JEA WATER & WASTEWATER STANDARDS MANUAL

Controls Appendix B: JEA Programming

January 1, 2026 - Edition

JEA Water Wastewater & Reuse Programing Standard

General:

Sample logic shall be submitted to JEA System admin SCADA group for preliminary review. At time of review JEA shall reserve the right to not use any block or logic not deemed satisfactory.

Integrator shall schedule a meeting with the System Admin Scada group before project work begins our group will provide sample projects and global libraries.

At wastewater plants SCADA shall be considered and programed to be the primary means of plant control, this is to include vendor panels. All OIT/ HMI functions shall be integrated into the Plant SCADA system.

Additions to plant projects shall be made using the plant current version of TIA portal. These shall be integrated into the plant project by the integrator, to keep one master TIA project for all plant PLC's and HMI's.

Vendors panel programing: it shall be up to the integrator to work with the vendor to get the appropriate data to ensure full SCADA control, and integrate vendor PLCs into the Plant project, on the plant Engineering Station.

Each network shall contain comments describing the function of the network.

Function Blocks in TIA shall not be nested more than 1 time. It shall be the common practice to use a function block for one piece of equipment that is used repeatedly in all JEA facilities. Not a system or part of a process. Examples of function blocks include VFD drive block, Pump Alternator, Analog Scaling, NOT an entire SBR, RAS control WAS control.

Lift stations, booster, and master pump station shall follow lift station programing standards.

Scalance switch configuration shall be part of the TIA Plant Project. If a Scalence switch is installed and is not part of a ring configuration, the ring function shall be disabled.

Tag Naming conversions shall follow SCADA HMI tag standards.

Local HMI screens shall follow SCADA graphics standards as much as possible.

Local HMI alarming shall be kept to a minimum, SCADA shall be considered the primary alarm source.

Local HMI screens passwords shall be discussed with System Admin SCADA team.

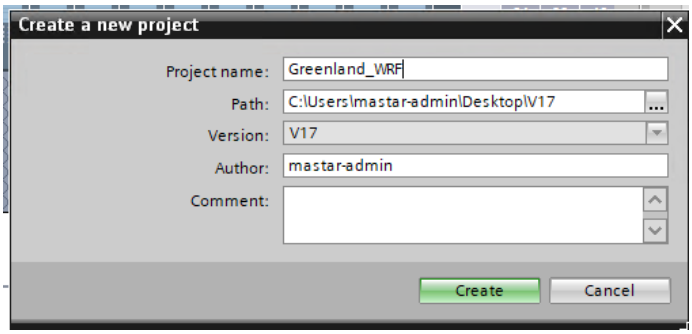
PLC and Plant networking shall follow the PERDUE model as provided in this standard (IPs will be provided by the System Admin SCADA team.

General TIA project layout

Devices & Networks

1. Project name shall be based on Physical address with the date of the last revision.

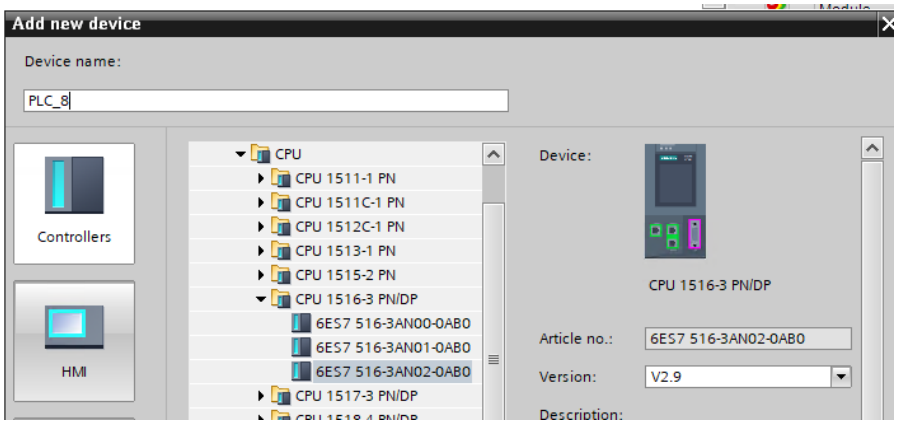
Example Greenland_WRF_Date, Arlington_East_WRF_date, 118st_MPS_date



