Classification	ISaGRAF Eng	lish FAQ-0	04					
Author	Chun Tsai	Version	1.0.0	Date	Aug. 2007	Page	1/9	
Can I create my own functions inside ISaGRAF ?								
ISaGRAF supports functions written in ST, FBD, IL and QLD languages. User-defined functions are normally for some algorithm which been used again and again.								
A function always has a return value (output parameter) and its name should be the same name as the function, and may have up to 31 input parameters. The code written inside functions cannot call any <u>function block</u> , however can call other ISaGRAF standard functions and c functions provided by ICP DAS.								
We are going to o	creating a func	tion to save	e an integer	value to th	e EEPROM. Its	format is	as the below.	
Function name: Description:	Function name:W_EEPDescription:Save an integer to the EEPROM when its value changed							
Input parameters ADDR_ (V1_ (V2_ (s: integer): The a integer): New integer): Old v	ddress of tl value alue	he EEPRON	l to write		- ADDR_ - V1	EP	
Return paramete W_EEP (r: integer): Retur	n the new	value			-v2_ v	V_EEP	
Note: Th V	ne parameter n /1_, V2_ rather	ames been than ADDF	used will b R, V1 & V2.	ecome rese	erved names. T	ſhat's why	we use ADDR_,	
15.1: Creatir	ng functions	insid <u>e on</u>	e project					
Functions created	d inside one pr	oject can b	e only calle	d by other p	programs writt	ten in the s	ame project.	
A. Click on "Create new program" inside the project. Given Name as "W_EEP", Language as "ST:", Style as "Function".								
File Make Project Iools Debug Options Help Begin: Create new program								
		New Program	n WEEP		×			
Beg	gin: demo (Functio	n Comment:	Save an inte	ger to the EEPR	ом			

Begin: 0-0	Create new program
	New Program
	Name: W_EEP
Begin: demo (Functio	Comment: Save an integer to the EEPROM
	Language: Structured Text
	Style: Function
	<u> </u>
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Classification	ISaGRAF Englis						
Author	Chun Tsai	Version	1.0.0	Date	Aug. 2007	Page	2/9

B. Double click on the function to get into it. Then click on "Sub-program parameters" to define input and output parameters.



Classification	ISaGRAF Eng	lish FAQ-0	04				
Author	Chun Tsai	Version	1.0.0	Date	Aug. 2007	Page	3/9
C. Declare local v	ariables. We n	eed a local	Boolean inter	nal varial	ble " TMP " in tl	nis example	·.
ISaGRAF - 1 File Edit To	T8063:W_EEP-ST ools Options Help	program					
	<u> </u>	≈∎ ፊ	i 🔁				
	Dictio	onary					
	► I <u>F</u> ile	SaGRAF - T80 <u>E</u> dit <u>T</u> ools	63:W_EEP - Local b Options Help 2 2 0 0	ooleans	* 🗈 💰 📉	-	
	Bo	oleans Integer me	rs/Reals Timers Me Attrib.	Local obj Adar.	ects ances Define Comment	d words	
Boolean Variab	le				×		-
Name:			Network Add	dress:			
Comment: Attributes		Values			Store		
 Interna ○ Input 	al	False:			<u>C</u> ancel		
C Dutpu C Consta	t	True:	init		Next		
	r	R <u>e</u> tain			Previous		
					Extended		
D. Enter function	codes.						
A IS-CDAE	T0062.1N EED 8	IF V1 <	>V2 THEN		(* if valu	e changed *	<) ()
<u>File Edit T</u>	ools <u>O</u> ptions <u>H</u> e	TMP :=	EEP_N_W(ADI	DR_, V1_); (* save it	to the EEP	, ROM *)
🕒 🖴 🕹	í 😐 🗶 🔳 🝕	W_EEP	:= V1_ ;		(* return	the new va	lue *)
IF V1_	<> U2_ THEN	(* if	value chang	ed *)			
TMP :=	EEP_N_W(ADI)R_, U1_)	; (* save i	t to th	e EEPROM *>		
END_IF;	01_ ,	(* retu	rn the new v	aiue */			
E. Verify the func	ction.						
E.	SaGRAF - T8063:W	/_EEP - ST prog	røm		J		
-	File Edit Tools Of	otions <u>H</u> elp - 🖬 🍄 😽	< 🗈 💰 🥵 🖷	;			
	IF U1_Verify pr	rogram IEN	(* if value cl	nanged *	>		
	TMP := EEP_ W_EEP := V1	N_W{ADDR_, _ ; _ <u>(*</u>	V1_); (* sau return the ne	ve it to w value	the EEPROM *) *)	·	
	END_IF ;	Code	Generator		×		
			Noerror o Dovou want toexit the	letected. Code Genera	itor now ?		
			Exit	<u>C</u> onti	nue		
		ICP DAS	Co., Ltd. Techn	ical Docu	ument		

