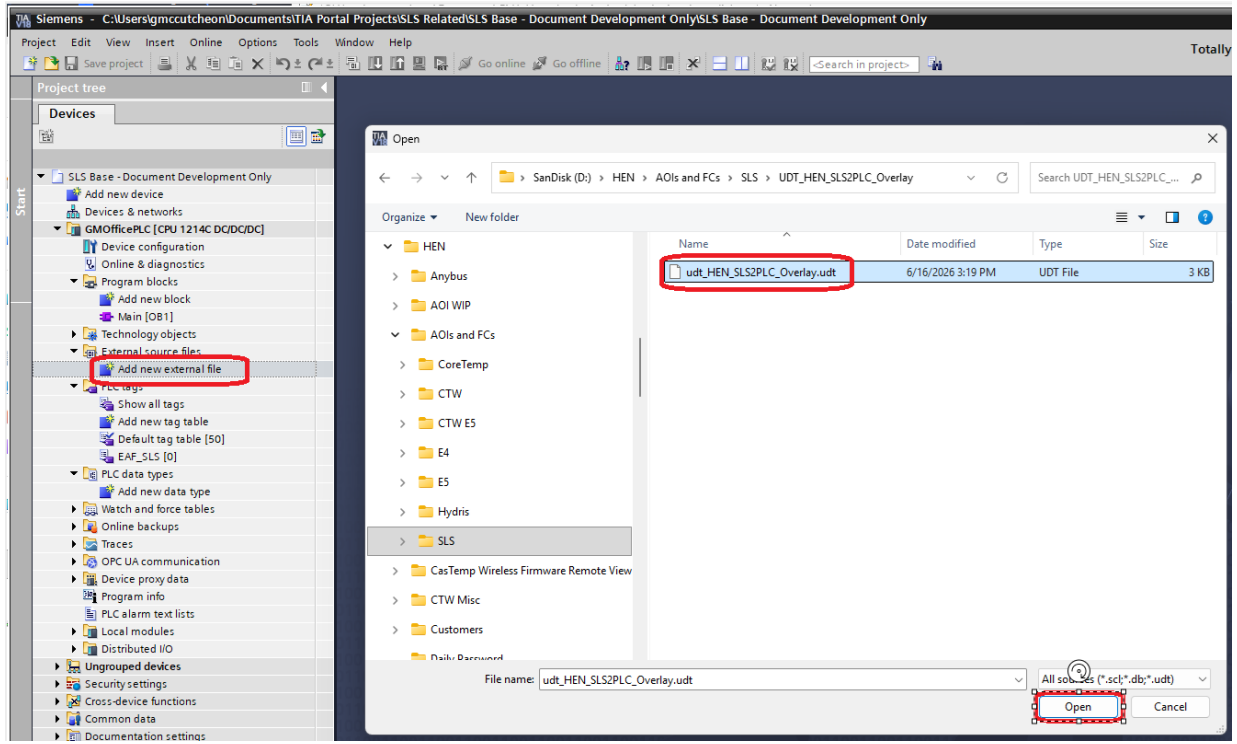
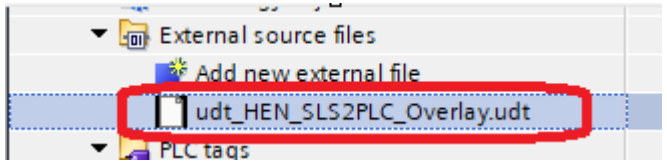
# IM2/SensorLab Output Register Direct Overlay UDT