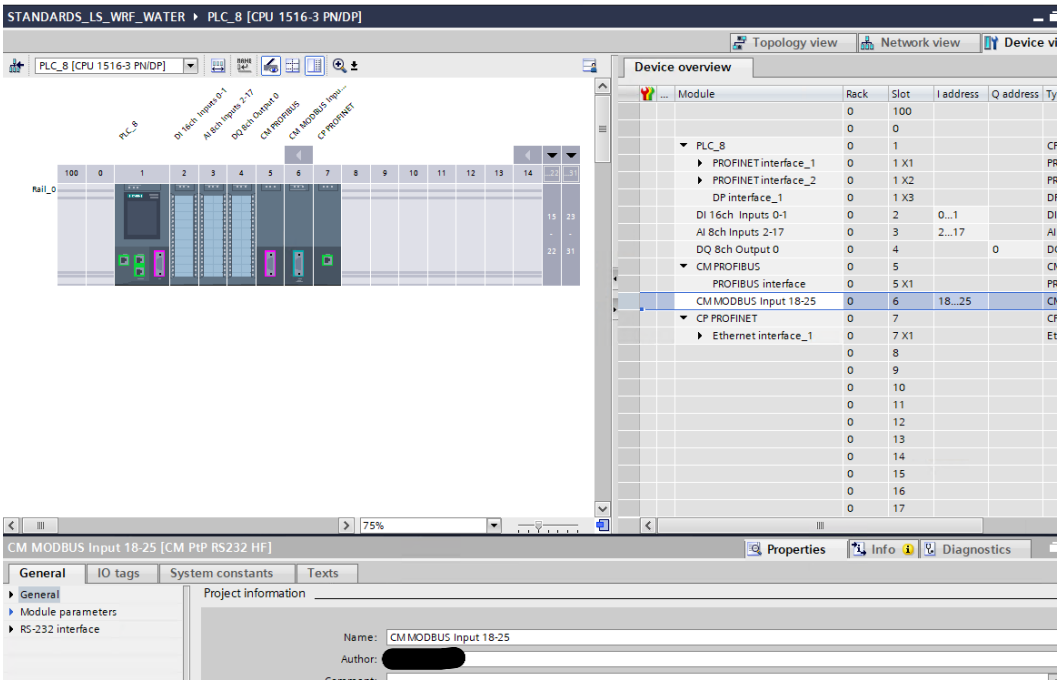
2. Device Names for PLCs shall be PLC_(building #, area #) for multiple PLC's add "_#"

Example "PLC_WELL_1", "PLC_600","PLC_600_1"

