O A C I S

Open **A**rchitecture **C**ontrol **I**ntegrated **S**ystem

How to Set Siemens Profinet with OACIS-1XC_2XC

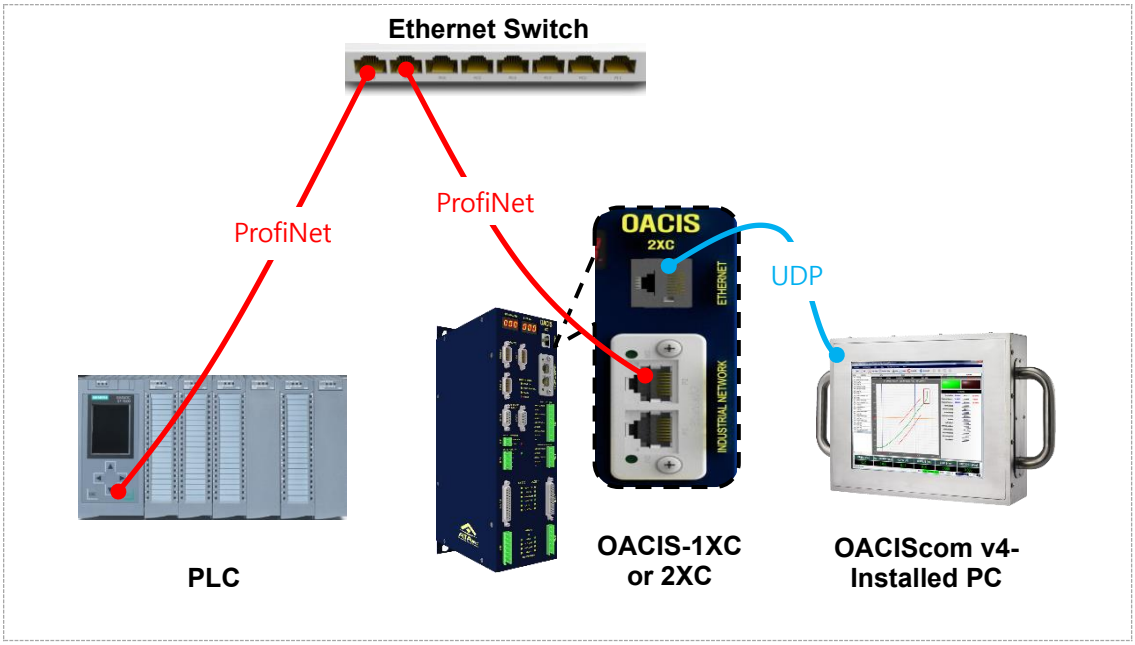
Version 01.04

www.atainc.com
ata@atainc.com

CONTENTS

I. SYSTEM CONFIGURATION

A. Overall Ethernet Connection



- During the initialization process, OACIS IP address shows on FND of the front panel for 2 seconds.
- Overall wiring can be different depending on the purpose of use. Generally, we recommend the above connection.

