SIEMENS
Ingenuity for life

Introduction to the TIA Portal V14 SP1, S7-1500, and StartDrive

Beginners course to utilizing TIA Portal

One engineering framework for all automation tasks

Including visualization, automation and drives

TIA Portal

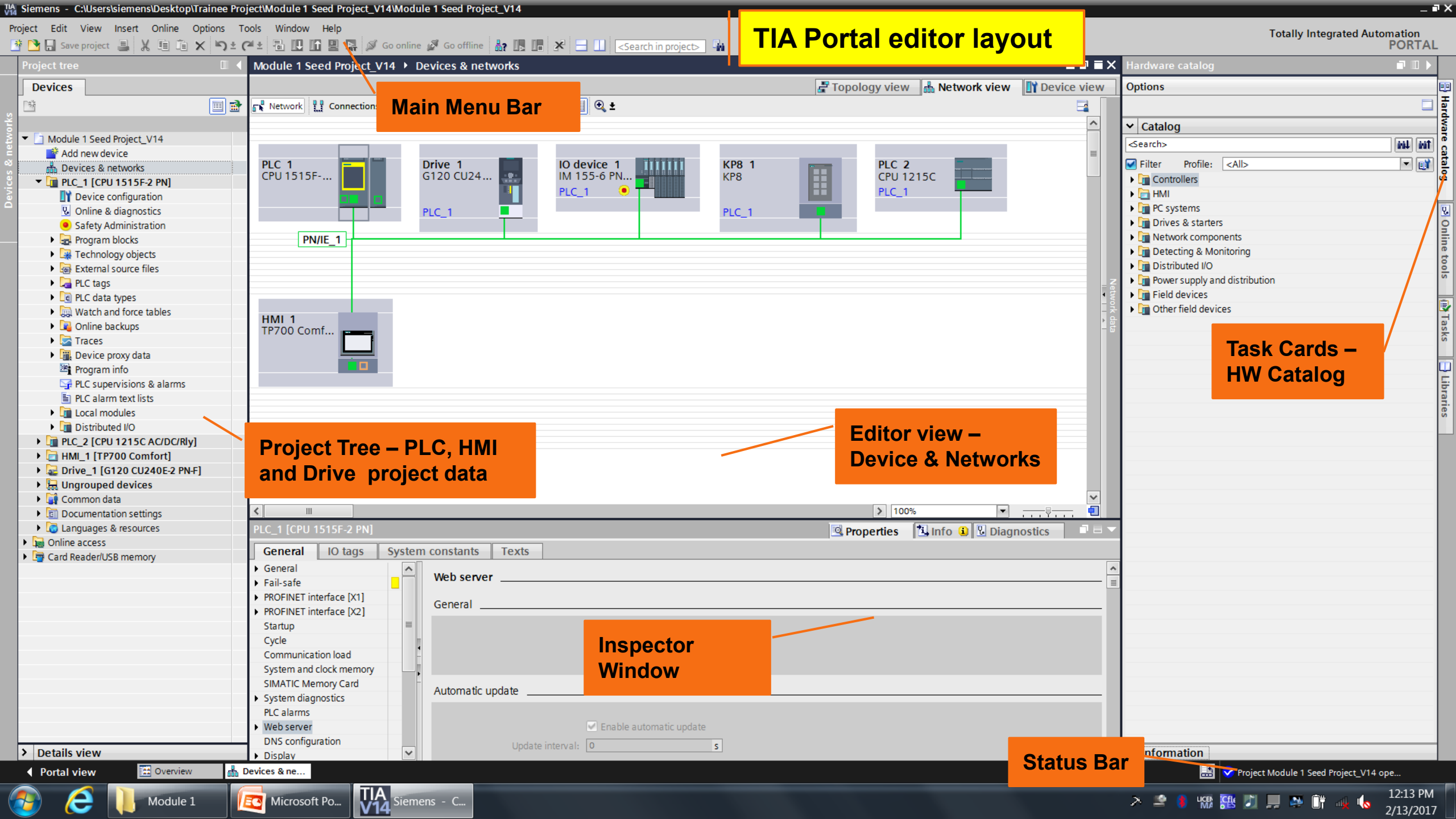
Totally Integrated Automation – Discover efficiencies with the TIA Portal