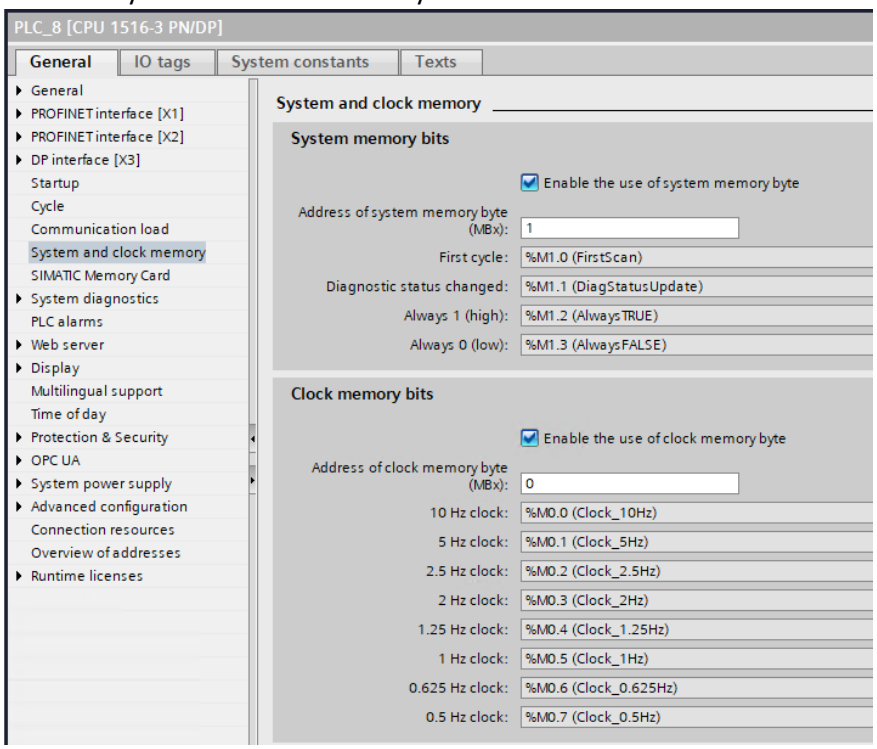
PLC Passwords and Protections shall be discussed with SCADA system admin group before implementation.



3. Card Naming convention is as follows.
   DI 16ch Inputs 0-1
   AI 8ch Inputs 2-17
   DQ 8ch Output 0
   CM Profibus
   CM Modbus Inputs 18-25
   CP Profinet
   TIM Radio

