

Утилиты тестирования и отладки

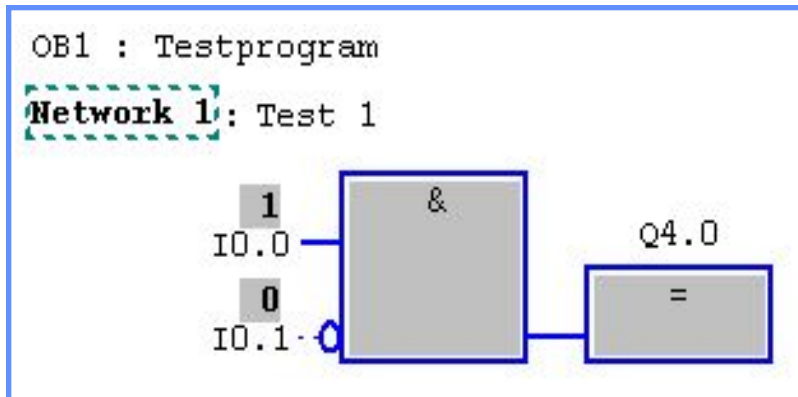
The screenshot displays two windows from the SIMATIC Manager software. The top window, titled "LAD/STL/FBD - [@ Project\Station1\CPU_Conveyor1\... \FB1 - <Offline>]", shows a ladder logic network. The network is labeled "Network 1: Switch Plant On". It features a set coil (S) for "#plant_on" and a reset coil (R) for "#plant_on". The set coil is connected to "#start" and the reset coil to "#stop". The output of the set coil is labeled "Q" and is connected to a variable "Display_B".

The bottom window, titled "Monitoring and Modifying Variables - [@Project\Station1\CPU_Conveyor1\... \WAT1]", displays a table of monitored variables. The table has columns for Address, Symbol, Monitor Format, Monitor Value, and Modify Value. The variables listed include outputs (Q) and inputs (I).

Address	Symbol	Monitor Format	Monitor Value	Modify Value
QW 12	"DISPLAY"	HEX	W#16#0000	
Q 8.0	"Switch On"	BIN	2#1	
Q 8.1	"Display_BA"	BIN	2#0	
Q 20.5	"MOTOR_FORWARD"	BIN	2#0	
Q 20.6	"MOTOR_BACKWARD"	BIN	2#0	
Q 20.7	"HORN"	BIN	2#0	
I 0.0	"START"	BIN	2#0	
I 0.1	"STOP"	BIN	2#0	
I 0.2	---	BIN	2#0	
I 0.3	"MAN AUTO"	BIN	2#0	
I 0.4	"SET"	BIN	2#0	
I 0.5	---	BIN	2#0	
I 16.0	"LS"	BIN	2#1	
I 16.5	"S1"	BIN	2#0	
I 16.6	"S2"	BIN	2#0	

At the bottom of the monitoring window, the status bar shows "Project\Station1\CPU_Conveyor1" and "INS Online Monitor".

Функция Debug - Monitor



OB1 : Testprogram

Network 1: Test 1

			RLO	STA	Standard
A	I	0.0	1	1	0
AN	I	0.1	1	0	0
=	Q	4.0	1	1	0

Способы тестирования

The screenshot shows the SIMATIC Manager interface with the 'Debug' menu open. The 'Operation...' option is selected, leading to the 'Operation' dialog box. In the dialog, 'Process Operation' is selected, and the 'Permitted Scan Cycle Time Increase Due to Test Functions' is set to 0 ms. Below the dialog, two tables are shown, representing the state of the PLC during the test loop.