Classification	ISaGRAF Englis						
Author	Chun Tsai	Version	1.0.0	Date	Aug. 2007	Page	4 / 9

F. Call it in other programs in the same project.

Global variables used in the project:

Name	Туре	Attribute	Description
INIT	Boolean	Internal	initial value at "TRUE". TRUE means 1 st scan cycle
К1	Boolean	Input	Connect to 1 st ch. Of "push4key", press it to get "Val"
New_Val	Integer	Internal	New value wish to save to the EEPROM
Old_Val	Integer	Internal	Old value
Val	Integer	Internal	Read back value of the EEPROM

Project architecture:

- 📲 ISaGRAF - T8063 - Programs	
<u>File Make Project Tools Debug Options H</u> elp	
E M & M E E E E E E E E E E E E E E E E E E E	
Begin: 🗰 demo	
End: 🗰 end_init	
Functions: W_EEP Save an integer to the EEPROM	
Begin: demo (Ladder Diagram)	

ST program – "end_init" in the "End" area:

IF INIT=TRUE THEN INIT := FALSE ; END_IF ;

LD program – "demo":



Classification	ISaGRAF Englis	sh FAO-0	በ4				
Author	Chun Tsai	Version	100	Date	Διια 2007	Page	5/9
Autio	Chun 15ai	VEISION	1.0.0	Date	Aug. 2007	raye	575
G. Set Compiler (Dptions and com GRAF - T8063 - Progra Make Project Tools Make application Verify Touch Application run time Compiler options Resor Compiler options	pile the p uns Debug O Options	ptions <u>H</u> elp	PROM	- -		
	ISA68M:	TIC code for	Motorola		_	Select	
	> ISA86M: CC86M: (TIC code for C source cod	Intel le (V3.04)			<u>U</u> nselect	
	🔽 Use e	mbedded SFI	C engine	•		Upload	
	Optimizer: - ■ Run tv ■ Evalua ■ Suppr ■ Optimi ■ Suppr ■ Optimi ■ Suppr ■ Optimi	vo optimizer p ate constant ess unused la ze variable c ze expression ess unused c ze arithmetic	passes expressions abels opying ns code operations			<u>D</u> efault	
	Coptimi	ze boolean o pinary decisio	perations n diagrams (BDDs)			Cancel	
- ISa	GRAF - T8063 - Progra	ums			_		
End:	Make Project Lools	De <u>bug</u>	Iptions <u>H</u> elp Make application coo e an integer to the EB	de PROM	¢.	_	
Begin:	demo (Lad Code Ge	nerator			×		
,		N	o error detected.				
	Do	you want to E <u>x</u> it	exit the Code Genera	ator now ? nue			
After download t happens.	to the controller,	you may	change the "N	ew_Val"	, and then pre	ess "K1" to se	e what it
 		ICP DAS	Co., Ltd. Techni	ical Docu	ument		

Classification ISaGRAF English FAQ-004 Local Local <thlocal< th=""> Local <thlocal< th=""></thlocal<></thlocal<>
C. Define input and return parameters.
File Edit Tools Options Help
Functions
fbsample name: - Edit interface/parameters
ldsample language: - stsample
W EEP N creati Parameters - 'W_EEP_N'
call: W_EEP_N 00 C ADDR_ QK return 02 V1_ Cancel 03 C2 W_EEP_N Cancel
Name V2_ Type Boolean Insert Mode Image Image Image Image
D. Add codes.
- ISaGR & F., I. ibravian
File Edit Tools Options Help
Functions
ilsample description: -
Instantifie Initial anguage: - stsample IF V1_<> V2_ THEN (* if value changed *) W EEP N creation date: - Image: Imag
IF U1_ <> U2_ THEN (* if value changed *) TMP := EEP_N_W(ADDR_, U1_); (* save it to the EEPROM *) W_EEP_N := U1_; (* return the new value *) END_IF;
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Classification	ISaGRAF Engli	ish FAQ-004								
Author	Chun Tsai	Version 1.0.0	Date	Aug. 2007	Page	9/9				
G. Verify the fund	ction.									
ISaGRAI	ISaGRAF - W_EEP_N - ST program									
	<u>1</u> 001s Opmons He	np 🗈 🔏 🚯 🖴								
TMP	_ Verify program = = EEP_N_W(AD	N (* if value cha DR_, V1_); (* save	nged *) it to	the EEPROM	*)					
W_EE END_IF	P_N := V1_ ; ;	Code Generator		×						
		No error detect	ed.							
		Do you want to exit the Code	Generator n	iow?	<u>ات</u>					
		Exit	<u>C</u> ontinue							
Then you can cal	l it in any projec	+								
	int in any projec									
Click the link for	more ISOCRAE									
http://www.icpd	as.com/en/faq/	/index.php?kind=280#75:	L							
		ICP DAS Co., Ltd. Techn	ical Docu	iment						