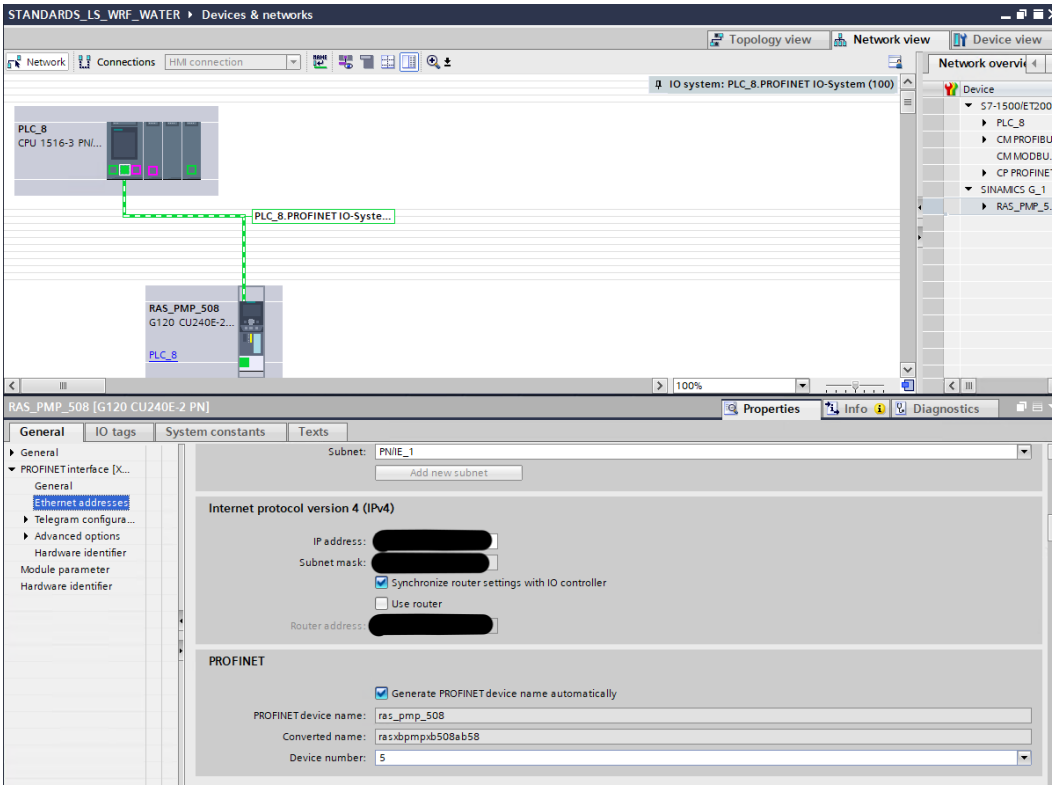


4.Enable System and Clock memory. Leave default addresses

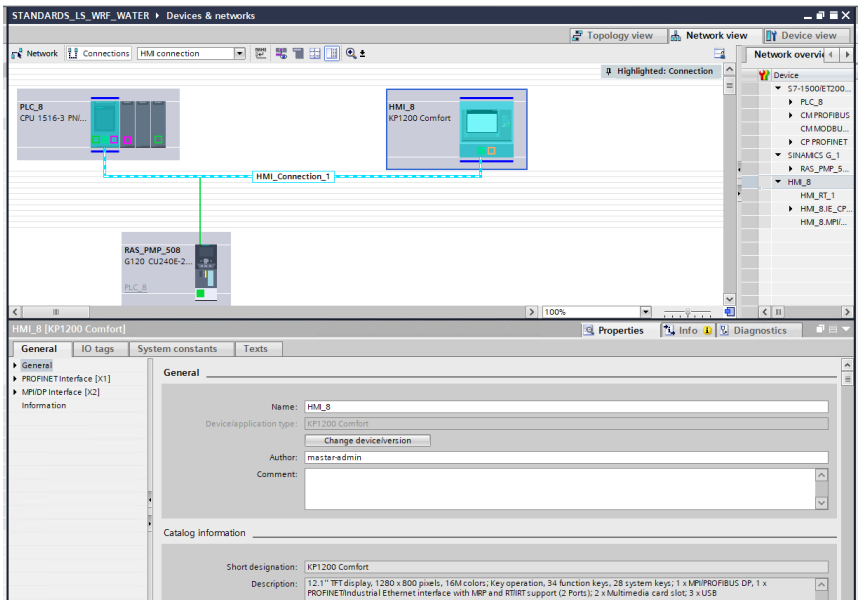


5.Network Devices

Shall be named by device P&ID name example RAS_PMP_508, RAS_VLV_508
Device number shall match IP last octet.