Network 2: Test Loop

```

L 0
T MW 10
m001: L MW 10
L 4
<I
L MW 10
L 1
+I
T MW 10
JNB m001
    
```

RLO	STA	Standard
0	0	0
0	0	0
0	0	0
0	0	4
1	1	4
1	1	0
1	1	1
1	1	1
1	1	1
1	1	1

RLO	STA	Standard
0	0	0
0	0	0
0	0	0
0	0	4
1	1	4
1	1	0
1	1	1
1	1	1
1	1	1
1	1	1
1	1	1

Активация режима "Monitoring and Modifying Variables"

The screenshot shows the SIMATIC Manager interface. The main window is titled "LAD/STL/FBD - [Project\Station1\CPU_Conveyor1\... \OB1 - <Offline>]". The "PLC" menu is open, and the "Monitor/Modify Variables" option is selected. A green arrow points to the "Monitoring and Modifying Variables" window, which is titled "Monitoring and Modifying Variables - [Project\Station1\CPU_Conveyor1\... \WAT2]".

The "Monitoring and Modifying Variables" window displays a table with the following columns: Address, Symbol, Monitor Format, Monitor Value, and Modify Value. The table contains the following data:

Address	Symbol	Monitor Format	Monitor Value	Modify Value
8.0	"Switch_On"	BIN		
8.1	"Display_BA"	BIN		
20.5	"MOTOR_FORWARD"	BIN		
20.6	"MOTOR_BACKWARD"	BIN		
20.7	"HORN"	BIN		
0.0	"START"	BIN		
0.1	"STOP"	BIN		
0.2	---	BIN		
0.3	"MAN_AUTO"	BIN		

The window also shows a "Symbol Information" table with the following data:

Symbol	Symbol
FB1	FB_PLANT
DB1	DB_PLANT
I0.0	START
I0.1	STOP
Q8.0	Switch_On

The status bar at the bottom of the window shows "Project\Station1\CPU_Conveyor1" and "INS Online Edit 1 / 1".

Ввод таблицы переменных

The screenshot shows the SIMATIC Manager interface. In the left-hand tree view, the 'CONV_A' folder is expanded, and a context menu is open over it. The 'Insert New Object' option is selected, which has opened a sub-menu where 'Variable Table' is highlighted. A green arrow points from this menu to a second window titled 'Monitoring and Modifying Variables - [uprog_e\CONV_A\... \VAT1]'. This window displays a table of variables.

Address	Symbol	Symbol Comment	Monitor Format	Monitor Value	Mod
I 16.0	"LS1"	LIGHT BARRIER LS1	BIN		
I 16.1	"S1"	SWITCH AT LOCATION 1	BIN		
I 16.3	"S3"	SWITCH AT LOCATION 3	BIN		
I 16.4	"S4"	SWITCH AT FINAL ASSEMBLY	BIN		
I 16.5	"INI1"	PROXIMITY SWITCH 1	BIN		
I 16.6	"INI2"	PROXIMITY SWITCH 2	BIN		

Change the format by clicking with the left mouse key. INS Edit 5 / 14

Утилита "Monitoring and Modifying Variables"

Monitoring and Modifying Variables - [@Project\Station1\CPU_Conveyor1\...\WAT1]