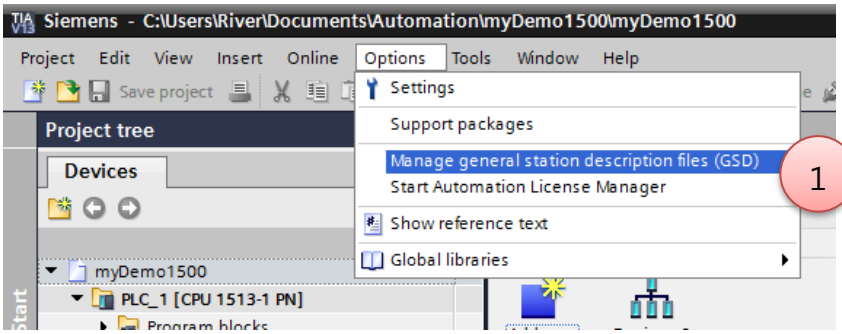
B. Download Files

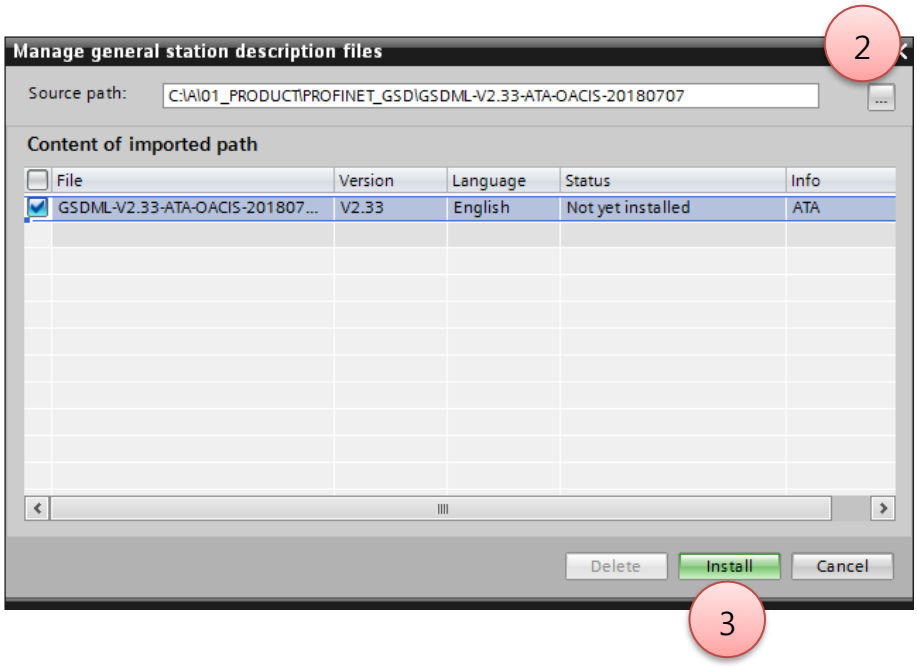
For your PLC program to communicate with OACIS, you need to download **ProfiNet Template for OACIS-1XC_2XC.zip** file below from
http://www.atainc.com/en/Support/?dir=03.SOFTWARE%2F03.PLC_PROGRAM

ProfiNet Template for OACIS-1XC_2XC.zip (3 files)
-. GSDML-V2.33-ATA-OACIS-20180707.zip
-. OACIS_S7_1500_v01.01.zip
-. OACIS_TIALib_v01.01.zip