# Import UDT

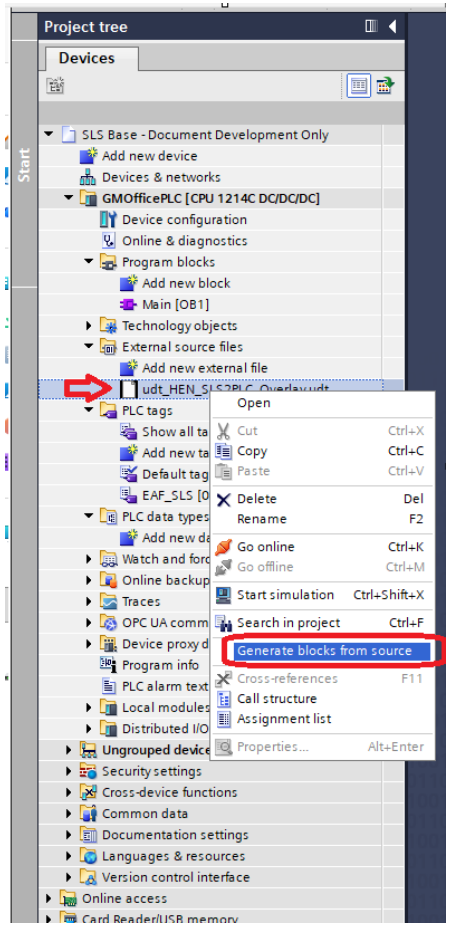
- In TIA Portal, open the Project tree.
- Expand External source files.
- Click Add new external file.
- Browse to the SensorLab overlay UDT source file (for example, UDT_HEN_SLS2PLC_Overlay.udt).
- Click Open to import it into your project.
- Confirm the file now appears under External source files.

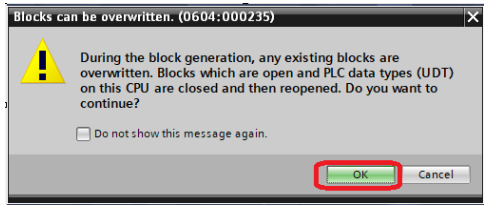


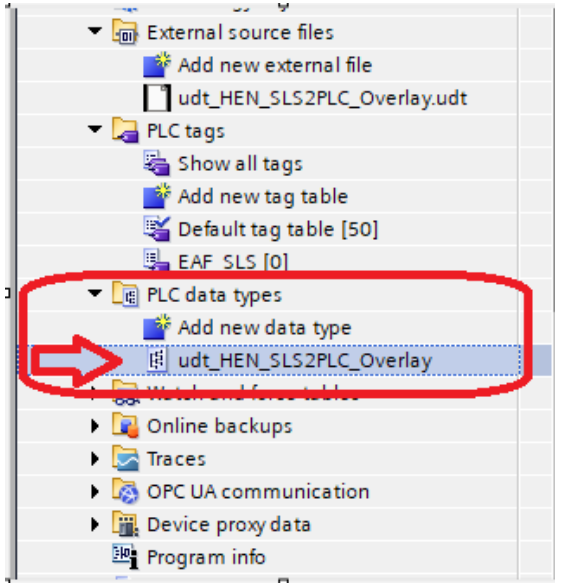



# Generate Blocks

- In TIA Portal, open the Project tree.
- Under External source files, right-click the imported UDT source file and select Generate blocks from source.
- Click OK to acknowledge the warning message.
- The usable data type is created and appears in the PLC data types folder.
- Compile the project so the imported UDT is available for use in tag tables and program blocks.