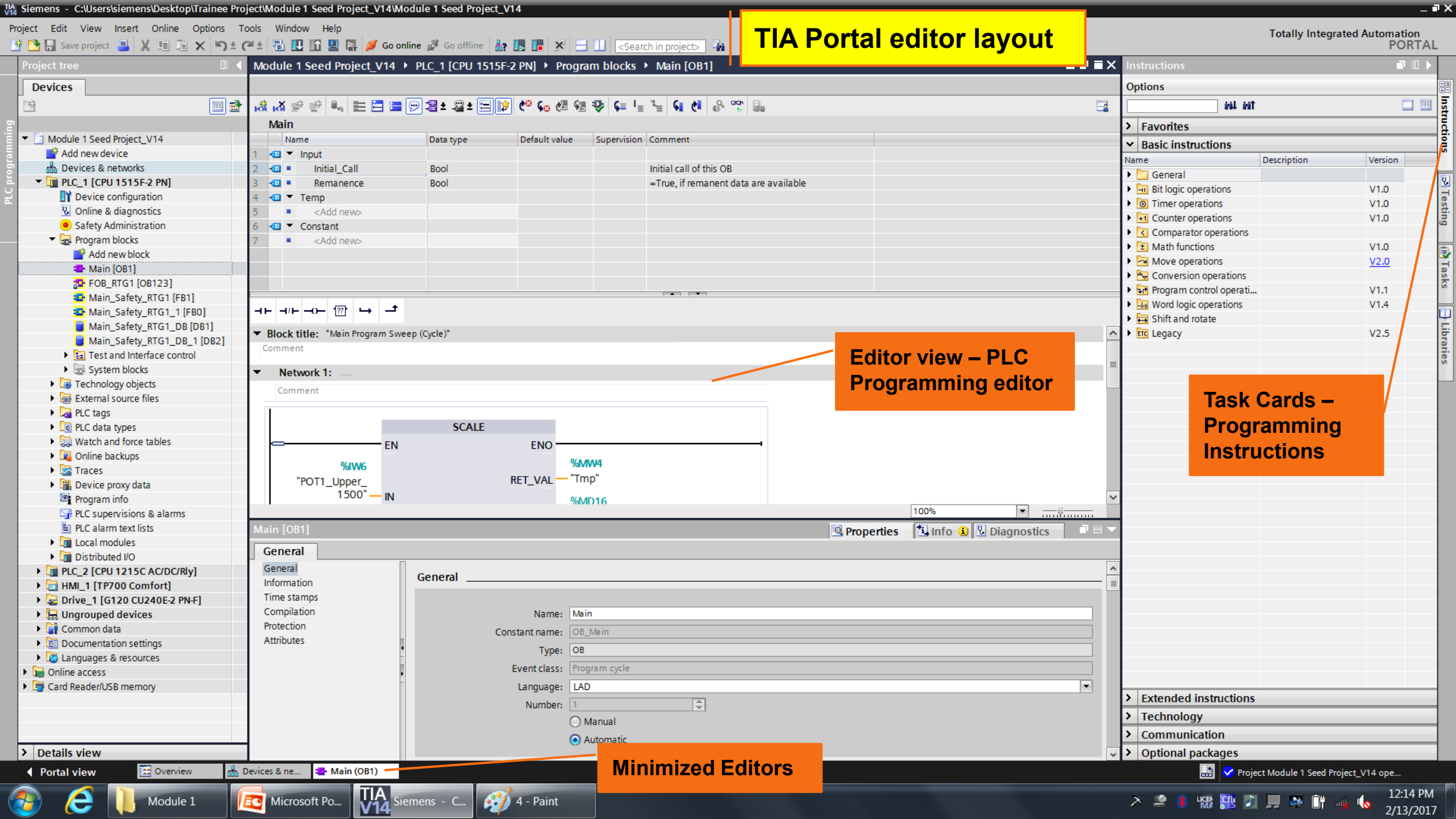
SIEMENS
Ingenuity for life

Totally Integrated Automation Portal

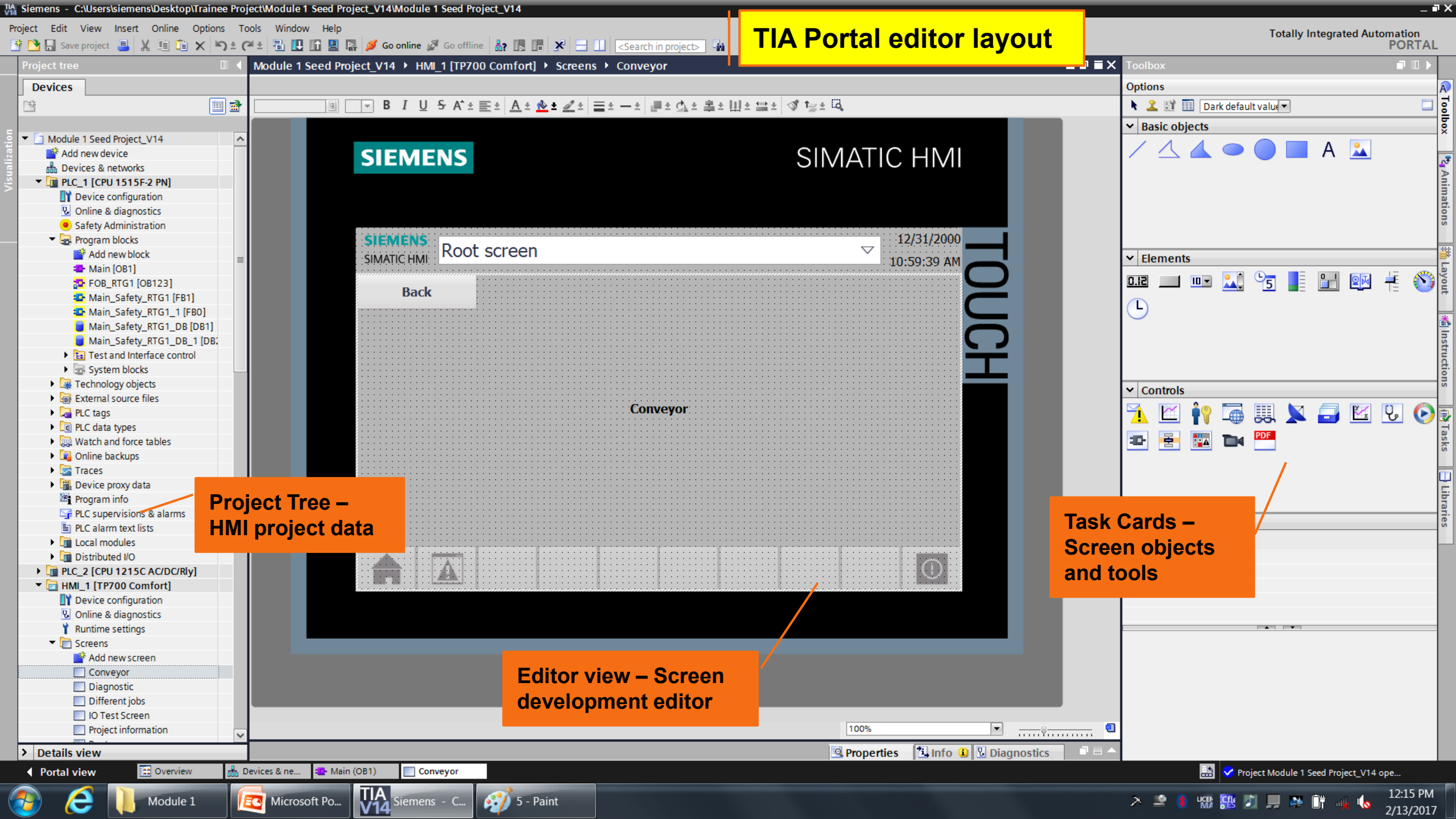
STEP 7 V14 SP1	Safety V14 SP1	WinCC V14 SP1	Startdrive V14 SP1
			
SIMATIC PC & PLC	Safety	SIMATIC HMI	SINAMICS

Single engineering framework for factory automation


TIA Portal editor layout
Main Menu Bar
Project Tree – PLC, HMI and Drive project data
Editor view – Device & Networks
Task Cards – HW Catalog
Inspector Window
Status Bar
Siemens - C:\Users\siemens\Desktop\Trainee Project\Module 1 Seed Project_V14\Module 1 Seed Project_V14
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14
Add new device
Devices & networks
PLC_1 [CPU 1515F-2 PN]
Device configuration
Online & diagnostics
Safety Administration
Program blocks
Technology objects
External source files
PLC tags
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Distributed I/O
PLC_2 [CPU 1215C AC/DC/Rly]
HMI_1 [TP700 Comfort]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14 ▸ Devices & networks
Topology view
Network view
Device view
Network
Connection
PLC_1
CPU 1515F-...
Drive_1
G120 CU24...
IO device_1
IM 155-6 PN...
KP8_1
KP8
PLC_2
CPU 1215C
PN/IE_1
HMI_1
TP700 Comf...
100%
PLC_1 [CPU 1515F-2 PN]
Properties
Info
Diagnostics
General
IO tags
System constants
Texts
Fail-safe
PROFINET interface [X1]
PROFINET interface [X2]
Startup
Cycle
Communication load
System and clock memory
SIMATIC Memory Card
System diagnostics
PLC alarms
Web server
DNS configuration
Display
Web server
General
Automatic update
Enable automatic update
Update interval:
Hardware catalog
Options
Catalog
<Search>
Filter
Profile:
<All>
Controllers
HMI
PC systems
Drives & starters
Network components
Detecting & Monitoring
Distributed I/O
Power supply and distribution
Field devices
Other field devices
Hardware catalog
Online tools
Tasks
Libraries
Portal view
Overview
Devices & ne...
Project Module 1 Seed Project_V14 ope...
Module 1
Microsoft Po...
Siemens - C...
12:13 PM
2/13/2017


