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# LabVIEW OPC UA Demo Server

Hans-Petter Halvorsen

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- LabVIEW Project
  - Overview of LabVIEW Source Code
  - LabVIEW OPC UA Toolkit

# LabVIEW OPC UA Demo Software

OPC UA Demo Client

LabVIEW OPC UA Client

Server Address  
opc.tcp://XPS15HPH:49580

Connect Disconnect

NodeId  
ns=2;s=Nodes.Temperature

Value Status DateTime

22 Good 2022-33-25 15:33:24

New Value

28 Write Exit












# LabVIEW OPC UA Demo Software

## Installation

- Download ZIP File including the Executable Applications for the Demo Server and the Demo Client
- Download LabVIEW Run-Time Engine (Free)

# LabVIEW OPC UA Demo Software

Downloads > LabVIEW OPC UA Server > LabVIEW OPC UA Server

	Name	Date modified	Type	Size
	 data	2022-04-25 15:30	File folder	
	 LabVIEW OPC UA Client.aliases	2022-04-25 15:30	ALIASES File	1 KB
	 LabVIEW OPC UA Client.exe	2022-04-25 15:30	Application	690 KB
	 LabVIEW OPC UA Client.ini	2022-04-25 15:30	Configuration sett...	1 KB
	 LabVIEW OPC UA Server.aliases	2022-04-25 15:30	ALIASES File	1 KB
	 LabVIEW OPC UA Server.exe	2022-04-25 15:30	Application	1,060 KB
	 LabVIEW OPC UA Server.ini	2022-04-25 15:30	Configuration sett...	1 KB
	 OPCNodes.ini	2022-04-25 15:30	Configuration sett...	1 KB