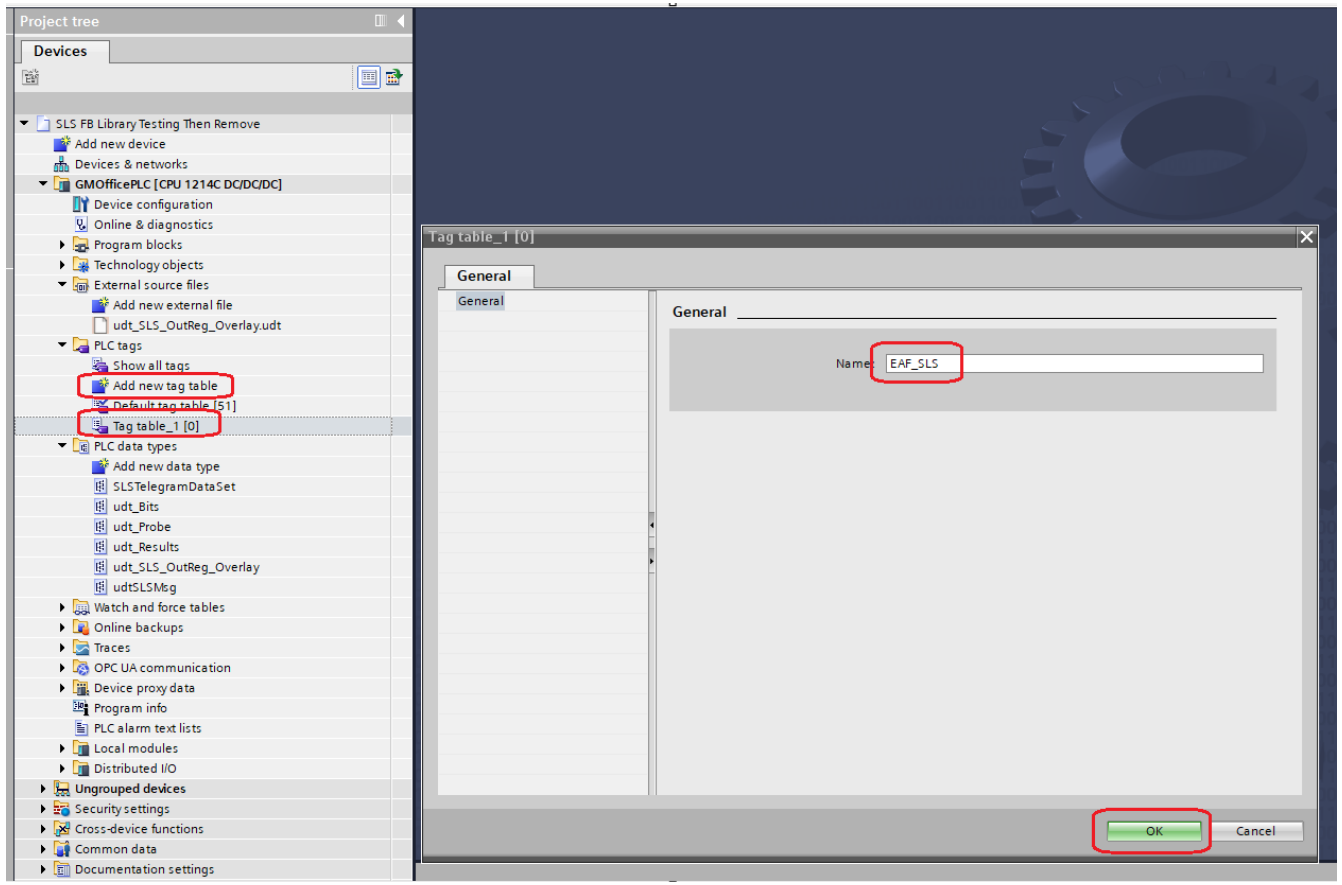


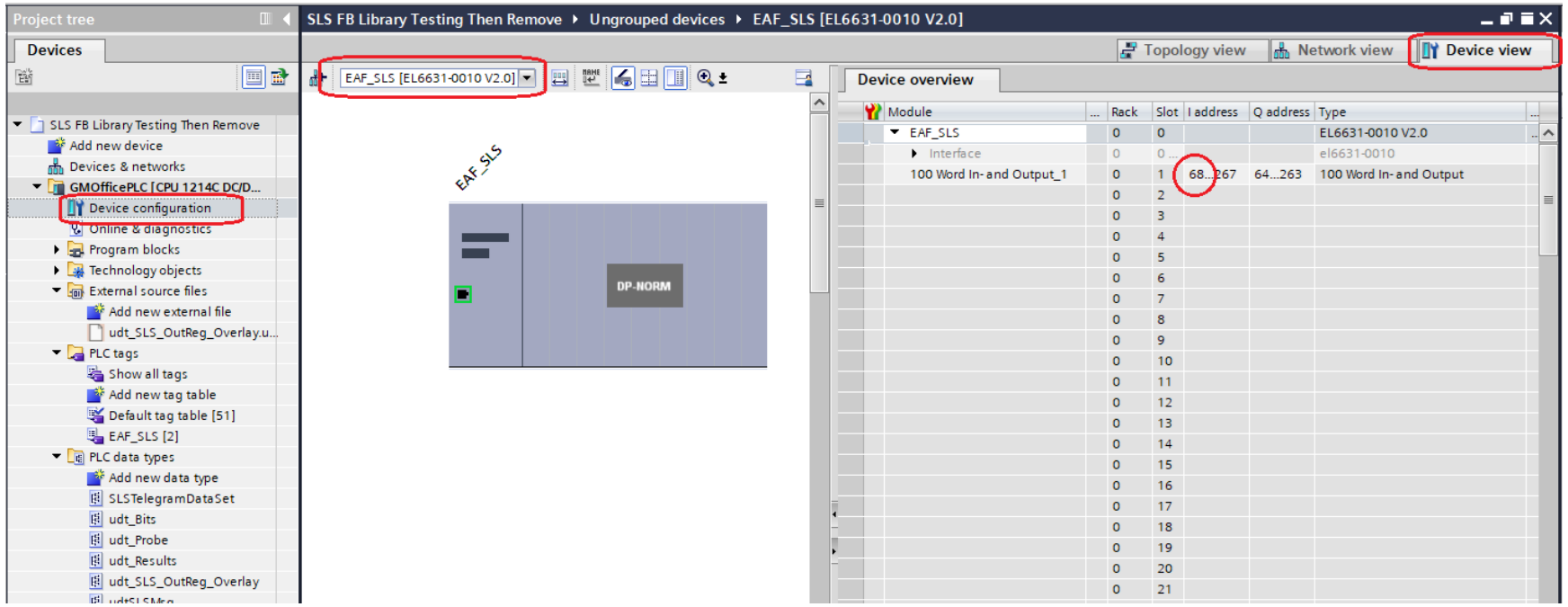
# Create a PLC Tag Table

- In TIA Portal, open the Project tree.
- Expand PLC tags.
- Click Add new tag table.
- Confirm the new tag table appears under the PLC tags folder.