TIA Portal editor layout
Editor view – PLC Programming editor
Task Cards – Programming Instructions
Minimized Editors
Siemens - C:\Users\siemens\Desktop\Trainee Project\Module 1 Seed Project_V14\Module 1 Seed Project_V14
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14
Add new device
Devices & networks
PLC_1 [CPU 1515F-2 PN]
Device configuration
Online & diagnostics
Safety Administration
Program blocks
Add new block
Main [OB1]
FOB_RTG1 [OB123]
Main_Safety_RTG1 [FB1]
Main_Safety_RTG1_1 [FB0]
Main_Safety_RTG1_DB [DB1]
Main_Safety_RTG1_DB_1 [DB2]
Test and Interface control
System blocks
Technology objects
External source files
PLC tags
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Distributed I/O
PLC_2 [CPU 1215C AC/DC/Rly]
HMI_1 [TP700 Comfort]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14 ▸ PLC_1 [CPU 1515F-2 PN] ▸ Program blocks ▸ Main [OB1]
Main
Name | Data type | Default value | Supervision | Comment
Input
Initial_Call | Bool | Initial call of this OB
Remanence | Bool | =True, if remanent data are available
Temp
Constant
Block title: "Main Program Sweep (Cycle)"
Comment
Network 1:
SCALE
EN
ENO
%IW6
"POT1_Upper_1500"
IN
RET_VAL
%MW4
"Tmp"
%MD16
100%
Main [OB1]
Properties
Info
Diagnostics
General
Information
Time stamps
Compilation
Protection
Attributes
Name: Main
Constant name: OB_Main
Type: OB
Event class: Program cycle
Language: LAD
Number: 1
Manual
Automatic
Instructions
Options
Favorites
Basic instructions
Name | Description | Version
General
Bit logic operations V1.0
Timer operations V1.0
Counter operations V1.0
Comparator operations
Math functions V1.0
Move operations V2.0
Conversion operations
Program control operati... V1.1
Word logic operations V1.4
Shift and rotate
Legacy V2.5
Extended instructions
Technology
Communication
Optional packages
Portal view
Overview
Devices & ne...
Main (OB1)
Project Module 1 Seed Project_V14 ope...
Module 1
Microsoft Po...
Siemens - C...
4 - Paint
12:14 PM
2/13/2017

TIA Portal editor layout



Demo Equipment – Realizing Engineering Efficiencies Workshop

SIEMENS
Ingenuity for life

Demo Equipment – Realizing Engineering Efficiencies Workshop

SIEMENS
Ingenuity for life

SIMATIC HMI 7” Comfort Panel

SIMATIC KP8 Keypad

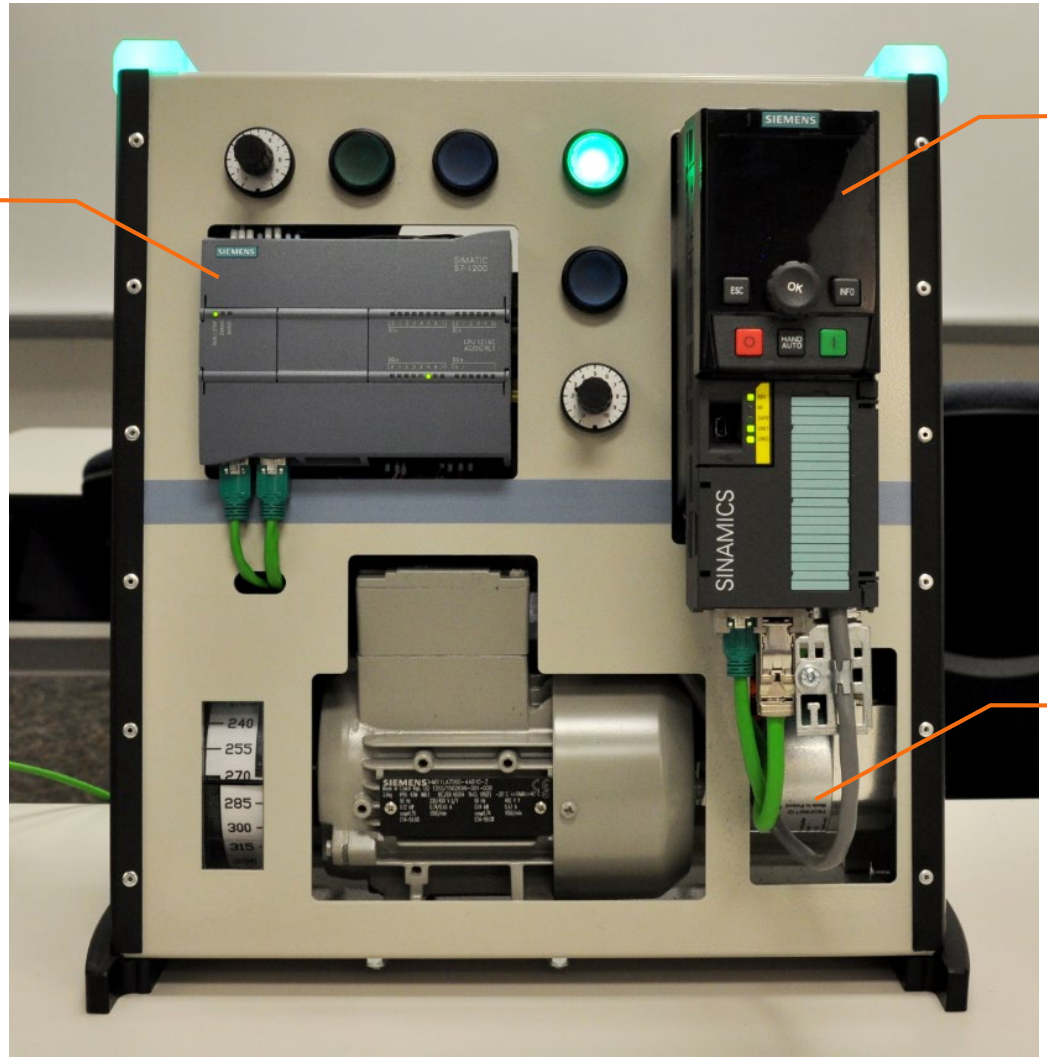
SIMATIC S71500 PLC

SIMATIC ET200SP Remote I/O

SIMATIC ET200MP I/O

Demo Equipment – Realizing Engineering Efficiencies Workshop

SIEMENS
Ingenuity for life



SIMATIC S71200 PLC

SINAMICS G120 Drive

Siemens
PROFINET Encoder

SIEMENS
Ingenuity for life

Module 1 – Intuitive Development

Lab Exercise

Module 1 Objectives

SIEMENS
Ingenuity for life

Goal:

Demonstrate the reduction in engineering time needed to configure an automation system with PLCs, HMIs, and drives.