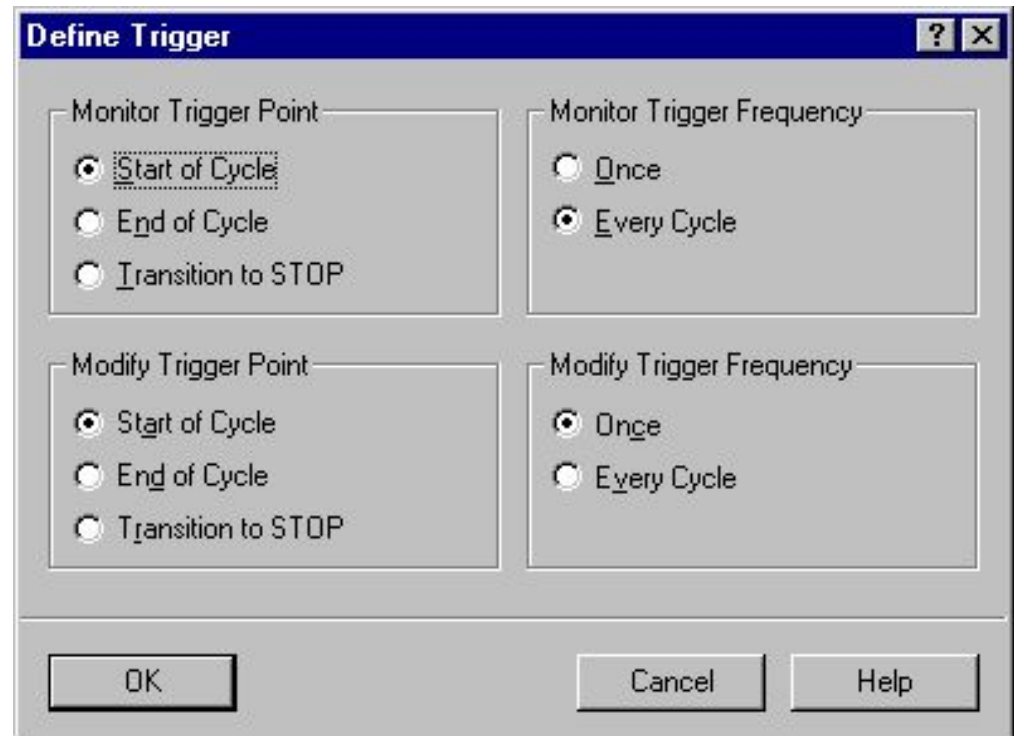
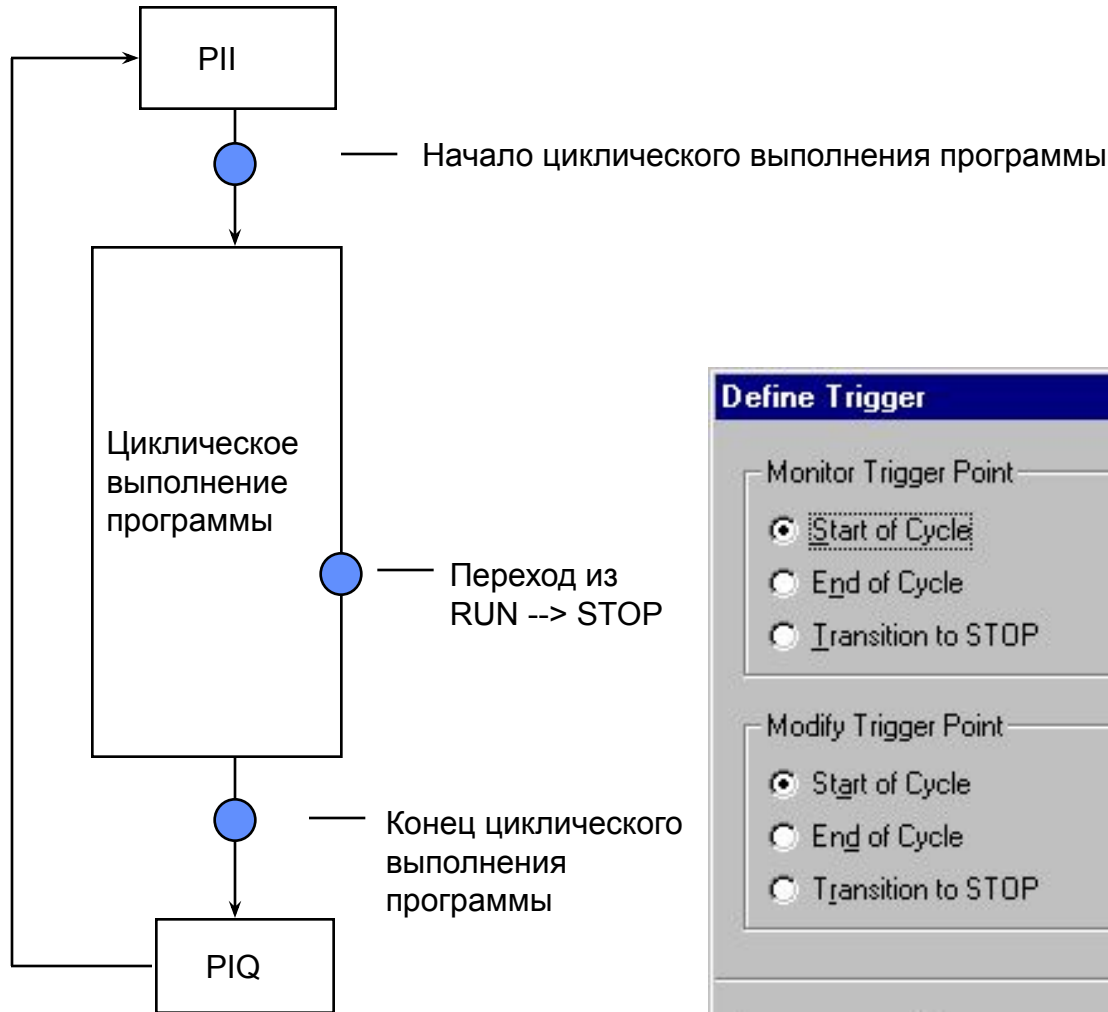
File Edit Insert PLC Variable View Options Window Help

