Recipe Name	MyBoolean	MyInteger	MyReal	MyString
Recipe1		123	1.230	String1
Recipe2		456	4.560	String2
Recipe3		789	7.890	String3
Create New Recipe	Recipe Nai	me:		Create
Recipe, MS Access, Grid				



This screen allows you to edit and add recipes to the recipe database.

When you enter new values in to the selected Recipe parameter it will change the value in the database file.

0 456	1.230 4.560	String1
456	4,560	String?
		Sunigz
789	7.890	String3
444	4.440	ijklm
	789 444	789 7.890 444 4.440

In the Create Recipe Area two options are available.

Neelpe Manie	MyBoolean	MyInteger	MyReal	MyString
Recipe1	Ø	0	1.230	String1
Recipe2	•	456	4.560	String2
Recipe3	Ø	789	7.890	String3
Test		444	4.440	ijklm
Create New Recipe	Recipe Nar	me: Recipe2		Create

Create New Recipe will create a new recipe with the name entered and zero values.



Recipe Name	MyBoolean	MyInteger	MyReal	MyString
Recipe1		0	1.230	String1
Recipe2		456	4.560	String2
Recipe3		789	7.890	String3
Test		444	4.440	ijklm
Recipe4		0	0.000	
Create New Recipe	Recipe Nar	ne: Recipe4		Create

Duplicate Recipe creates a new recipe with the name entered and the value duplicated from the selected recipe in the grid.

Recipe Name	MyBoolean	MyInteger	MyReal	MyString
Recipe1		0	1.230	String1
Recipe2		456	4.560	String2
Recipe3		789	7.890	String3
Test		444	4.440	ijklm
Recipe4		0	0.000	
Test2		444	4.440	ijklm
Duplicate Recipe	Recipe Na	me: Test2		Duplicate

Section 2 -Using Access to add Recipes and modify Recipe Values.

This project includes a MS Access Database file. The file(s) are within the BOS Project Folder. Right click on the project name in the BOS build time environment to access the project folder directly.



Project Explorer

✓	Core Grid ADD					
> 🛅 Screens	<u>S</u> ettings	11				
Screen Group	Open Folder in File Explore	er .				
> 🛅 Thin Clients						
> 🛅 Project Symbols						
Graphics Script						
Native Symbols						
Industrial Graphics Sv	vmbols					
Lavout						
📕 🛛 💭 💻 🚽 Recipes MS Access Grid	1v1.x				_	
File Home Share View						^ 2
		E New York		Colorda II		
	🖕 🖳 🗙 📑		✓ Den ♥	Select all		
Pin to Quick Copy Paste	Move Copy Delete Rename	New	Properties History	Invert selection		
Clipboard	Organize	New	Open	Select		
$\leftarrow \rightarrow \checkmark \land \land \square \rightarrow$ This PC \rightarrow Drive	(D:) > Recipes MS Acces	s Grid v1 v 🗸	Search Recines MS	Access Grid v1 x		0
	(bi) i necipes, morreces	^	o bearen neelpes, mo	Access, one thic		<i></i>
	↑ Name		Date modified	Туре	Size	
	Alarm		11/19/2020 08:0	5 File folder		
	Config		7/17/2024 07:54	File folder		
	Databas	e .	7/18/2024 16:26	File folder		
This PC	DataPro	tection	11/19/2020 08:0	5 File folder		
3D Objects	Industri	alGraphics	7/19/2020 08:0	File folder		
	Screen	lionapines	7/18/2024 16:41	File folder		
Desitop Desitop	Symbol		1/16/2024 09:57	File folder		
- Downloads	Web		1/16/2024 09:57	File folder		
Music	app.db		7/18/2024 16:41	SQLite	104 KB	
	BreakPo	pints.txt	7/18/2024 16:52	Text Document	1 KB	
Videor	ProjectT	limeStamp.txt	7/18/2024 16:52	Text Document	1 KB	
Windows (Cr)	RecipeD	MS Access Grid APP	7/18/2024 11:13	RLUE Open Studio	544 KB	
Drive (D)	Recipes,	MS Access, Grid, HSH	7/19/2024 08:44	HSH File	1 KB	
Drive (D:)	Revision	History.csv	1/16/2024 09:57	Microsoft Excel C	1 KB	
Cocal Disk (E:)	_	-				
💣 Network						
16 items	¥					
To items						

Screen1

▼ ₽ ×

In Access open the Recipes Table to add and edit Recipes.