Main takeaways for Module 1:

1. A clear understanding of how the TIA Portal can integrate PLCs, HMIs, and drives in ONE **software environment**.
2. Understand how the **library feature** can help reuse program parts that have already been developed.
3. Experience how a project with PLCs, HMIs, and drives can be configured and working in a **short amount of time**.

SIEMENS
Ingenuity for life

Background Information

Structure of Libraries

Types of Libraries

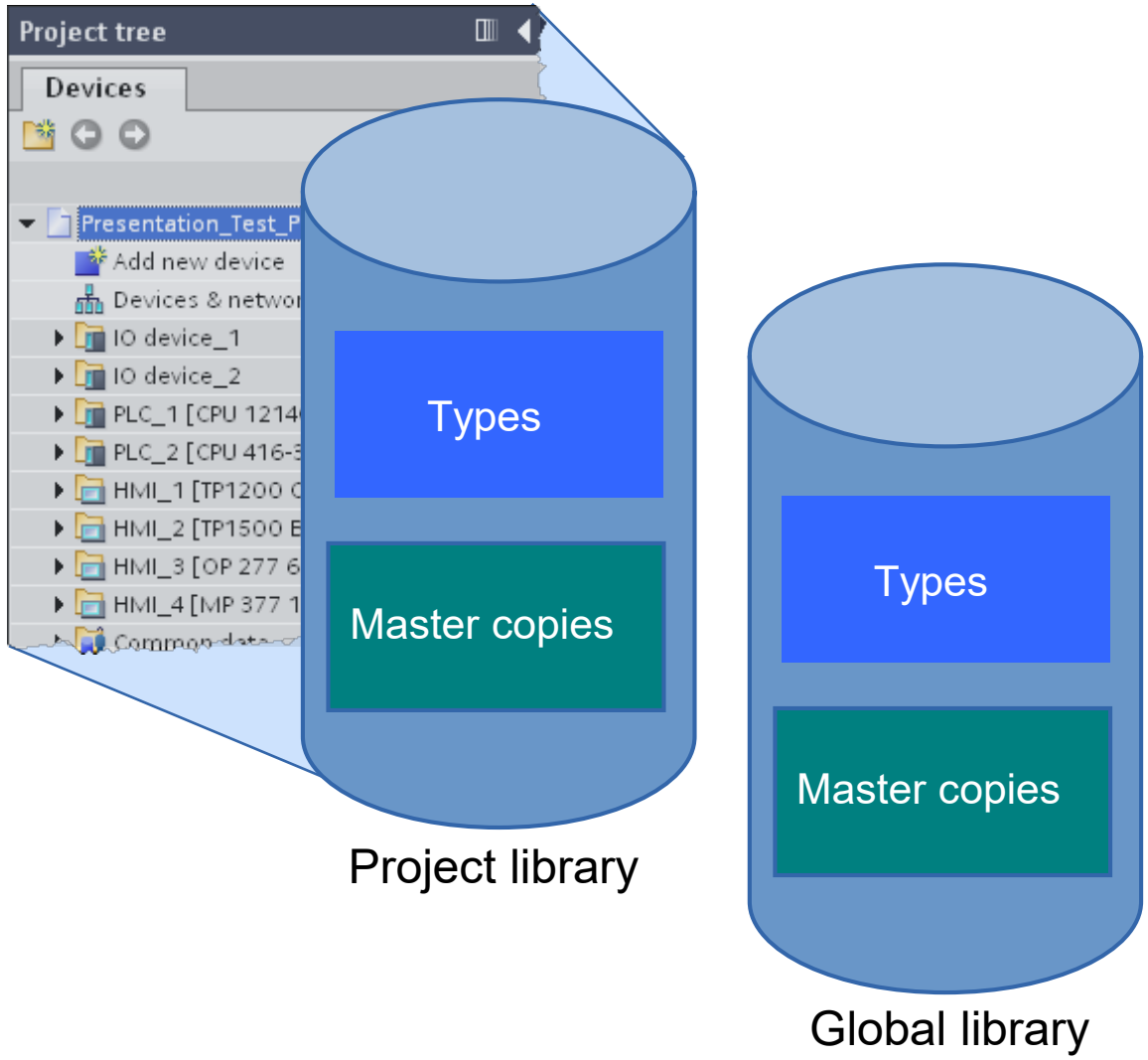
SIEMENS
Ingenuity for life

2 Kinds of Libraries

1. **Project Library**
   - Unique for each project
   - Attached to the project (opened, closed, and save with the project)
2. **Global Library**
   - Independent from projects
   - For cross-project use of objects
   - Can be saved on local PC or on a company server