- Right-click the new tag table and select Properties.
- In the Name field, enter a relevant name (e.g., EAF_SLS).
- Click OK.



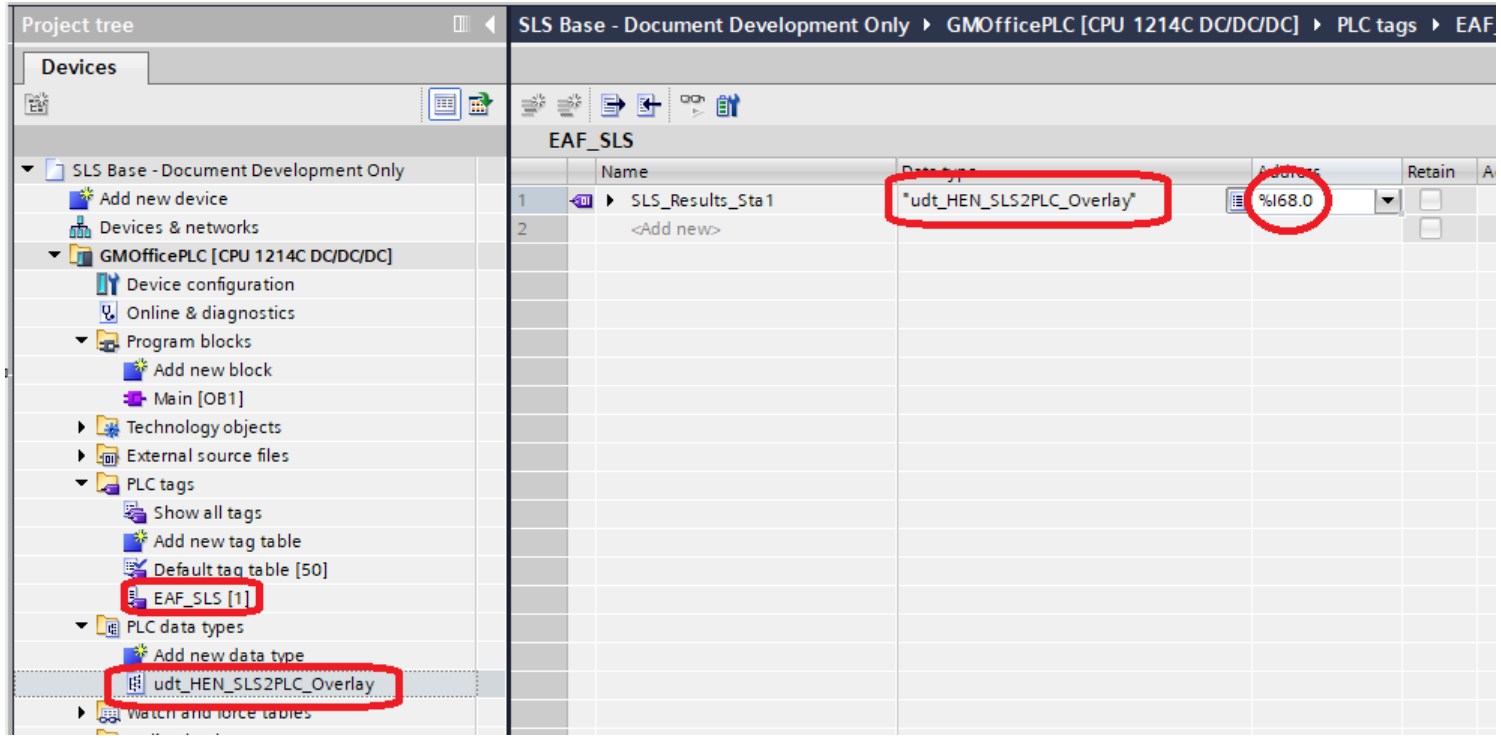
# Record Starting SLS Input Address from Device Config