All Access Objects	\odot	<		Recipes	×							
	_			ID		RecipeName 🗢	MyBoolean 👻	MyInteger 🗢	MyReal 🗢	MyString 😽	Click to Add 🛛 🗢	
Search		ρ			1	Recipe1	1	0	1.23	String1		
Tables					2	Recipe2	0	456	4.56	String2		
ParameterTable					3	Recipe3	1	789	7.89	String3		
Recipes					40	Test	1	444	4.44	ijklm		
- necipes					41	Recipe4	0	0	0			
					43	Test2	1	444	4.44	ijklm		
			*		(New)		0	0	0			

From the Recipe Edit Screen in the runtime project you can see the new values entered into



the database table by clicking the refresh button.

Recipe Edit				
	Filter:			Sort: None -
Recipe Name	MyBoolean	MyInteger	MyReal	MyString
Recipe1		6	1.230	String1
Recipe2		456	4.560	Strina2

Section 3 - To use this project and build your own project around it, in the communication driver sheet simply add the "PLC" tags to the sheet and associate them with the correct addresses.

9	··· Ourodou_recoper undaon	v	integei		000010 0010
10	n PLC_MyBoolean	0	Boolean	~	PLC tag
11	◆PLC_MyInteger	0	Integer	~	PLC tag
12	✓ PLC_MyReal	0	Real	~	PLC tag
13	PLC_MyString	0	String	~	PLC tag

Example for Modbus.

Project Tags MOTCP - MAIN DRIVER SHEET ×								
Description:								
MAIN DRIVER SHEET								
Disable:								
Read Completed: Read Status:								
Mar.								
Write Completed: Write Status:								
Max:								
Tag Name	Station	I/O Address	Action	-	Scan	-	Div	Add
Q Filter text	Q Filter text	Q Filter text	Q (AII)	¥	Q (All)	¥	Q Filter text	Q Filter text
1 PLC_MyBoolean	127.0.0.1:502:1	0X:1	Read+Write	v	Always	¥		
2 PLC_MyInteger	127.0.0.1:502:1	4X:1	Read+Write	¥	Always	¥		
3 PLC_MyReal	127.0.0.1:502:1	4X:2	Read+Write	v	Always	~		
4 PLC_MyString	127.0.0.1:502:1	4X:4	Read+Write	¥	Always	¥		
*			Read+Write	v	Always	¥		
*			Read+Write	¥	Always	¥		
*			Read+Write	v		¥		
*			Dood+Write	v	Alwaya	~		
			rteau-write		niways			
*			Down and a Marchan	1.4	Abusen			



Section 4 -How the Recipe Write and Recipe Read Functions.

Send			
Object Properties			×
Replace.	Hint: Send Recipe to PLC/Device	Group of Symbols	-
K NAPACCA		Group of Symbols	
		Rounded Rectangle Command	
		Text	
	Group of Symbols.	Linked Picture	
	Select a component to edit propertie	38.	
Configuration			
"On Down On While On Up On Right Down On Right Up Type: VBScript •	On Double Click On Touch On Touch Start On Touch Delta On Touch C	ompleted	
Declaring a Variable to hold the result of Dim DBResult Selected, RecipeName is a string tag se If SSelected, RecipeName <>" Then DBResult=SDSelect("RecipeDatabas If DBResult=SDSelect", RecipeDatabas If DBResult=SDSelect", RecipeDatabas End If SShowMessageBox("DB Select Erro End If Else	the DB Select Function t in the grid object Advanced Properties Selected Values Property, it e", "Recipes", "PLC_MyBoolean.PLC_MyInteger,PLC_MyReal.PLC_1 r. " & DBResult.0+48,"SQL Error")	contains the string of the selected Recipe Name /lyString","MyBoolean,MyInteger,MyReal,MyString","Re	cipeName=" & \$Selected_RecipeName & "","",1)

10 \$ShowMes 11 End If	ssageBox("Recipe	e not Selected. Pleas	se Select a Recipe.", 0+48,"Recipe not Selected")	
Options	Force	Beep	[√] Release	Key
Require confirmation	E-Sign	Key Only		ShA DA
Disable:			Security: 0	Ctrl
			ОК	Cancel



Code:

'Declaring a Variable to hold the result of the DB Select Function

Dim DBResult

'Selected_RecipeName is a string tag set in the grid object Advanced Properties Selected Values Property, it contains the string of the selected Recipe Name

If \$Selected_RecipeName <>"" Then

DBResult=\$DBSelect("RecipeDatabase","Recipes","PLC_MyBoolean,PLC_MyInteger, PLC_MyReal,PLC_MyString","MyBoolean,MyInteger,MyReal,MyString","RecipeName="" & \$Selected_RecipeName & ""","",1)

If DBResult < 0 Then

\$ShowMessageBox("DB Select Error: " & DBResult,0+48,"SQL Error")

End If

Else

\$ShowMessageBox("Recipe not Selected. Please Select a Recipe.", 0+48,"Recipe not Selected")

End If

DBSelect Function

DBSelect is a built-in function that selects a result set from an external database (equivalent to a SQL SELECT statement), maps the columns of the result set to array tags in your project, and then copies the values from the result set to the array tags.