Address Symbol Monitor Format Monitor Value Modify Value

QW	12	"DISPLAY"	HEX	W#16#0000	
Q	8.0	"Switch_On"	BIN	2#1	
Q	8.1	"Display_BA"	BIN	2#0	
Q	20.5	"MOTOR_FORWARD"	BIN	2#0	
Q	20.6	"MOTOR_BACKWARD"	BIN	2#0	
Q	20.7	"HORN"	BIN	2#0	
I	0.0	"START"	BIN	2#0	
I	0.1	"STOP"	BIN	2#0	
I	0.2	---	BIN	2#0	
I	0.3	"MAN_AUTO"	BIN	2#0	
I	0.4	"SET"	BIN	2#0	
I	0.5	---	BIN	2#0	
I	16.0	"LS"	BIN	2#1	
I	16.5	"S1"	BIN	2#0	
I	16.6	"S2"	BIN	2#0	

Project\Station1\CPU_Conveyor1 INS Online Monitor

Установка точек наблюдения/управления



Сохранение таблицы переменных

The screenshot shows the 'Monitoring and Modifying Variables' window with a table of variables. The 'Save As...' option is selected in the menu, and the 'Save As' dialog box is open. A green arrow points from the 'Save As...' menu item to the dialog box.

Monitoring and Modifying Variables - [uprog_e\CONV_A...\VAT1]

Variable	Value	Format	Monitor
DC LS1	BIN		
DC LS2	BIN		
DC LS3	BIN		
DC LS4	BIN		
DC LS5	BIN		
DC LS6	BIN		
DC LS7	BIN		
DC LS8	BIN		
DC LS9	BIN		
DC LS10	BIN		
DC LS11	BIN		
DC LS12	BIN		
DC LS13	BIN		
DC LS14	BIN		
DC LS15	BIN		
DC LS16	BIN		
DC LS17	BIN		
DC LS18	BIN		
DC LS19	BIN		
DC LS20	BIN		
DC LS21	BIN		
DC LS22	BIN		
DC LS23	BIN		
DC LS24	BIN		
DC LS25	BIN		
DC LS26	BIN		
DC LS27	BIN		
DC LS28	BIN		
DC LS29	BIN		
DC LS30	BIN		
DC LS31	BIN		
DC LS32	BIN		
DC LS33	BIN		
DC LS34	BIN		
DC LS35	BIN		
DC LS36	BIN		
DC LS37	BIN		
DC LS38	BIN		
DC LS39	BIN		
DC LS40	BIN		
DC LS41	BIN		
DC LS42	BIN		
DC LS43	BIN		
DC LS44	BIN		
DC LS45	BIN		
DC LS46	BIN		
DC LS47	BIN		
DC LS48	BIN		
DC LS49	BIN		
DC LS50	BIN		