- In Project tree, expand Devices & networks.
- Click the PLC (CPU) node.
- Click Device configuration.
- In the workspace, select the target device/module (e.g., EAF_SLS) so its details load.
- In the right-hand pane, open the Device overview tab.
- In the Device overview table, find the module row for the SLS I/O module (for example, 100 Word In- and Output_1).
- Read the I address column on that row. The first value shown is the input start address (68 in this example).
- Record that input start address for the tag / UDT mapping.



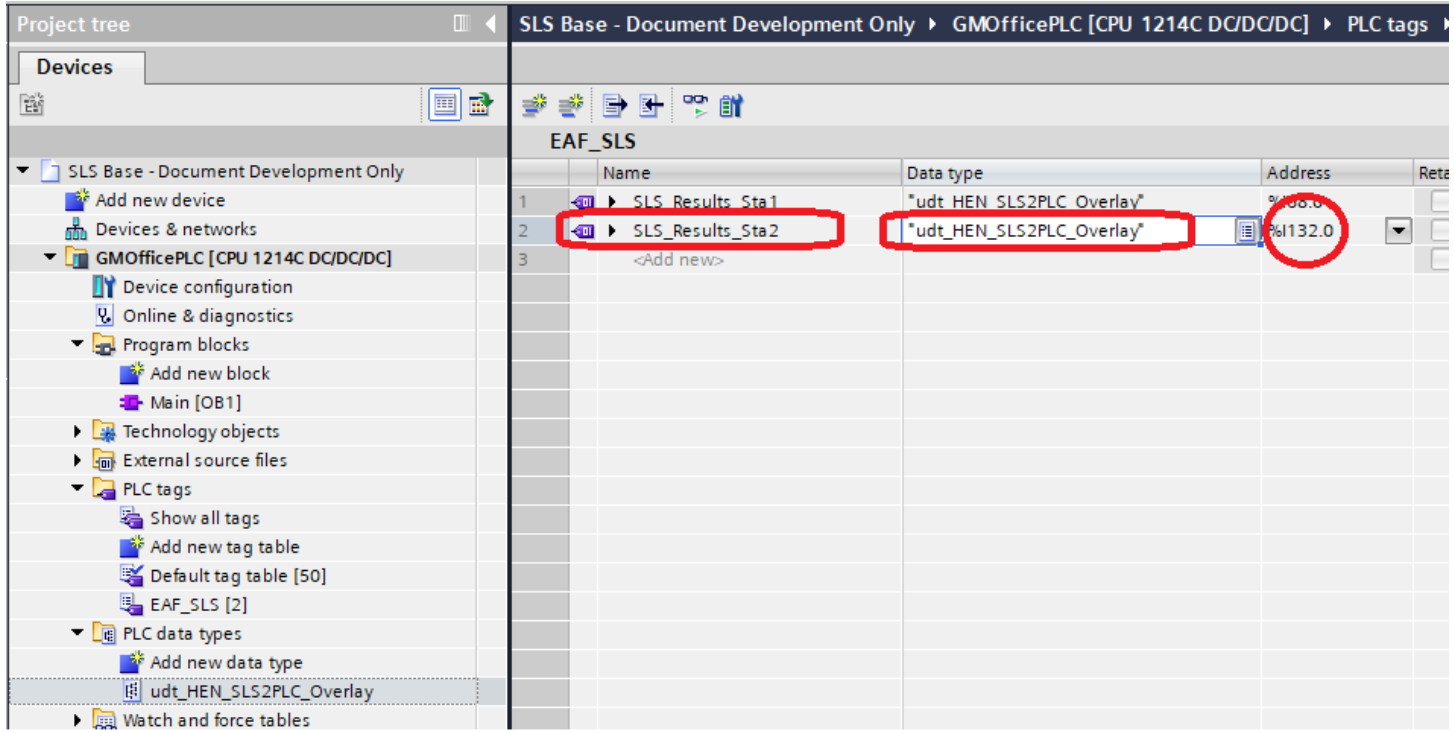
# Add Station 1 Tags to New PLC Tag Table