Function	Group	Execution	String Exp.	Windows	HMI Runtime	Thin Clients	Mobile Access
DBSelect	Database/ERP	Synchronous	No	Supported	Not supported	Supported	Supported

Syntax

DBSelect(strDBConn,strTable,strTags,strColumns,strCondition,strOrder,optNumMaxRows,optStrErrorTag)





Expanded Function

\$DBSelect("RecipeDatabase","Recipes",



Project Explorer	•	դ	×
 Project: Explorer Project: Recipes, MS Access, Grid.APP Alarms Trend Logger Recipes Reports Math Script Scheduler Scheduler Database/ERP Connections RecipeDatabase Internet of Things 	*	+	×
Global			







"PLC_MyBoolean,PLC_MyInteger,PLC_MyReal,PLC_MyString"



,"MyBoolean,MyInteger,MyReal,MyString"

strCondition

A statement specifying which rows in the database table or view to select. This is equivalent to the SQL WHERE clause and must follow the same syntax.

To select all the rows in the table or view, specify an empty string ("") for this parameter.

+strCondition

'RecipeName is Column (FROM) Selected_RecipeName is (WHERE) Variable holding selected row

"RecipeName="" & \$Selected_RecipeName & """,

+{strOrder}



"",



1)





Object Properties		>	×
Replace	Hint: Receive Recipe from PLC/De	Group of Symbols	r
	Group of Symbols.	Group of Symbols Rounded Rectangle Command Text Linked Picture	
	Select a component to edit propertie	s.	



Configuration Ton Down On Right Down On Right Up On Double Click On Touch On Touch Statt On Touch Completed Typer VeScrept	
Declaring a Variable to hold the result of the DBExecute Function Den DBRsult Dend DBRsult Den DBRsult De)
Options Options Force Beep Release Pable Focus Force Beep Release	/
Daable: Security: 0	ан

Code:

Declaring a Variable to hold the result of the DBExecute Function

Dim DBResult

'convert bool to 0/1 instead of false/true. Bool field in database is numeric

Dim Bool1

```
If $PLC_MyBoolean=True Then
```

Bool1 = 1

Else

```
Bool1 = 0
```

End If

'Selected_RecipeName is a string tag set in the grid object Advanced Properties Selected Values Property, it contains the string of the selected Recipe Name

'Refresh_Recipes and Refresh_Recipes2 are used in the grid object Advanced Properties Reload Property

If \$Selected_RecipeName<>"" Then

```
$DBExecute("RecipeDatabase","UPDATE Recipes SET MyBoolean = " & Bool1 & ",
MyInteger = " & $PLC_MyInteger & ", MyReal = " & $PLC_MyReal & ", MyString = '" &
$PLC_MyString &" WHERE RecipeName LIKE '"& $Selected_RecipeName & "")
```

```
If DBResult < 0 Then
```

```
$ShowMessageBox("DB Update Error: " & DBResult, 0+48, "SQL Error")
```

End If

\$Refresh_Recipes=\$Toggle(\$Refresh_Recipes)



\$Refresh_Recipes2=\$Toggle(\$Refresh_Recipes2)

Else

\$ShowMessageBox("Recipe not Selected. Please Select a Recipe.", 0+48,"Recipe not Selected")

End If

DBExecute Function

DBExecute is a built-in scripting function that executes a custom SQL statement on an external database. If the statement is a query (e.g., SELECT), the database values are copied to specified array tags.

Syntax

Syntax



"UPDATE Recipes SET MyBoolean = " & Bool1 & ", MyInteger = " & \$PLC_MyInteger & ", MyReal = " & \$PLC_MyReal & ", MyString = "" & \$PLC_MyString &" WHERE RecipeName LIKE "'& \$Selected RecipeName & "



 strSQL , →optStrTags **₩**Ω-

UPDATE SQL Statement = Modify Records in a Table

Section 5 -Adding Ingredients / Variables to the Recipes

In the Access Table View and the Recipes table open add additional columns (ingredients).