C. Install OACIS GSDML

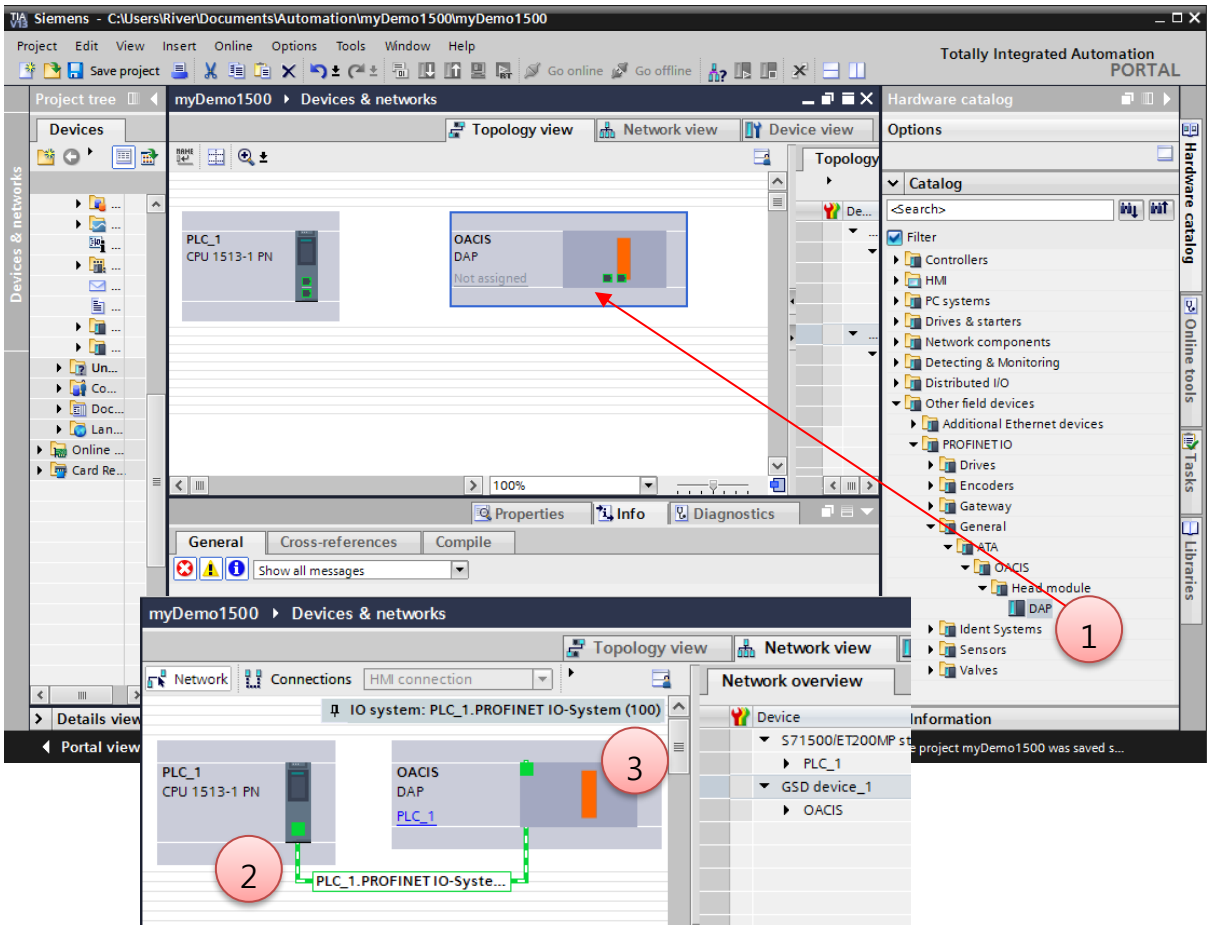
1. Options -> Manage general station description files (GSD)
2. Select OACIS GSDML source file path
3. Click “Install”