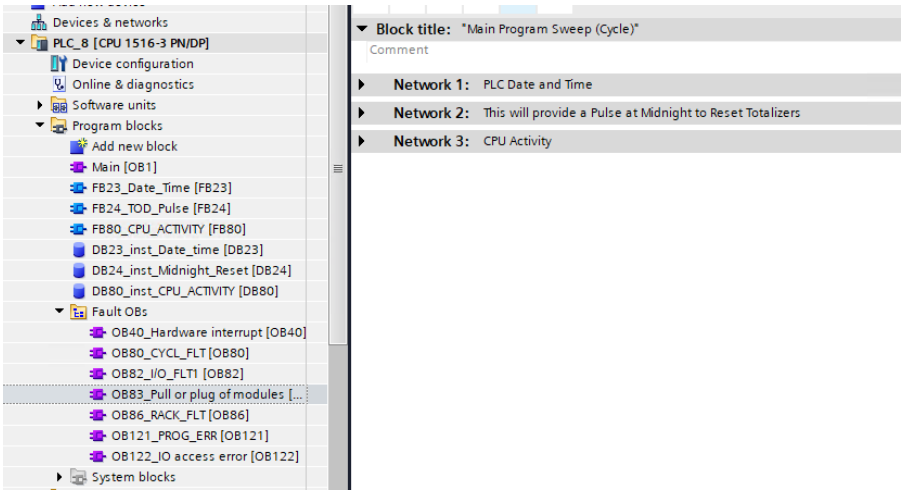


6. HMI: Name same as PLC it is connected to.



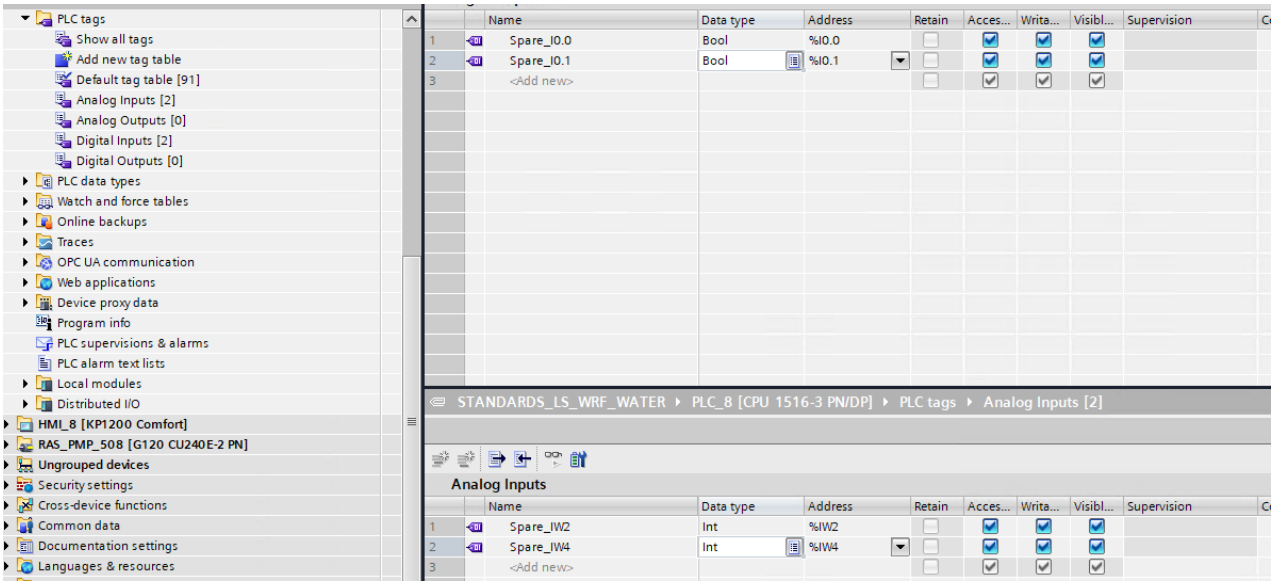
Program Blocks

-OB1 (use from library it contains blocks that shall stay, all logic shall go on networks below)
-Use OB1 as the main OB to call FC's. Include all error OB's from JEA Global Library.
-Cyclic OB's shall be used for PID's, GET, and PUT's
-Fault OB's shall be in a fault OB folder.
-All blocks shall be named with the block number first.
-Instance DB's shall have _inst following the block number in the name.



PLC Tags

Tags structured per example.
All I/O shall have tag names assigned.



UDTs shall be named with good description of device they will be used for, example VFD control word.

Purdue Model Networking

Devices on the controls network will be on the following subnet.

xxx Will be provided by JEA xxx

xxx Will be provided by JEA xxx

The 3rd octet will be specific to the plant location and be provided by JEA.

The SCADA server will have a second NIC and JEA will provide that IP.

Level 0

Devices on this level will be isolated by area and only be visible to the PLC they are associated with.