Datasheet View:

	in Necipes	\sim											
2	(ID	~	RecipeName 🗢	MyBoolean 🗢	MyInteger 👻	MyReal 🗢	MyString 🗢	MyBoolean2 🗢	MyInteger2 🔻	MyReal2 🗢	MyString2 🗢	Click to Add 🤜	-
		1	Recipe1	1	123	1.23	String1	456					Τ
		2	Recipe2	0	456	4.56	String2	789					
		3	Recipe3	1	789	7.89	String3	589					
		40	NewRecipeTom	0	110	1.2	String 4	369					
*	ŧ	New)		0	0	C		0	0	0			

Design View (right-click on Tab)

	Recipes X				
2	Field Name	Data Type			
ţ.	ID	AutoNumber			
	RecipeName	Long Text			
	MyBoolean	Number			
	MyInteger	Number			
	MyReal	Number			
	MyString	Short Text			
	MyBoolean2	Number			
	MyInteger2	Number			
	MyReal2	Number			
	MyString2	Short Text			

Save the table.

Add variables to Project.



Project Tags × Recipe1_1366x768.SCC						
	Name ~	Array Size	Туре			
	۹ PLC*2	۹ Filter text	Q (All)	4		
20	m PLC_MyBool2	0	Boolean	4		
18	◆* PLC_MyInteger2	0	Integer	4		
21	✓ PLC_MyReal2	0	Real	~		
22	PLC_MyString2	0	String	~		
*			Integer	¥		

Need to add the correct Field Names and Variable Names to the DB commands, paying close attention to the alignment of the Fields versus Variable and proper use of quotes and comma separators.

Completed commands with additional ingredients.

Send – DBSelect

Declaring a Variable to hold the result of the DB Select Function

Dim DBResult

'Selected_RecipeName is a string tag set in the grid object Advanced Properties Selected Values Property, it contains the string of the selected Recipe Name

If \$Selected_RecipeName <>"" Then

DBResult=\$DBSelect("RecipeDatabase","Recipes","PLC_MyBoolean,PLC_MyInteger, PLC_MyReal,PLC_MyString,PLC_MyBool2,PLC_MyInteger2,PLC_MyReal2,PLC_MyString2"," MyBoolean,MyInteger,MyReal,MyString,MyBoolean2,MyInteger2,MyReal2,MyString2","RecipeN ame=''' & \$Selected_RecipeName & "''',"'',1)

If DBResult < 0 Then

\$ShowMessageBox("DB Select Error: " & DBResult,0+48,"SQL Error")

End If

Else

\$ShowMessageBox("Recipe not Selected. Please Select a Recipe.", 0+48,"Recipe not Selected")

End If

Receive - DBExecute



'Declaring a Variable to hold the result of the DBExecute Function

Dim DBResult

'convert bool to 0/1 instead of false/true. Bool field in database is numeric

Dim Bool1, Bool2

If \$PLC_MyBoolean=True Then

Bool1 = 1

Else

Bool1 = 0

End If

If \$PLC_MyBool2=True Then

Bool2 = 1

Else

```
Bool2 = 0
```

End If

'Selected_RecipeName is a string tag set in the grid object Advanced Properties Selected Values Property, it contains the string of the selected Recipe Name

'Refresh_Recipes and Refresh_Recipes2 are used in the grid object Advanced Properties Reload Property

If \$Selected_RecipeName<>"" Then

\$DBExecute("RecipeDatabase","UPDATE Recipes SET MyBoolean = " & Bool1 & ", MyBoolean2 = " & Bool2 & ", MyInteger = " & \$PLC_MyInteger & ", MyInteger2 = " & \$PLC_MyInteger2 & ", MyReal = " & \$PLC_MyReal & ", MyReal2 = " & \$PLC_MyReal2 & ", MyString = "" & \$PLC_MyString &" ', MyString2 = "" & \$PLC_MyString2 &"" WHERE RecipeName LIKE '"& \$Selected_RecipeName & """)

If DBResult < 0 Then

\$ShowMessageBox("DB Update Error: " & DBResult, 0+48, "SQL Error")

End If

\$Refresh_Recipes=\$Toggle(\$Refresh_Recipes)

\$Refresh_Recipes2=\$Toggle(\$Refresh_Recipes2)

Else

\$ShowMessageBox("Recipe not Selected. Please Select a Recipe.", 0+48,"Recipe not Selected")

End If