- In Project tree, expand PLC tags.
- Click the tag table you just created (for example, EAF_SLS) to open it in the editor.
- In the first empty row, enter a tag Name (example: SLS_Results_Sta1).
- In the Data type column, select the imported UDT: udt_HEN_SLS2PLC_Overlay.
- In the Address column, enter the input start address recorded from Device overview (example: %I68.0).
- Press Enter to accept the row.



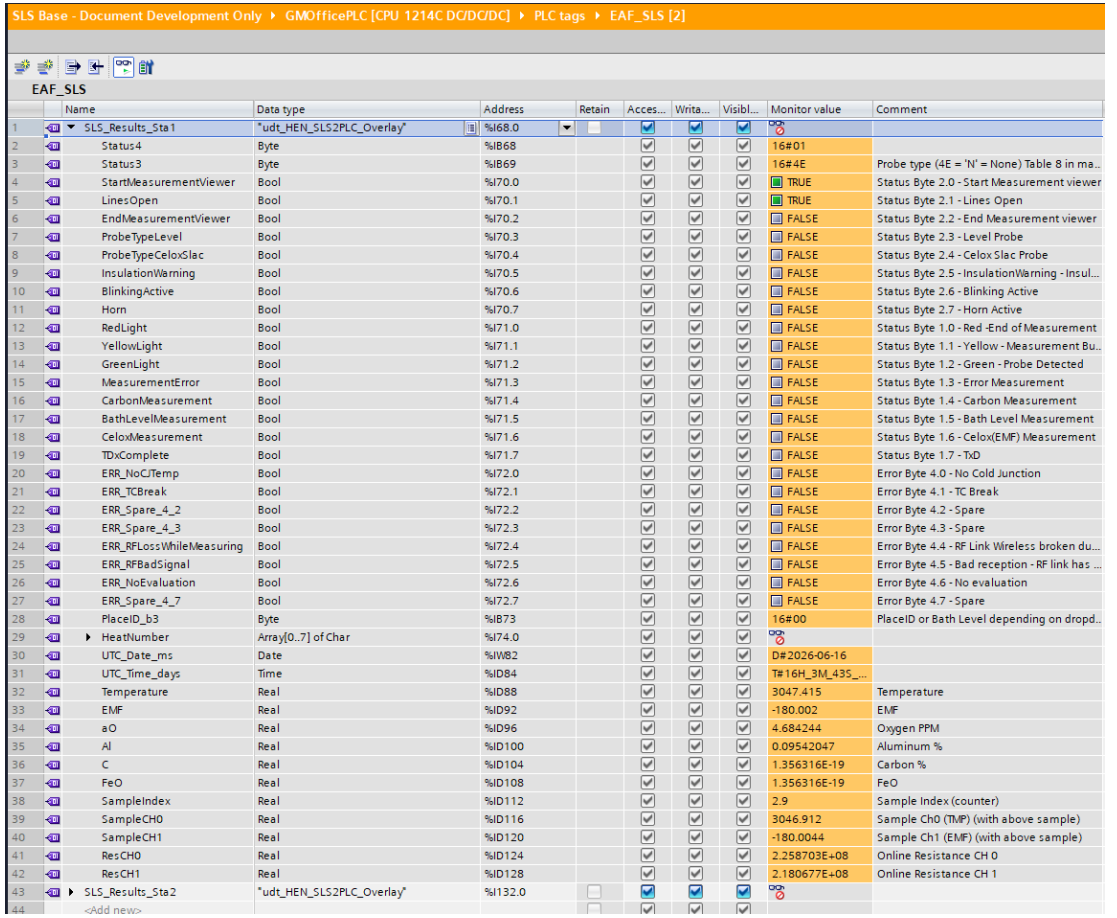
# Add Station 2 Tags to New PLC Tag Table