Save As

Entry Point: Project View: Component View Online Offline

Name: Project Storage Path: c:\s7_kurse\Project

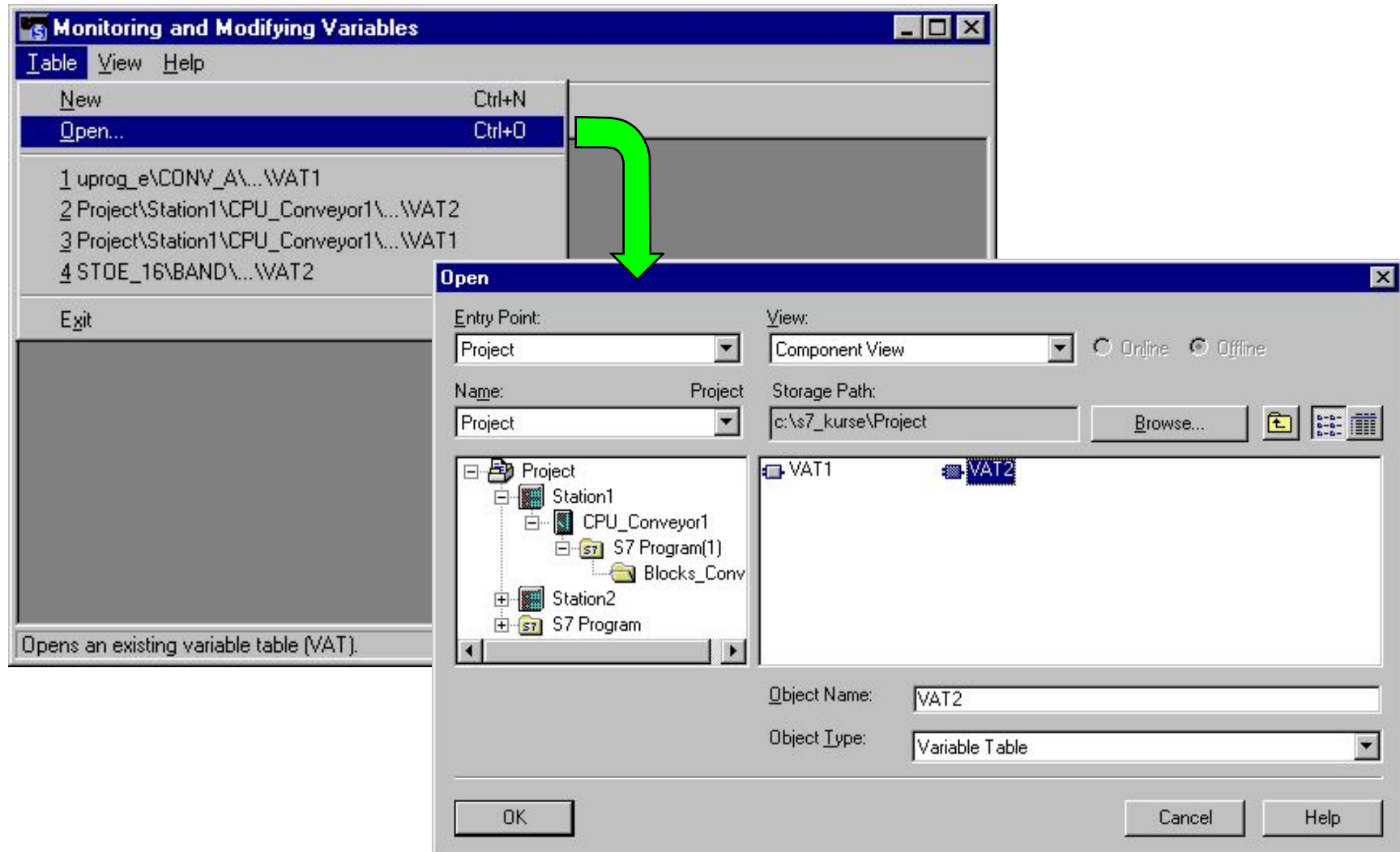