Elements

- **Master copies:** Work as a clipboard
- **Type:** Instance principle

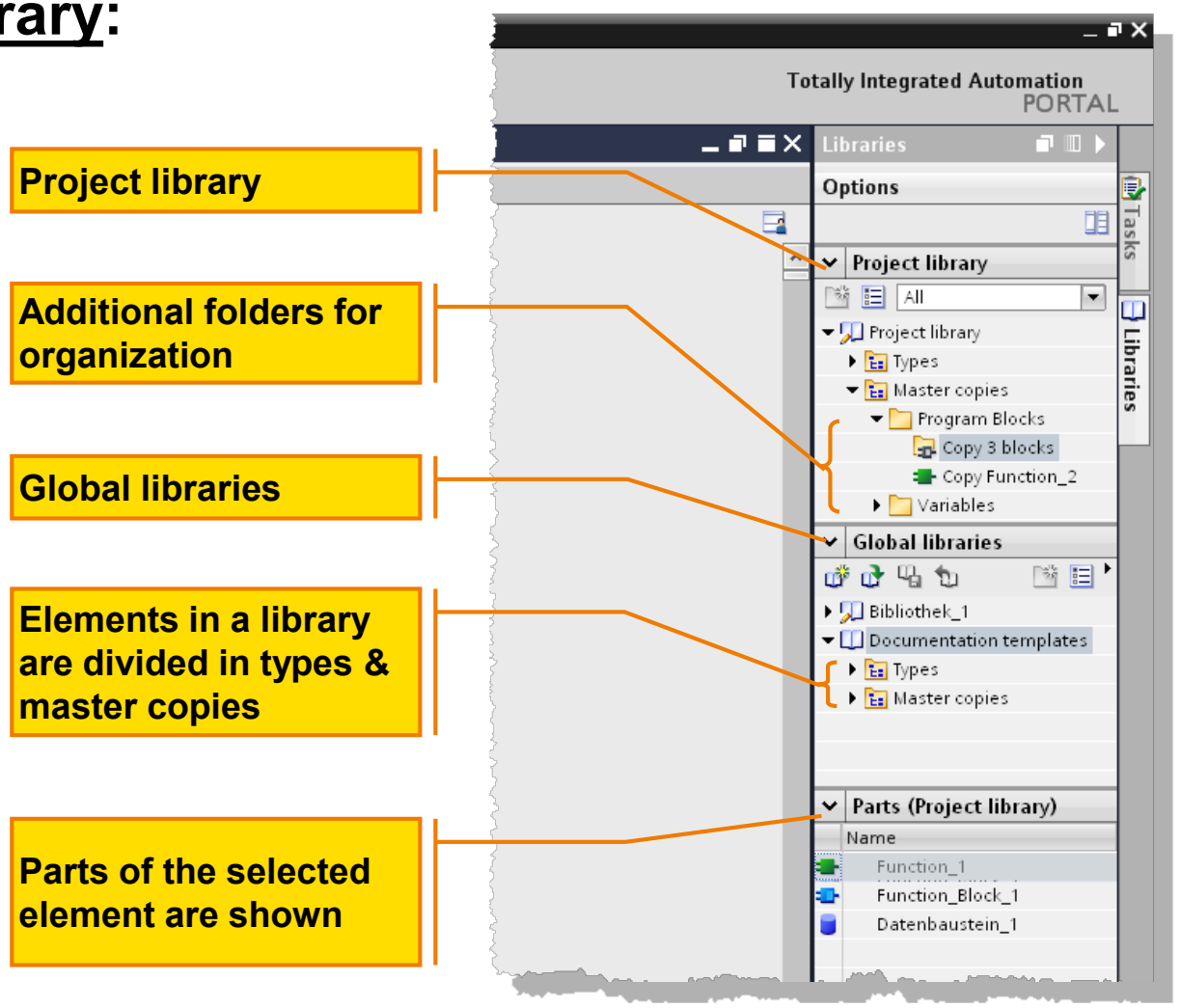


What Makes Up Libraries

SIEMENS
Ingenuity for life

Elements that can be stored in a Library:

- Program blocks
- Devices (PLC, HMI, etc.)
- Watch tables
- Data types
- Templates
- Variables
- HMI screens
- Scripts
- Alarms
- Many others…