- With the EAF_SLS tag table still open, click the next empty row (Row 2).
- Enter a tag Name (example from screenshot: SLS_Results_Sta2).
- In the Data type column, select the imported UDT:
  - udt_HEN_SLS2PLC_Overlay.
- In the Address column, enter the Station 2 start address.
  - By default, TIA Portal auto-fills the next available input address after the previous tag. In this case, that is the correct behavior.
  - In this example, that value is %I132.0.
- Press Enter to accept the row.



# Monitor Data in New PLC Tag Table

- Save the project.
- Compile and download to device.
- Connect to the PLC, then click Go online.
- Open the PLC tag table (for example, PLC tags > EAF_SLS).
- Expand the first tag (e.g., SLS_Results_Sta1) to show its UDT members.
- Enable monitoring (“glasses”) in the tag table and confirm that the fields update as the device sends data.




| | Name | Data type | Address | Retain | Acces... | Writa... | Visibl... | Monitor value | Comment |
|---|---|---|---|---|---|---|---|---|---|
| 1 | SLS_Results_Sta1 | "udt_HEN_SLS2PLC_Overlay" | %I68.0 | | ☑ | ☑ | ☑ | | |
| 2 | Status4 | Byte | %IB68 | | ☑ | ☑ | ☑ | 16#01 | |
| 3 | Status3 | Byte | %IB69 | | ☑ | ☑ | ☑ | 16#4E | Probe type (4E = 'N' = None) Table 8 in ma... |
| 4 | StartMeasurementViewer | Bool | %I70.0 | | ☑ | ☑ | ☑ | TRUE | Status Byte 2.0 - Start Measurement viewer |
| 5 | LinesOpen | Bool | %I70.1 | | ☑ | ☑ | ☑ | TRUE | Status Byte 2.1 - Lines Open |
| 6 | EndMeasurementViewer | Bool | %I70.2 | | ☑ | ☑ | ☑ | FALSE | Status Byte 2.2 - End Measurement viewer |
| 7 | ProbeTypeLevel | Bool | %I70.3 | | ☑ | ☑ | ☑ | FALSE | Status Byte 2.3 - Level Probe |
| 8 | ProbeTypeCeloxSlac | Bool | %I70.4 | | ☑ | ☑ | ☑ | FALSE | Status Byte 2.4 - Celox Slac Probe |
| 9 | InsulationWarning | Bool | %I70.5 | | ☑ | ☑ | ☑ | FALSE | Status Byte 2.5 - InsulationWarning - Insul... |
| 10 | BlinkingActive | Bool | %I70.6 | | ☑ | ☑ | ☑ | FALSE | Status Byte 2.6 - Blinking Active |
| 11 | Horn | Bool | %I70.7 | | ☑ | ☑ | ☑ | FALSE | Status Byte 2.7 - Horn Active |
| 12 | RedLight | Bool | %I71.0 | | ☑ | ☑ | ☑ | FALSE | Status Byte 1.0 - Red -End of Measurement |
| 13 | YellowLight | Bool | %I71.1 | | ☑ | ☑ | ☑ | FALSE | Status Byte 1.1 - Yellow - Measurement Bu... |
| 14 | GreenLight | Bool | %I71.2 | | ☑ | ☑ | ☑ | FALSE | Status Byte 1.2 - Green - Probe Detected |
| 15 | MeasurementError | Bool | %I71.3 | | ☑ | ☑ | ☑ | FALSE | Status Byte 1.3 - Error Measurement |