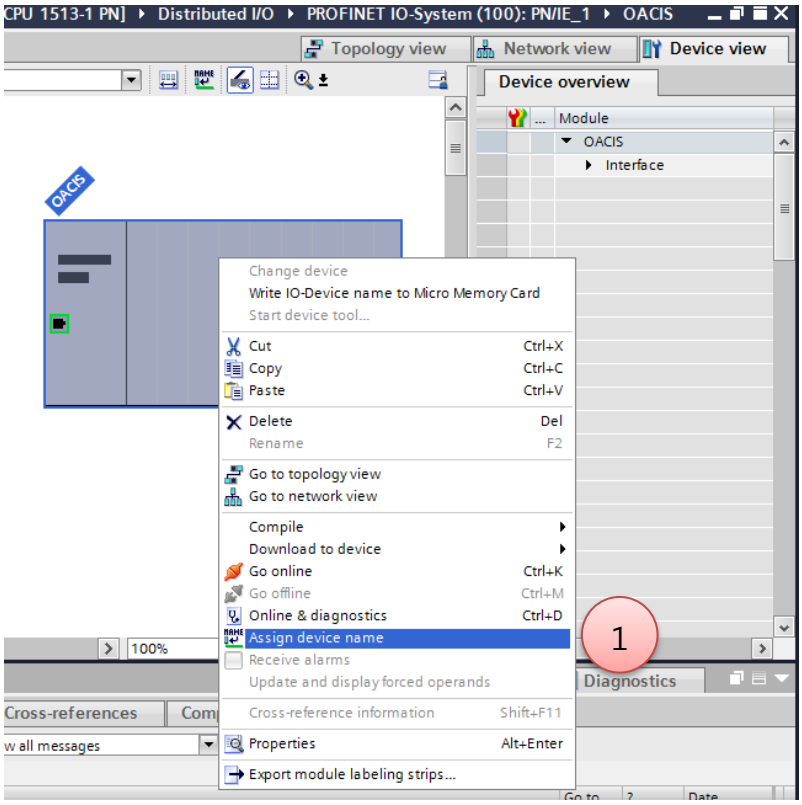
D. Add OACIS Device

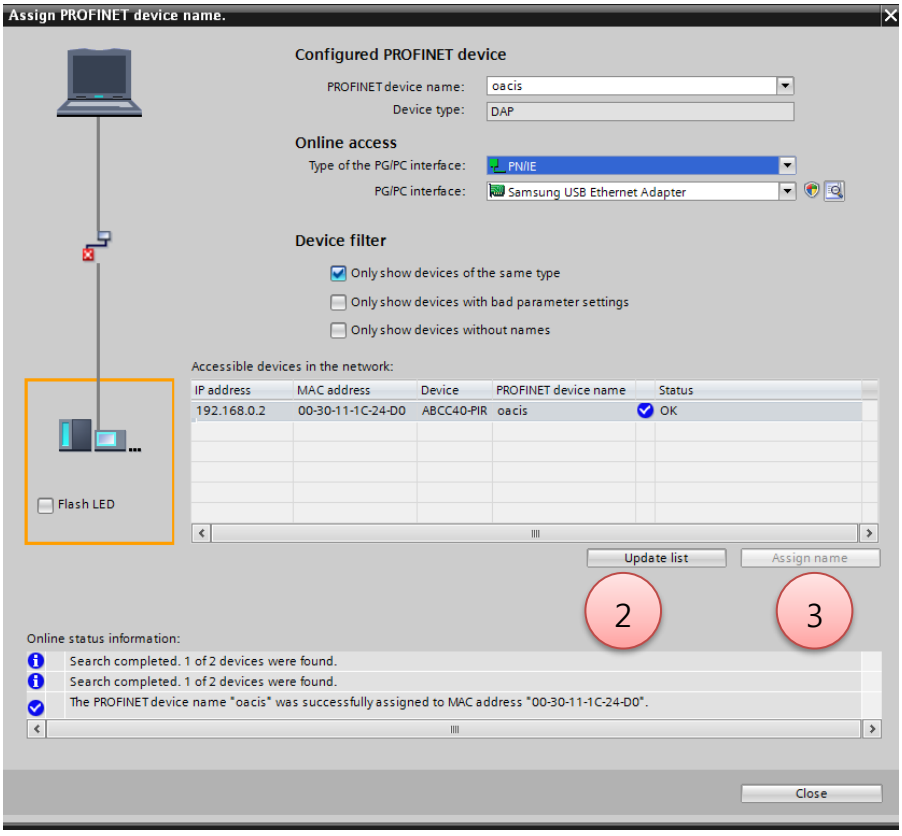
1. Drag “OACIS DAP” from the Catalog list and drop it on the topology view
2. Connect OACIS to PLC on the network view



E. Assign Name

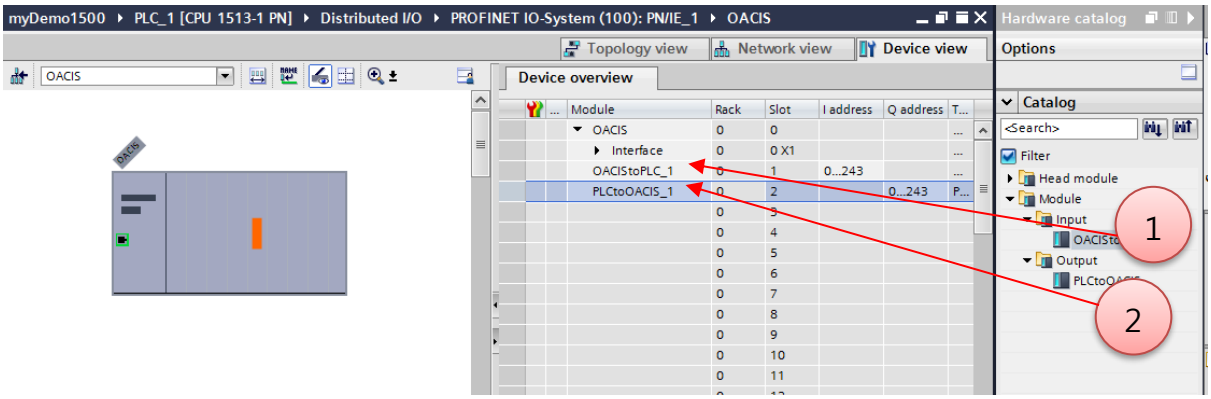
1. Double click OACIS and open Device View
2. Right click and select “Assign device name”
3. Click “Update List”
4. Click “Assign name”