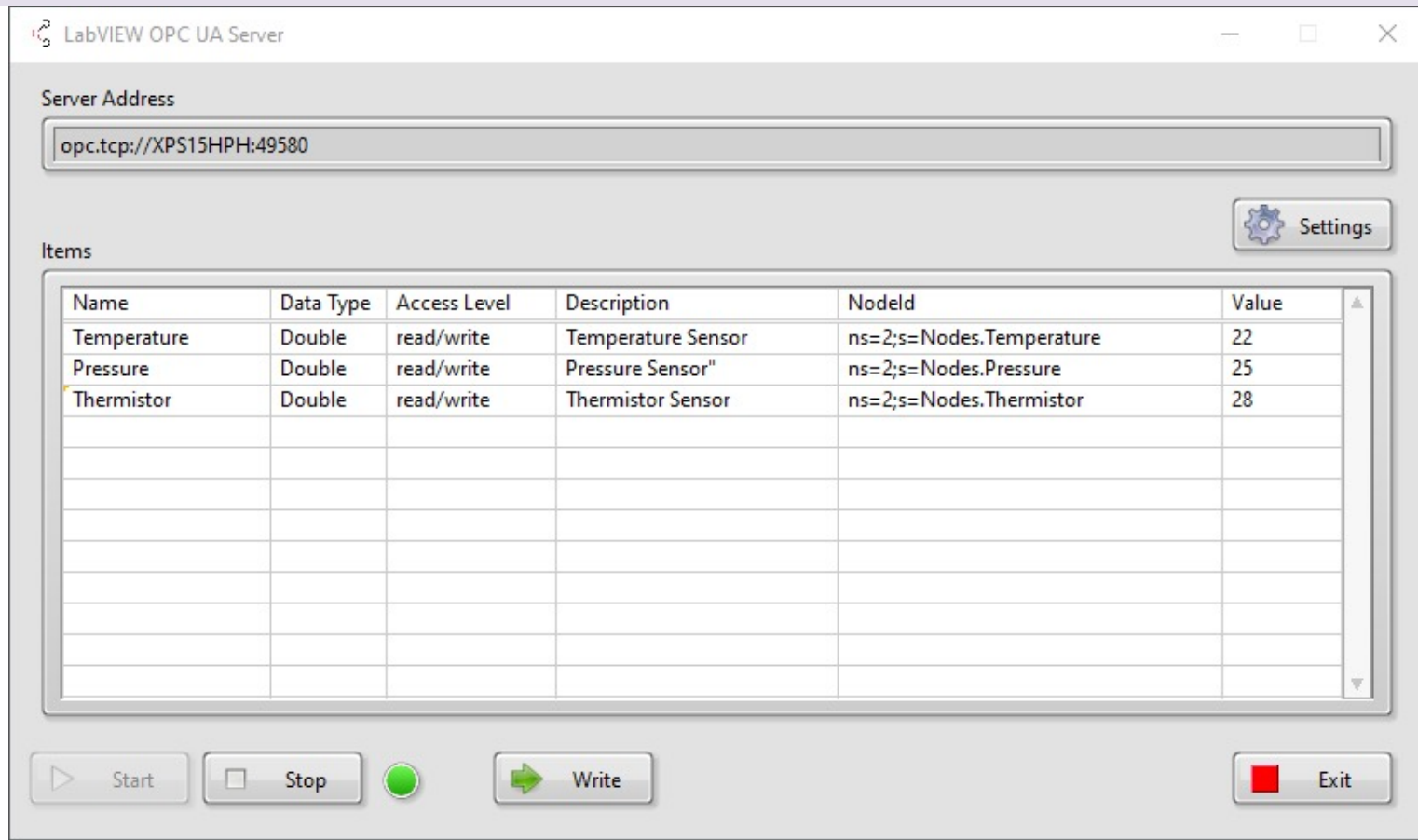


# LabVIEW OPC UA Server

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# LabVIEW OPC UA Server




# Settings

The screenshot displays three overlapping windows from a settings application:

- Item Settings (Background):** A window with a table of items and control buttons at the bottom.

Name	Data Type	Access Level	Description
Temperature	Double	read/write	Temperature Sensor
Pressure	Double	read/write	Pressure Sensor"
Thermistor	Double	read/write	Thermistor Sensor

Buttons: Add, Edit, Delete, Exit
- Add Item (Top Right):** A dialog for creating a new item with fields for Name, Data Type (Double), Access Level (read/write), and Description.
- Edit Item (Bottom Right):** A dialog for modifying an existing item, showing the Name (Pressure), Data Type (Double), Access Level (read/write), and Description (Pressure Sensor).

 Edit Item ✕

Name

Pressure

Data Type



Double

Access Level

read/write

Description

Pressure Sensor

 OK  Cancel



# Write Data

LabVIEW OPC UA Server

Server Address  
opc.tcp://XPS15HPH:49580

Settings

Items

Name	Data Type	Access Level	Description	NodeId	Value
Temperature	Double	read/write	Temperature Sensor	ns=2;s=Nodes.Temperature	0
Pressure	Double	read/write	Pressure Sensor	ns=2;s=Nodes.Pressure	0
Thermistor	Double	read/write	Thermistor Sensor	ns=2;s=Nodes.Thermistor	0

Start Stop Write

LabVIEW OPC UA Server

Server Address  
opc.tcp://XPS15HPH:49580

Settings

Items

Name	Data Type	Access Level	Description	NodeId	Value
Temperature	Double	read/write	Temperature Sensor	ns=2;s=Nodes.Temperature	22
Pressure	Double	read/write	Pressure Sensor	ns=2;s=Nodes.Pressure	0
Thermistor	Double	read/write	Thermistor Sensor	ns=2;s=Nodes.Thermistor	0