| 16 | CarbonMeasurement | Bool | %I71.4 | | ☑ | ☑ | ☑ | FALSE | Status Byte 1.4 - Carbon Measurement |
| 17 | BathLevelMeasurement | Bool | %I71.5 | | ☑ | ☑ | ☑ | FALSE | Status Byte 1.5 - Bath Level Measurement |
| 18 | CeloxMeasurement | Bool | %I71.6 | | ☑ | ☑ | ☑ | FALSE | Status Byte 1.6 - Celox(EMF) Measurement |
| 19 | TDxComplete | Bool | %I71.7 | | ☑ | ☑ | ☑ | FALSE | Status Byte 1.7 - TxD |
| 20 | ERR_NoCJTemp | Bool | %I72.0 | | ☑ | ☑ | ☑ | FALSE | Error Byte 4.0 - No Cold Junction |
| 21 | ERR_TCBreak | Bool | %I72.1 | | ☑ | ☑ | ☑ | FALSE | Error Byte 4.1 - TC Break |
| 22 | ERR_Spare_4_2 | Bool | %I72.2 | | ☑ | ☑ | ☑ | FALSE | Error Byte 4.2 - Spare |
| 23 | ERR_Spare_4_3 | Bool | %I72.3 | | ☑ | ☑ | ☑ | FALSE | Error Byte 4.3 - Spare |
| 24 | ERR_RFLossWhileMeasuring | Bool | %I72.4 | | ☑ | ☑ | ☑ | FALSE | Error Byte 4.4 - RF Link Wireless broken du... |
| 25 | ERR_RFBadSignal | Bool | %I72.5 | | ☑ | ☑ | ☑ | FALSE | Error Byte 4.5 - Bad reception - RF link has ... |
| 26 | ERR_NoEvaluation | Bool | %I72.6 | | ☑ | ☑ | ☑ | FALSE | Error Byte 4.6 - No evaluation |
| 27 | ERR_Spare_4_7 | Bool | %I72.7 | | ☑ | ☑ | ☑ | FALSE | Error Byte 4.7 - Spare |
| 28 | PlaceID_b3 | Byte | %IB73 | | ☑ | ☑ | ☑ | 16#00 | PlaceID or Bath Level depending on dropd... |
| 29 | HeatNumber | Array[0..7] of Char | %I74.0 | | ☑ | ☑ | ☑ | | |
| 30 | UTC_Date_ms | Date | %IW82 | | ☑ | ☑ | ☑ | D#2026-06-16 | |
| 31 | UTC_Time_days | Time | %ID84 | | ☑ | ☑ | ☑ | T#16H_3M_43S_... | |
| 32 | Temperature | Real | %ID88 | | ☑ | ☑ | ☑ | 3047.415 | Temperature |
| 33 | EMF | Real | %ID92 | | ☑ | ☑ | ☑ | -180.002 | EMF |
| 34 | aO | Real | %ID96 | | ☑ | ☑ | ☑ | 4.684244 | Oxygen PPM |
| 35 | Al | Real | %ID100 | | ☑ | ☑ | ☑ | 0.09542047 | Aluminum % |
| 36 | C | Real | %ID104 | | ☑ | ☑ | ☑ | 1.356316E-19 | Carbon % |
| 37 | FeO | Real | %ID108 | | ☑ | ☑ | ☑ | 1.356316E-19 | FeO |
| 38 | SampleIndex | Real | %ID112 | | ☑ | ☑ | ☑ | 2.9 | Sample Index (counter) |
| 39 | SampleCH0 | Real | %ID116 | | ☑ | ☑ | ☑ | 3046.912 | Sample Ch0 (TMP) (with above sample) |
| 40 | SampleCH1 | Real | %ID120 | | ☑ | ☑ | ☑ | -180.0044 | Sample Ch1 (EMF) (with above sample) |
| 41 | ResCH0 | Real | %ID124 | | ☑ | ☑ | ☑ | 2.258703E+08 | Online Resistance CH 0 |
| 42 | ResCH1 | Real | %ID128 | | ☑ | ☑ | ☑ | 2.180677E+08 | Online Resistance CH 1 |
| 43 | SLS_Results_Sta2 | "udt_HEN_SLS2PLC_Overlay" | %I132.0 | | ☑ | ☑ | ☑ | | |
| 44 | <Add new> | | | | | | | | |