CPU 1513-1 PN] ▸ Distributed I/O ▸ PROFINET IO-System (100): PN/IE_1 ▸ OACIS
Topology view
Network view
Device view
Device overview
Module
OACIS
Interface
Change device
Write IO-Device name to Micro Memory Card
Start device tool...
Cut Ctrl+X
Copy Ctrl+C
Paste Ctrl+V
Delete Del
Rename F2
Go to topology view
Go to network view
Compile
Download to device
Go online Ctrl+K
Go offline Ctrl+M
Online & diagnostics Ctrl+D
Assign device name
Receive alarms
Update and display forced operands
Cross-reference information Shift+F11
Properties Alt+Enter
Export module labeling strips...
1
100%
Diagnostics
Cross-references
w all messages


Assign PROFINET device name.
Configured PROFINET device
PROFINET device name: oacis
Device type: DAP
Online access
Type of the PG/PC interface: PN/IE
PG/PC interface: Samsung USB Ethernet Adapter
Device filter
Only show devices of the same type
Only show devices with bad parameter settings
Only show devices without names
Accessible devices in the network:
IP address MAC address Device PROFINET device name Status
192.168.0.2 00-30-11-1C-24-D0 ABCC40-PIR oacis OK
Flash LED
Update list
Assign name
2
3
Online status information:
Search completed. 1 of 2 devices were found.
Search completed. 1 of 2 devices were found.
The PROFINET device name "oacis" was successfully assigned to MAC address "00-30-11-1C-24-D0".
Close