Start Stop Write Exit

Write Data

Node Id  
ns=2;s=Nodes.Temperature

Value  
22

OK Cancel



# LabVIEW OPC UA Client

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# LabVIEW OPC UA Client

LabVIEW OPC UA Client

Server Address

opc.tcp://XPS15HPH:49580



NodeId

ns=2;s=Nodes.Temperature

Value	Status	DateTime
22	Good	2022-33-25 15:33:24

New Value

# Connect to Server

LabVIEW OPC UA Client

Server Address

opc.tcp://XPS15HPH:49580

Connect Disconnect

NodeId

ns=2;s=Nodes.Temperature

Value	Status	DateTime
22	Good	2022-33-25 15:33:24

New Value

28 Write

Exit

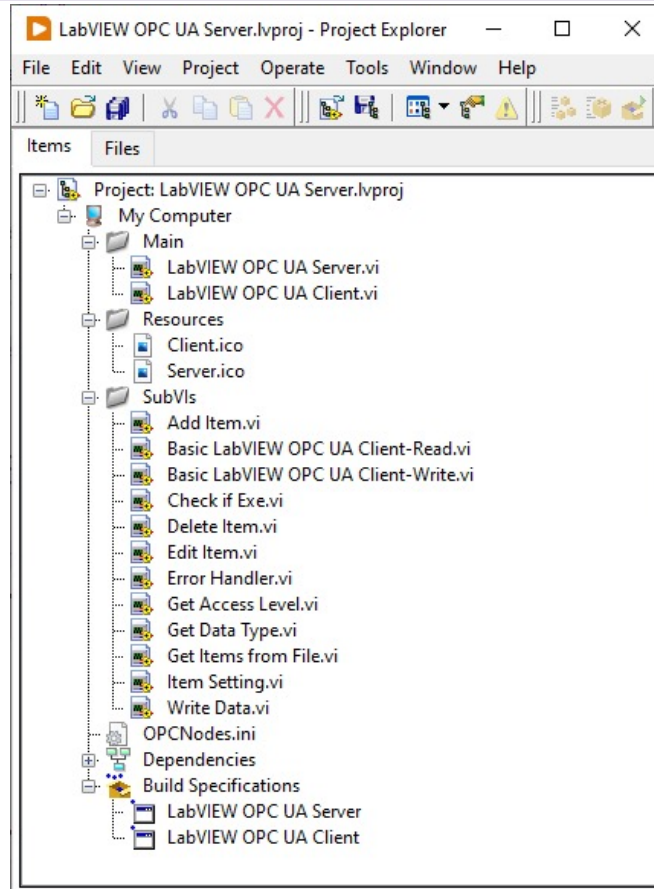
# Write Data to Server

[illegible]

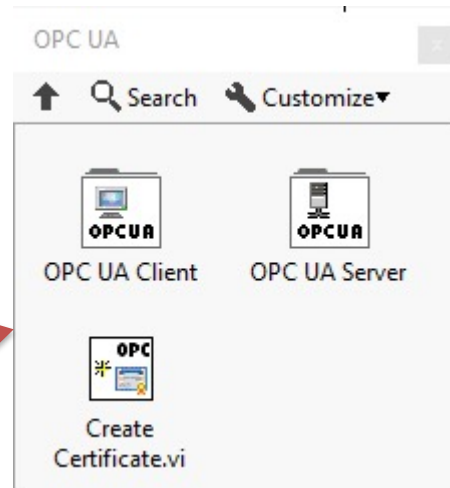
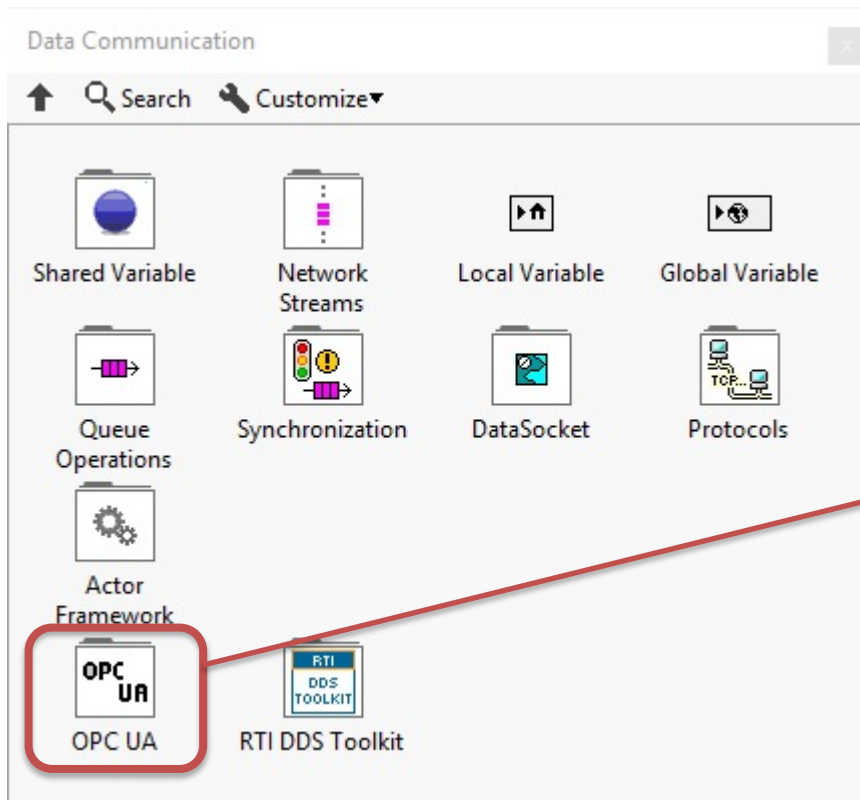