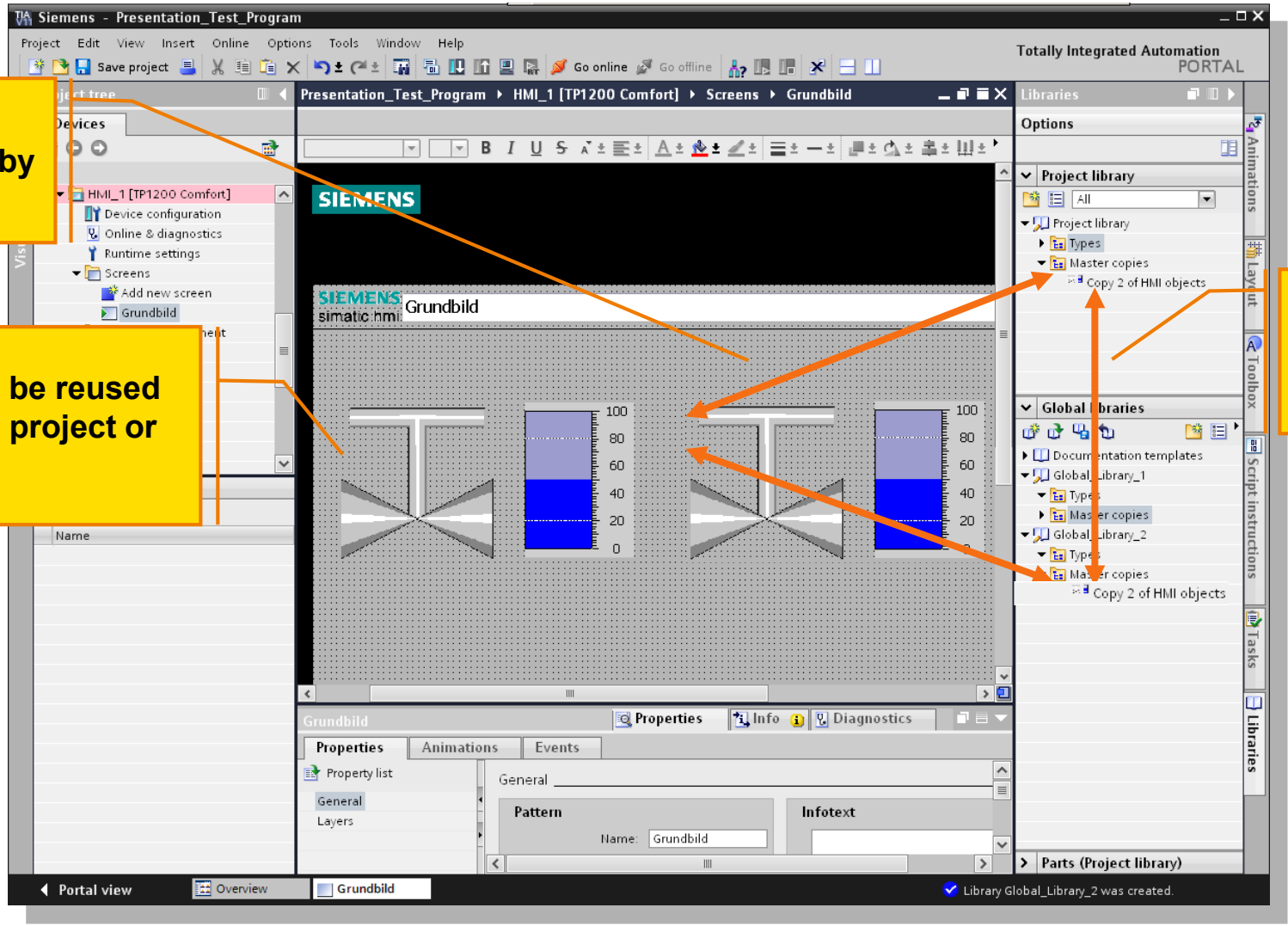


How to Implement Libraries

SIEMENS
Ingenuity for life

An existing object can be copied to a library simply by Drag & Drop

The object can then be reused in other parts of the project or other projects



Master copies can also be copied from one library to another

SIEMENS
Ingenuity for life

Configuring the Hardware

Tasks to set up the hardware for the Module

Task 1

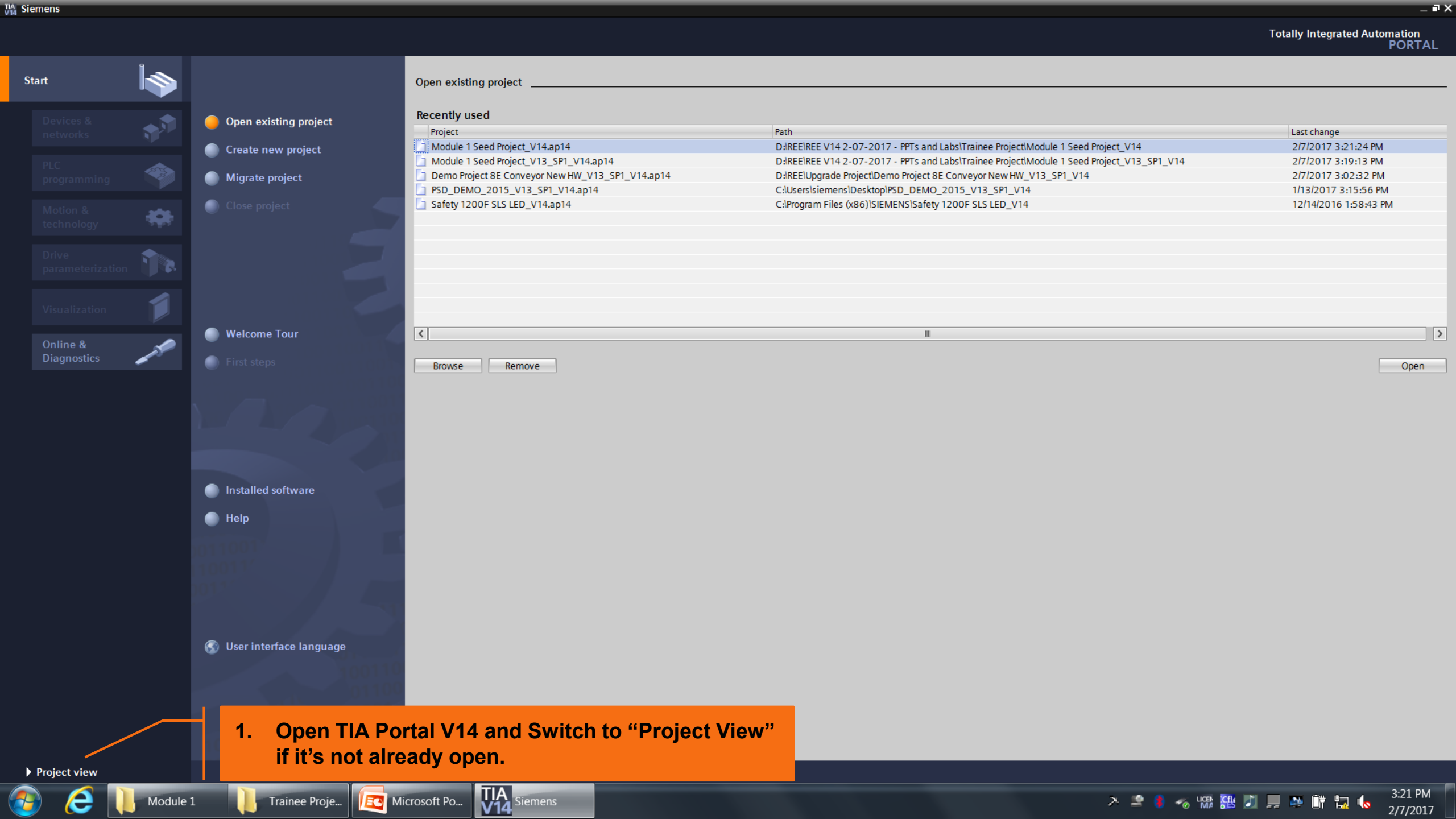
SIEMENS
Ingenuity for life

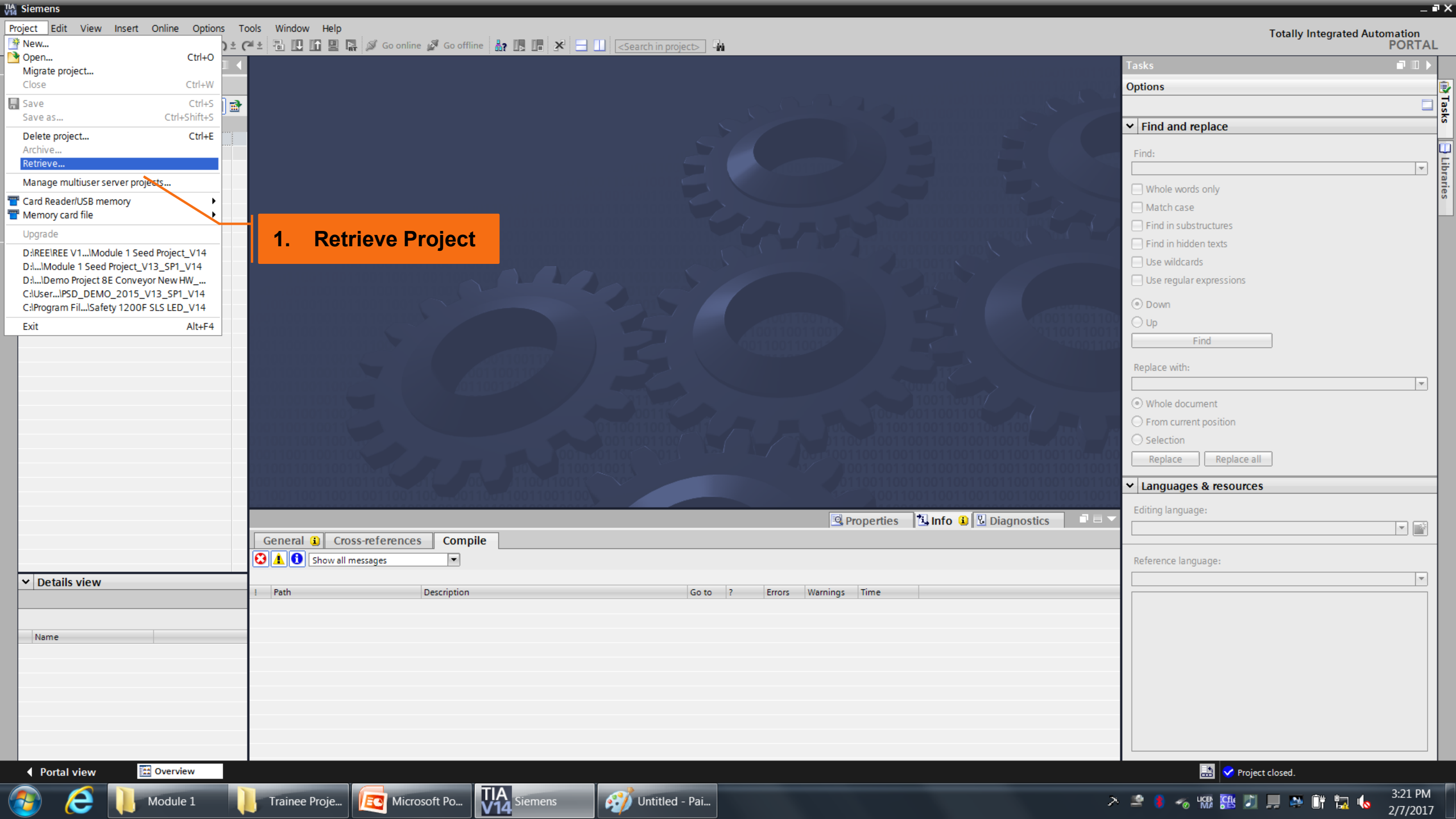
Objective:

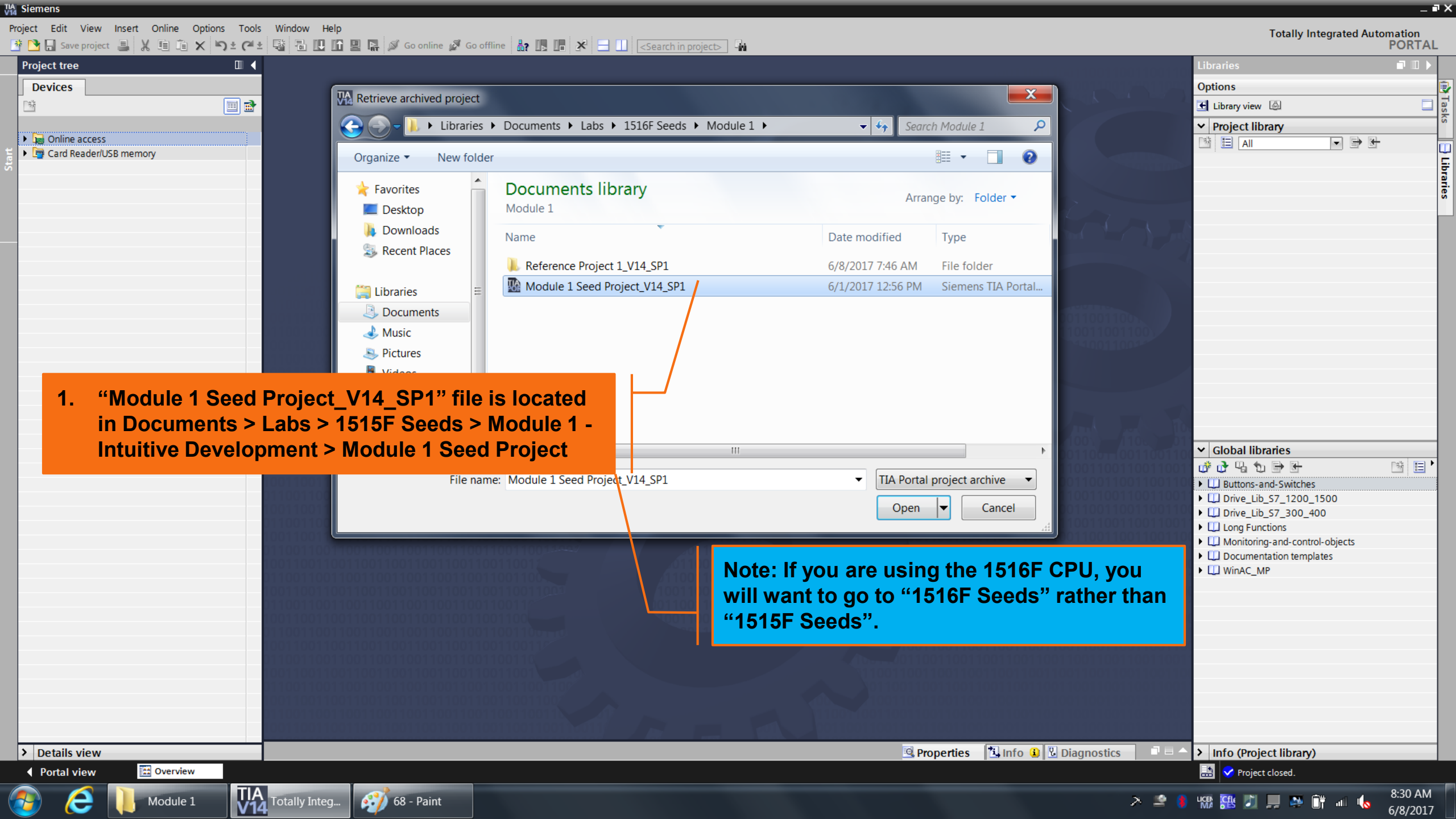
Configure the PLC hardware.