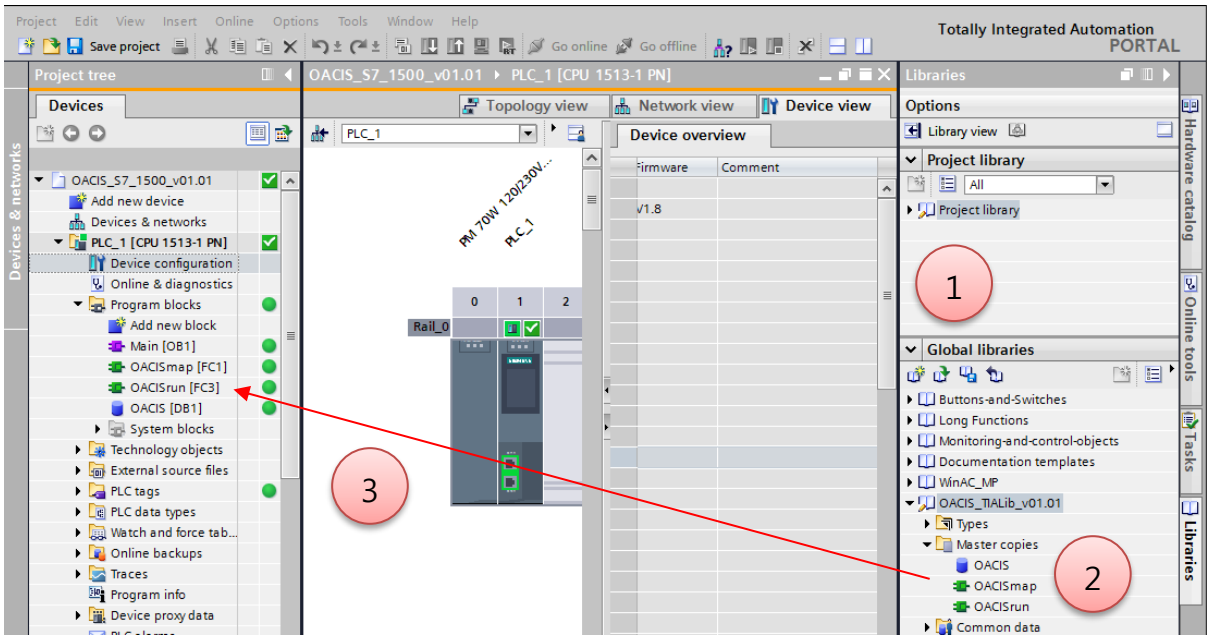
F. Add Input and Output Module

1. Drag and drop “OACIStoPLC” on the device view
2. Drag and drop “PLCtoOACIS” on the device view



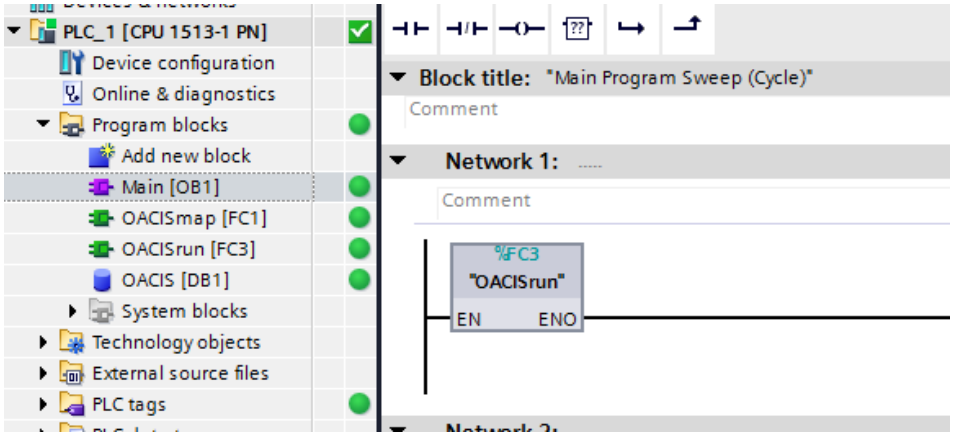
G. Global Library for OACIS

1. Open and Add Global Library for OACIS
2. Now, you have three Master Copies under OACIS_TIALib.
3. Drag and drop those 3 master copies on the program blocks



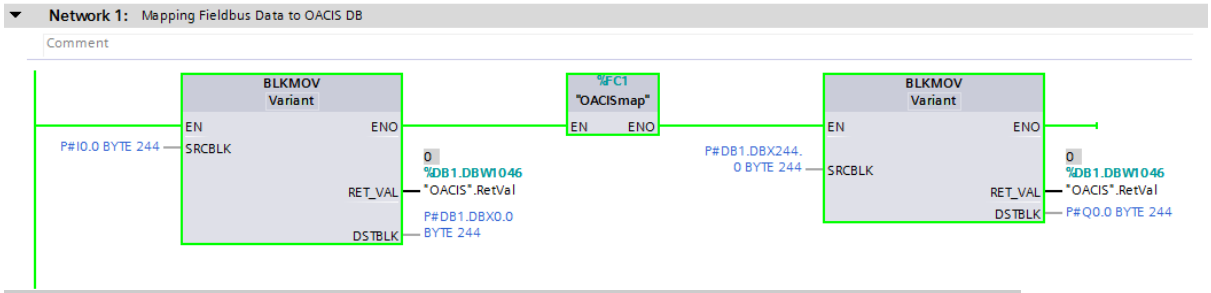
H. Run “OACISrun” FC

1. Run “OACISrun” FC in your main routine(OB1)



I. DB Name and IO Address

1. “OACISrun” is running “OACISmap” at the first network.
2. And it is mapping fieldbus data to internal OACIS DB.
3. It is using I0 ~ I243 and Q0~Q243 as a default address. And it assumed OACIS is assigned as DB1. If your program is using different address, you have to modify the address of BLKMOV.