Object Name: VAT3

Object Type: Variable Table

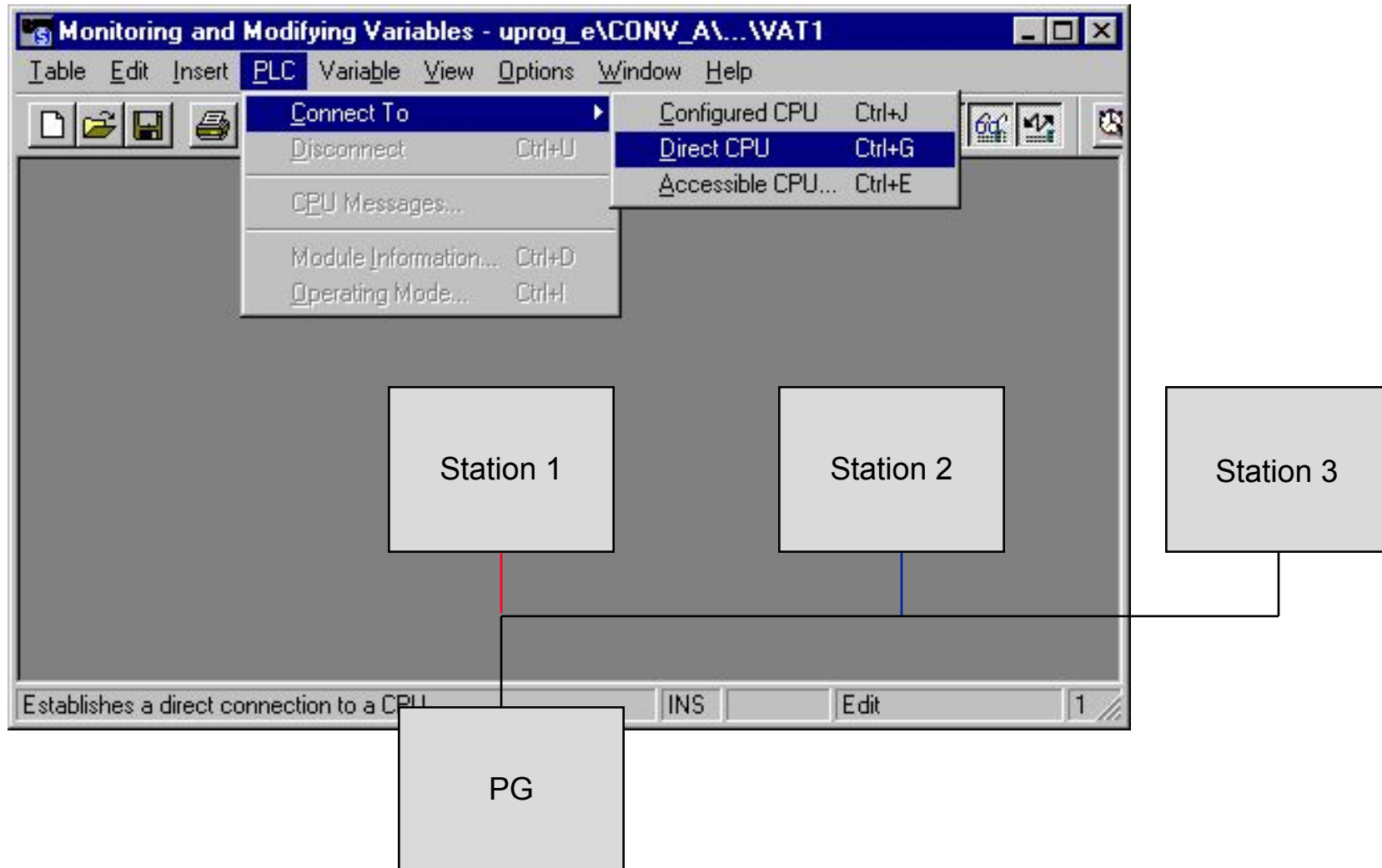
OK Cancel Help