Level 1

PLCs will have 2 communications cards. One for the area devices and a second for PLC to PLC comms

Level 2

SCADA Servers/HMIs Servers will have 2 NICS- one tied to the controls/PLC network. The second Tie back to the domain controllers (these will be existing)

Level 3/3.5

These are domain controllers/patch servers and will include our DMZ. Vendors will stop at level 2

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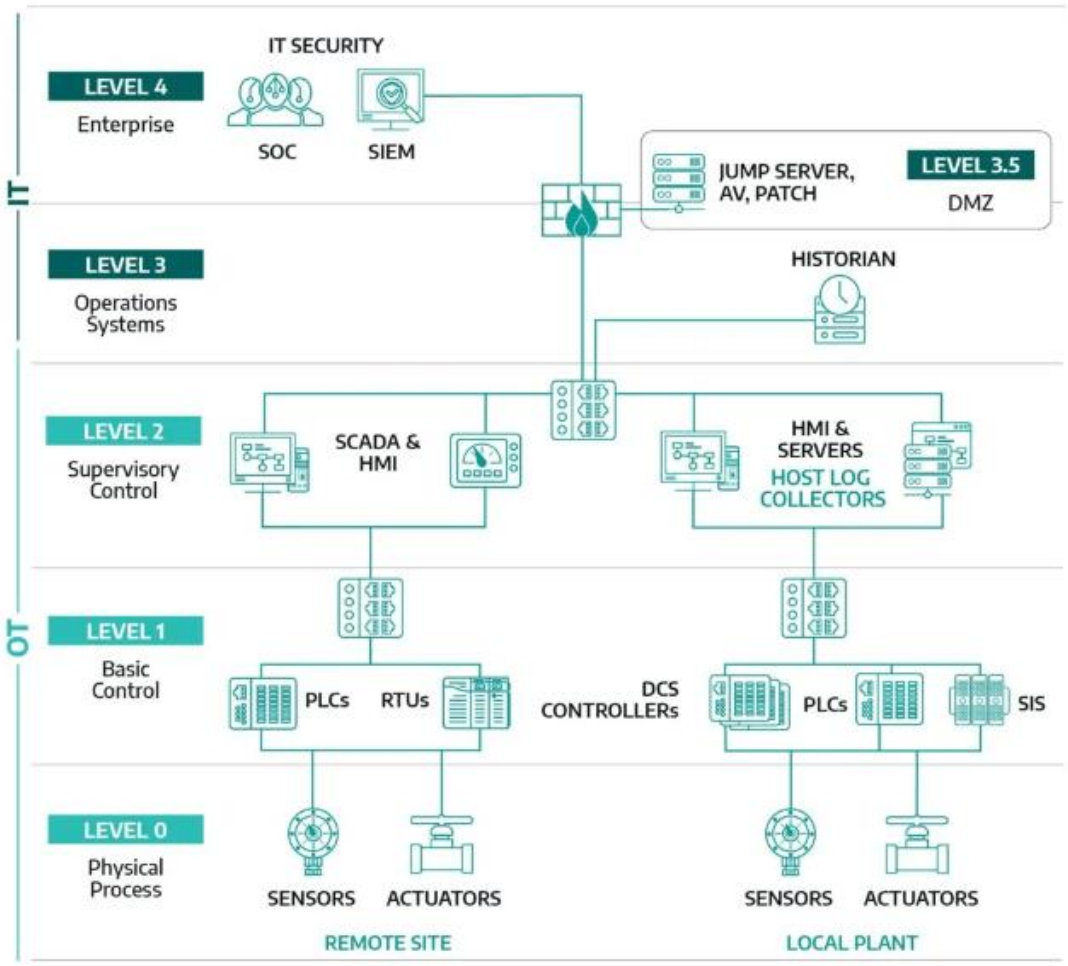
IT SECURITY
LEVEL 4
Enterprise
SOC
SIEM
JUMP SERVER,
AV, PATCH
LEVEL 3.5
DMZ
IT
LEVEL 3
Operations
Systems
HISTORIAN
LEVEL 2
Supervisory
Control
SCADA &
HMI
HMI &
SERVERS
HOST LOG
COLLECTORS
OT
LEVEL 1
Basic
Control
PLCs
RTUs
DCS
CONTROLLERs
PLCs
SIS
LEVEL 0
Physical
Process
SENSORS
ACTUATORS
SENSORS
ACTUATORS
REMOTE SITE
LOCAL PLANT