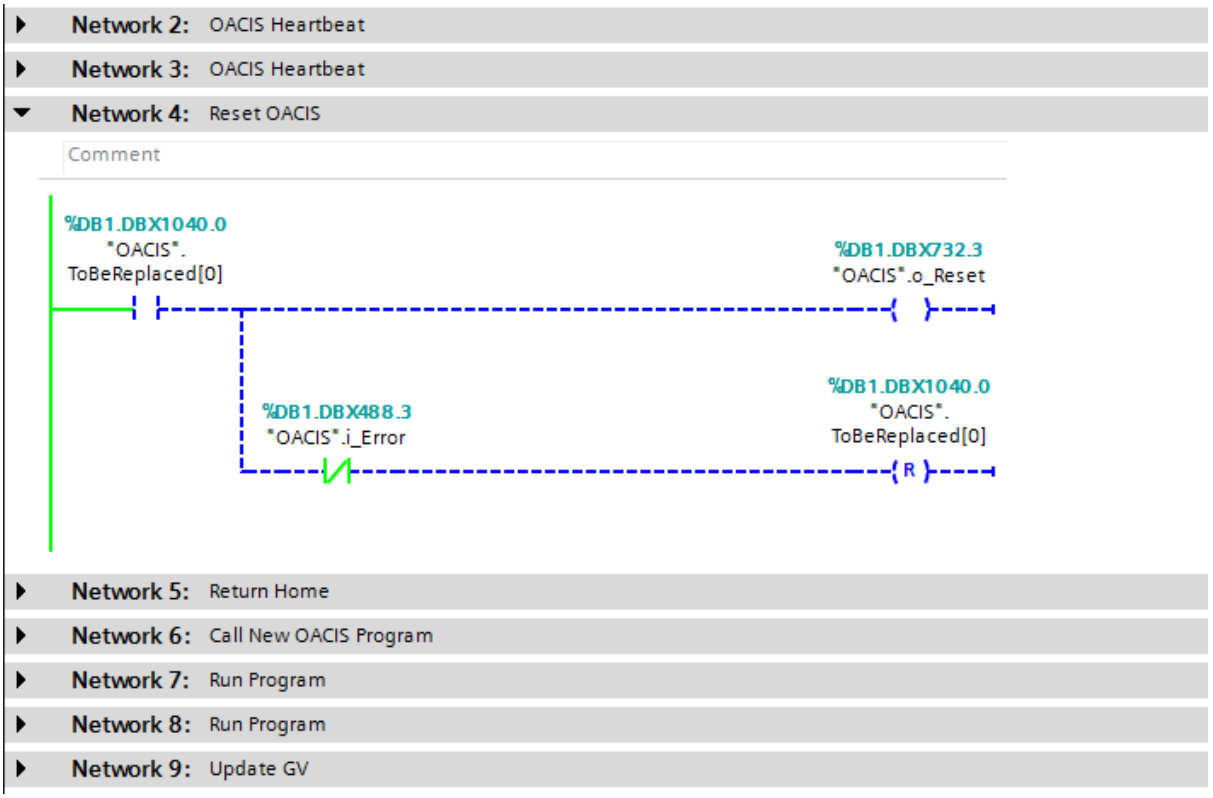


Device overview

...	Module	Rack	Slot	I address	Q address	Type
✓	OACIS	0	0			DAP
✓	Interface	0	0 X1			OACIS
✓	OACIStoPLC_1	0	1	0...243		OACIStoPLC
✓	PLCtoOACIS_1	0	2		0...243	PLCtoOACIS

J. Reference Program

1. “OACISrun” has some reference program.
2. It can be used or need to be modified per your application.
3. Especially, all “OACIS”.ToBeReplaced bits should be replaced by your proper logical bits.



APPENDIX #1: ANY BUS DATA MAP

: PLC communicates on the bus with OACIS via Industrial Network. Max. process data is 244 bytes between OACIS and PLC.

A. DIO Type

- Total length of Digital Outputs and Digital Inputs is 6 bytes respectively. The byte index ranges from 0 to 5. Each item size is 1 bit.

B. Real Type

- Total length of Real is 180 bytes respectively. The byte index ranges from 6 to 185. Each item size is 4 bytes.
- Real in PLC is the counterpart of global variables in OACIS.