Saves the active variable table (VAT) under

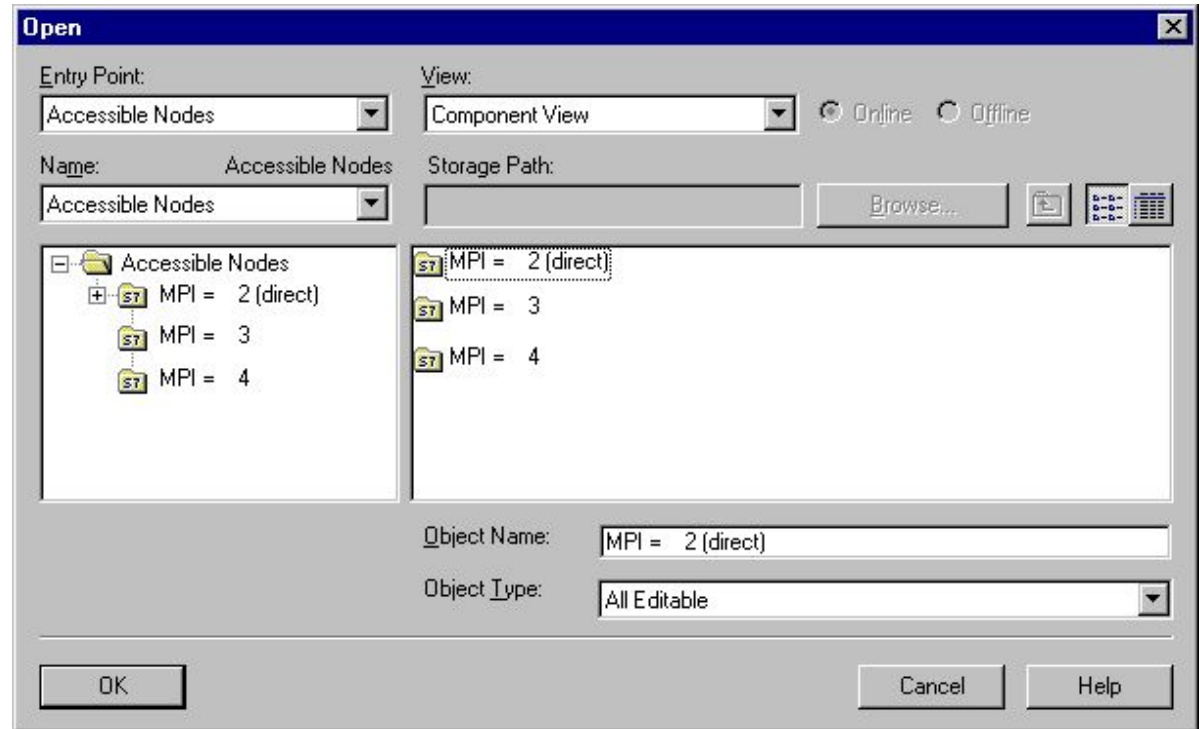
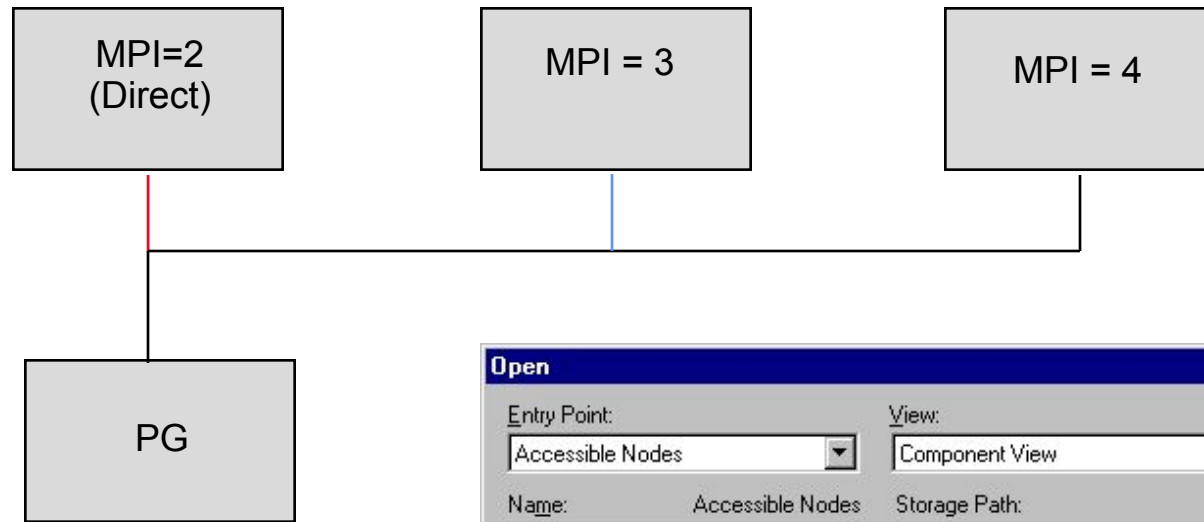
Открытие таблицы переменных