# LabVIEW Project

# LabVIEW Project



# OPC UA Toolkit in LabVIEW





# OPC UA Server Palette



Create.vi



Close.vi



Start.vi



Stop.vi



Add Trusted Clients.vi



Clear All Trusted Clients.vi



Register Server.vi



Unregister Server.vi



Add Folder.vi



Add Item.vi



Add Analog Item.vi



Add Property.vi



Delete Node.vi



Read.vi



Write.vi



Alarms and Conditions



Historical Access

# OPC UA Client Palette

↑ Search Customize



Connect.vi



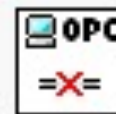
Forward  
Browse.vi



Create  
Subscription.vi



Delete  
Subscriptions.vi



Disconnect.vi



Add Monitored  
Data Nodes.vi



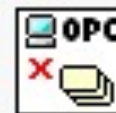
Get Node  
Attribute.vi



Multiple Read.vi



Multiple Write.vi



Delete  
Monitored ...

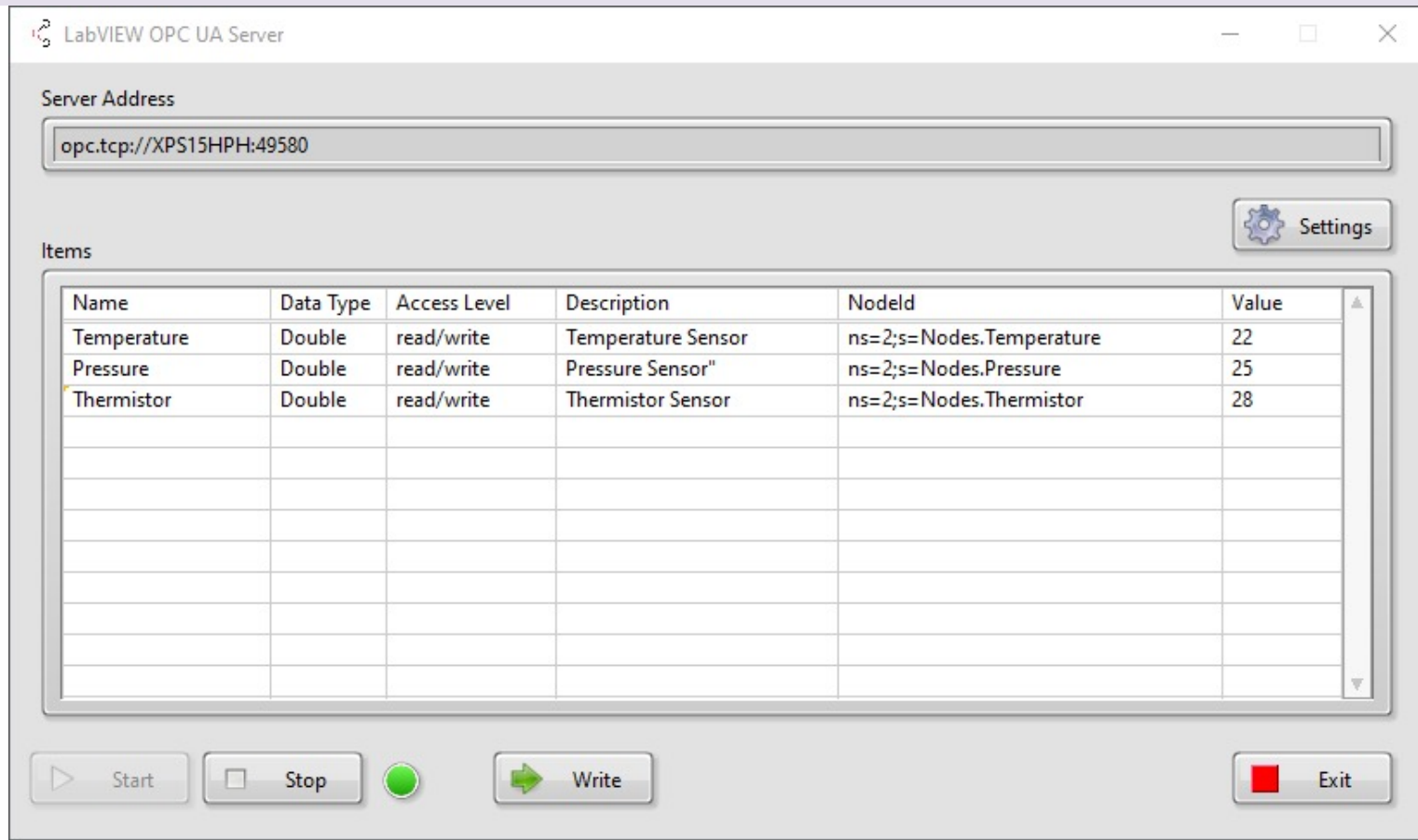


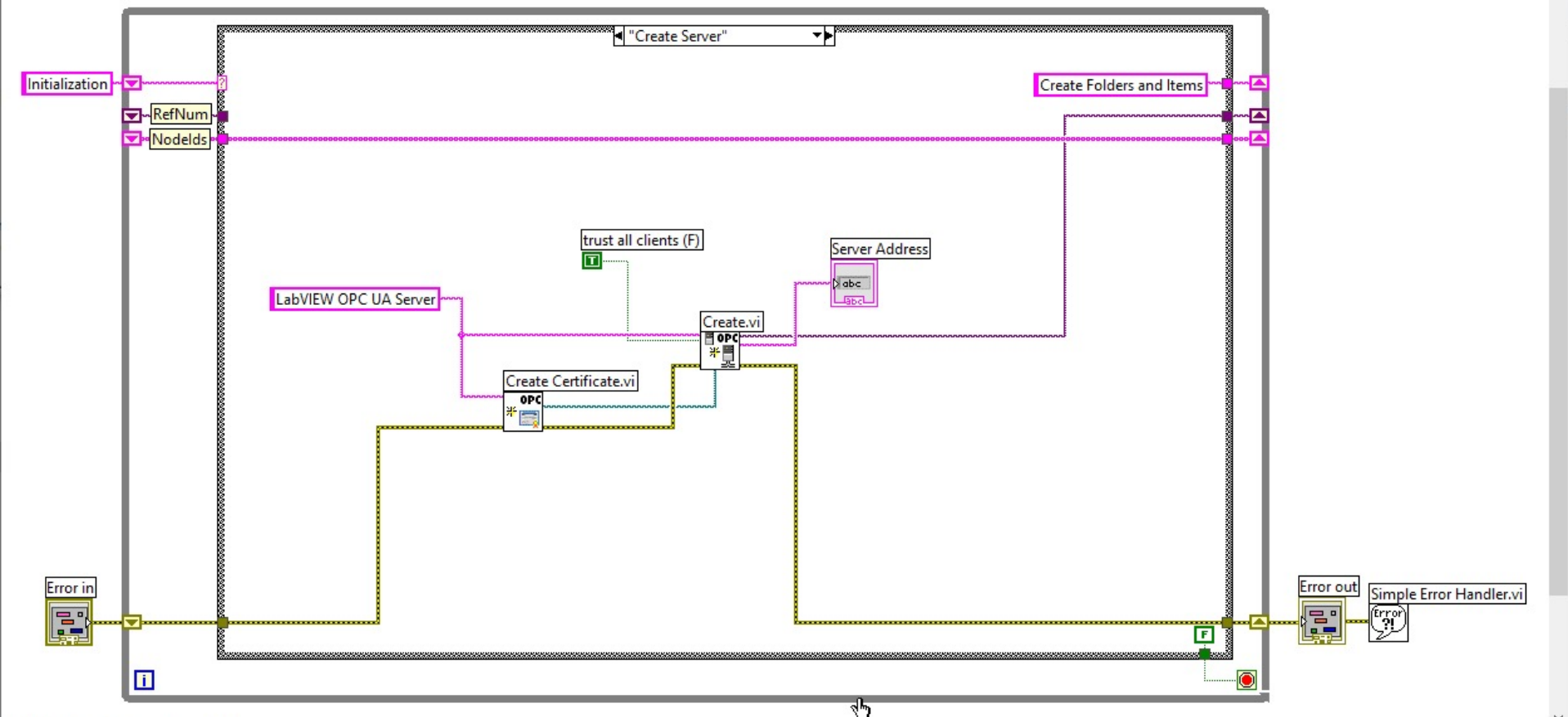
Alarms and  
Conditions



Historical  
Access

# LabVIEW OPC UA Server






# LabVIEW OPC UA Client

LabVIEW OPC UA Client

Server Address

opc.tcp://XPS15HPH:49580




Connect Disconnect 

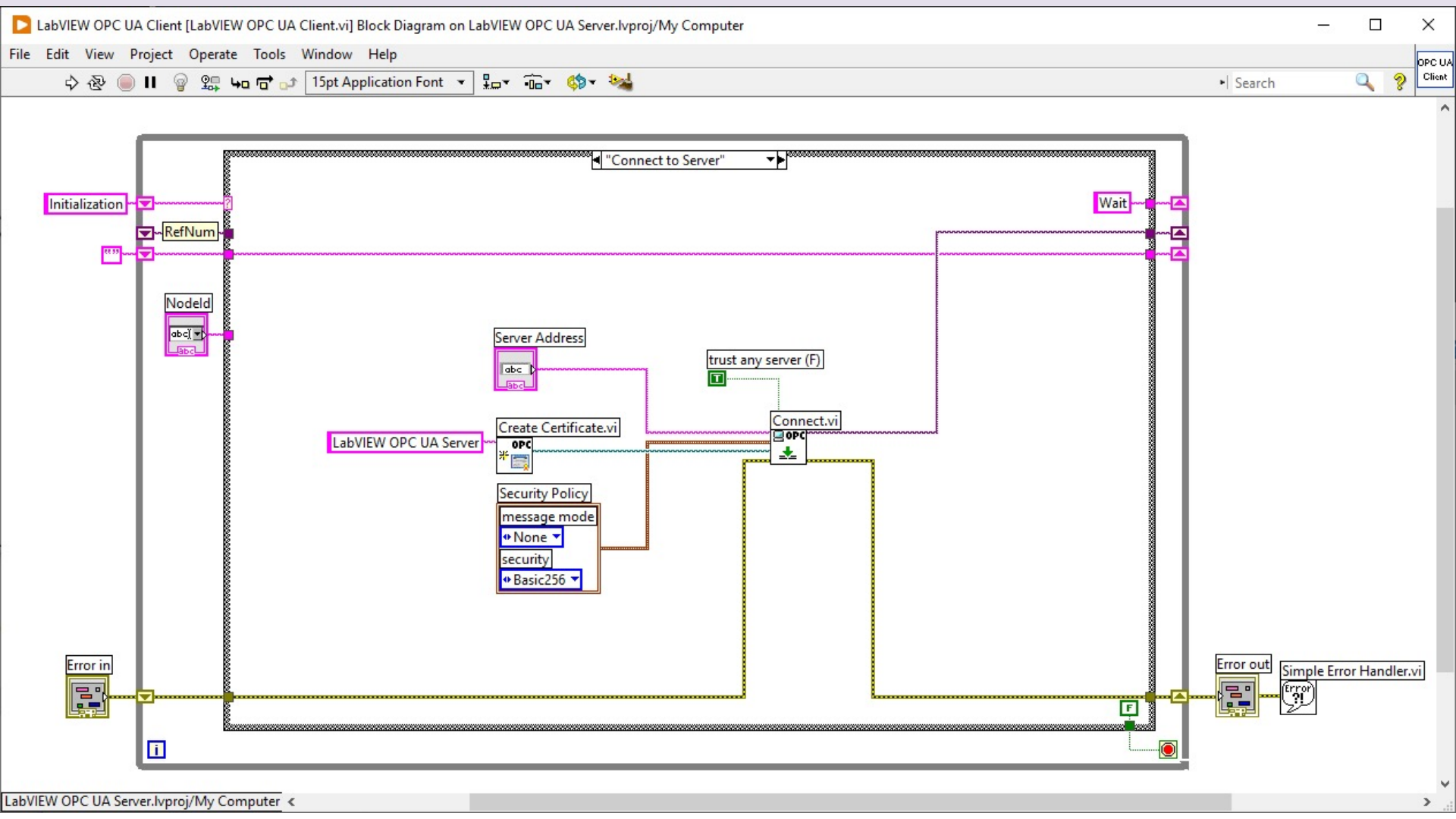
NodeId

ns=2;s=Nodes.Temperature

Value	Status	DateTime
22	Good	2022-33-25 15:33:24

New Value

 28  Write  Exit



# Build Executable Applications

The image displays the LabVIEW Project Explorer and the LabVIEW OPC UA Server Properties dialog, illustrating the process of building executable applications.