➢ **Caution:** The type size of OACIS GV and PLC Real is different. The size of OACIS GV is 8 bytes but the one of PLC Real is 4 bytes. When OACIS sends or receives GV data with PLC, round-off error can occur due to the difference in size.

C. Serial Type

- Total length of Serial is 58 bytes respectively. The byte index ranges from 186 to 243.
- It is normally used for Serial Number.
- When OACIS writes Serial numbers to PLC, CR(0x0D) should be added in the last byte of serial bytes. On the contrary, if it reads from PLC, LF(0x0A) should be added.
- If you want to send “ABCD” as a serial number to OACIS, you need to update the tags as below. Byte[186] = A / Byte[187] = B / Byte[188] = C / Byte[189] = D / Byte[190] = 0x0A

Write (OACIS → PLC)					
Type	Length (Items)	Length (Bytes)	Byte Index	Bit Index	Command
DO	48	6	0	0	Home OK
				1	Program Home OK
				2	Ready
				3	Error
				4	Program End
				5	E-Stop
				6	Heartbeat
				7	Reserved
			1	0	Program Set Out 1
				1	Program Set Out 2
				2	Program Set Out 4
				3	Program Set Out 8
				4	Program Set Out 16
				5	Program Set Out 32
				6	Program Set Out 64
				7	Reserved
			2	0	Programmable DO 1
				1	Programmable DO 2
				2	Programmable DO 3
				3	Programmable DO 4
				4	Programmable DO 5
				5	Programmable DO 6
				6	Programmable DO 7
				7	Programmable DO 8
			3	0	Programmable DO 9
				1	Programmable DO 10
				2	Programmable DO 11
				3	Programmable DO 12
				4	Programmable DO 13
				5	Programmable DO 14
				6	Reserved
				7	Reserved
			4	0	Status Binary 1
				1	Status Binary 2
				2	Status Binary 4
				3	Status Binary 8
				4	Status Binary 16
				…	
				7	Reserved
			5	0	Connection to OACIScom
				1	Axis Moving
				…	
				7	Reserved
Real	45	180	6 ~ 9		Fieldbus Out 1 (Variable)
			10 ~ 13		Fieldbus Out 2 (Variable)
			…		
			182 ~ 185		Fieldbus Out 45 (Variable)
Serial	1	58	186 ~ 243		ASCii

Read (PLC → OACIS)					
Type	Length (Items)	Length (Bytes)	Byte Index	Bit Index	Command
DI	48	6	0	0	Program Start
				1	Program Stop
				2	Return Home
				3	Reset
				4	Program Set Strobe
				5	Reserved
				6	Reserved
				7	Reserved
			1	0	Program Set In 1
				1	Program Set In 2
				2	Program Set In 4
				3	Program Set In 8
				4	Program Set In 16
				5	Program Set In 32
				6	Program Set In 64
				7	Reserved
			2	0	Programmable DI 1
				1	Programmable DI 2
				2	Programmable DI 3
				3	Programmable DI 4
				4	Programmable DI 5
				5	Programmable DI 6
				6	Programmable DI 7
				7	Programmable DI 8
			3	0	Programmable DI 9
				1	Programmable DI 10
				2	Programmable DI 11
				3	Programmable DI 12
				4	Programmable DI 13
				5	Programmable DI 14
				6	Reserved
				7	Reserved
			4	0	ICAutoResetBit
				1	Disable PC Command
				2	Reserved
				3	Reserved
				4	Reserved
				5	Reserved
				6	Reserved
				7	Reserved
			5	0 ~ 7	Reserved
Real	45	180	6 ~ 9		Fieldbus In 1 (Variable)
			10 ~ 13		Fieldbus In 2 (Variable)
			…		
			182 ~ 185		Fieldbus In 45 (Variable)
Serial	1	58	186 ~ 243		ASCii

REVISION

v1.00: Engineering Released

v1.01: Contents Revised.

v1.02 (Nov. 22. 2022)

- Documentation Title modified

v1.03 (Nov. 22. 2023)

- Serial type Updated in Appendix #1, C

- Anybus Datamap Updated in Appendix #1

v1.04 (Oct. 30. 2025)

- Anybus Datamap Updated in Appendix #1