Наблюдение и управление переменными в сети



Установка связи



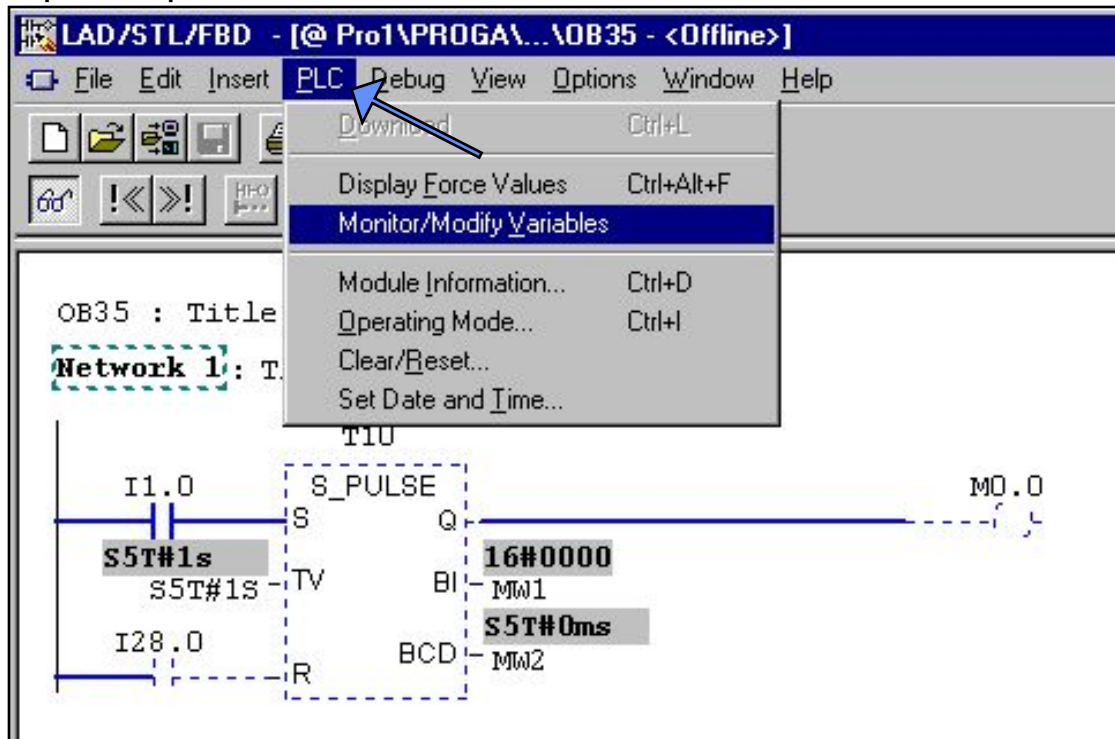
Упражнение 8.1: Использование функции “Monitor”

1. Запустить LAD/STL/FBD редактор и открыть блок...

2. Выбрать меню
PLC => Monitor/Modify Variables

3. Заполнить VAT1 сл. образом:

I 0.0 BIN
I 0.1 BIN
I 0.2 BIN
I 0.3 BIN
I 0.4 BIN
I 0.5 BIN
I 0.6 BIN
I 0.7 BIN
Q8.0 (Q4.0)
BIN
Q8.1 (Q4.1)
BIN
Q8.2 (Q4.2)
BIN
Q8.3 (Q4.3)
BIN
Q8.4 (Q4.4)



4. ... затем сохранить (SAVE) 

5. Выбрать пункт меню *Variable -> Monitor*
(CPU должен быть в режиме RUN)