**LabVIEW OPC UA Server.lvproj - Project Explorer**

- File Edit View Project Operate Tools Window Help
- Items Files
- Project: LabVIEW OPC UA Server.lvproj
  - My Computer
    - Main
      - LabVIEW OPC UA Server.vi
      - LabVIEW OPC UA Client.vi
    - Resources
      - Client.ico
      - Server.ico
    - SubVIs
      - Add Item.vi
      - Basic LabVIEW OPC UA Client-Read.vi
      - Basic LabVIEW OPC UA Client-Write.vi
      - Check if Exe.vi
      - Delete Item.vi
      - Edit Item.vi
      - Error Handler.vi
      - Get Access Level.vi
      - Get Data Type.vi
      - Get Items from File.vi
      - Item Setting.vi
      - Write Data.vi
    - OPCNodes.ini
    - Dependencies
    - Build Specifications
      - LabVIEW OPC UA Server
      - LabVIEW OPC UA Client

**LabVIEW OPC UA Server Properties**

**Category**

- Information
- Source Files
- Destinations
- Source File Settings
- Icon
- Advanced
- Additional Exclusions
- Version Information
- Windows Security
- Shared Variable Deployment
- Run-Time Languages
- Web Services
- Pre/Post Build Actions
- Preview

**Source Files**

**Project Files**

- My Computer
  - Main
  - Resources
  - SubVIs
  - OPCNodes.ini

**Startup VIs**

- LabVIEW OPC UA Server.vi

**Always Included**

**Build** **OK** **Cancel** **Help**

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