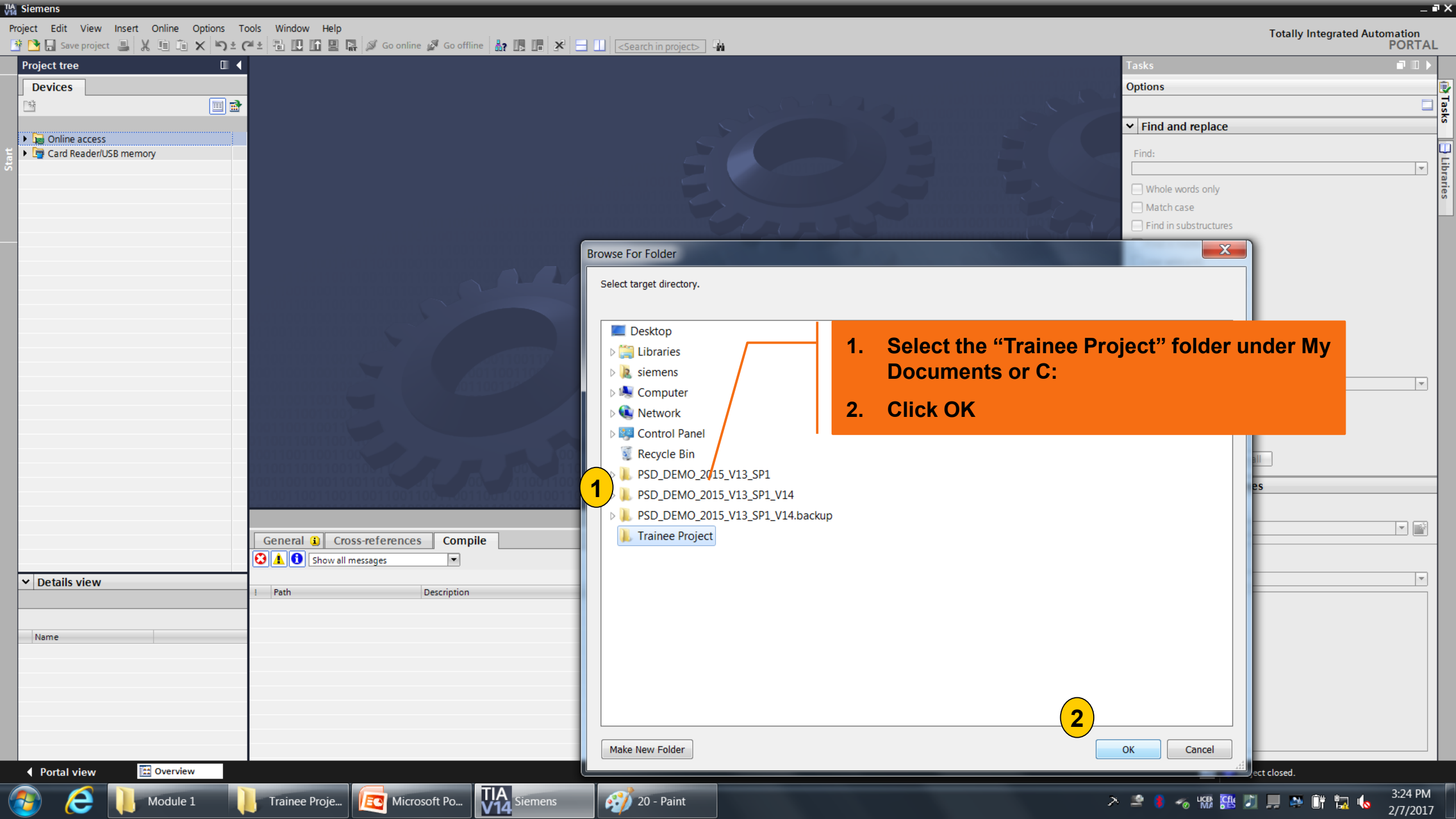
Overview:

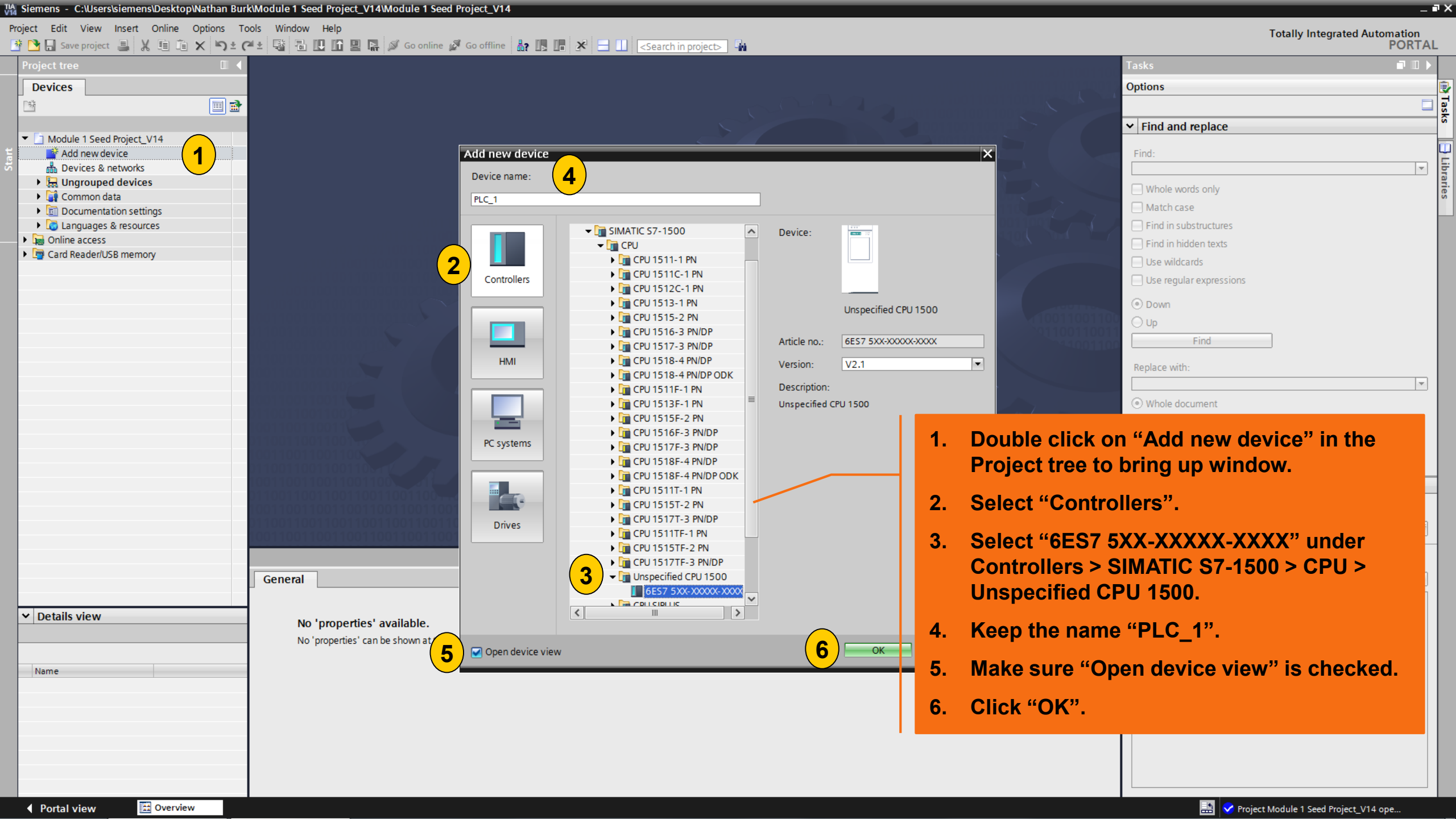
1. Retrieve a project and add an Unspecified CPU S7-1500.
2. Use **auto-detect** to find the S7-1500 Tour Kit.
3. Configure the CPU and local I/O properties.

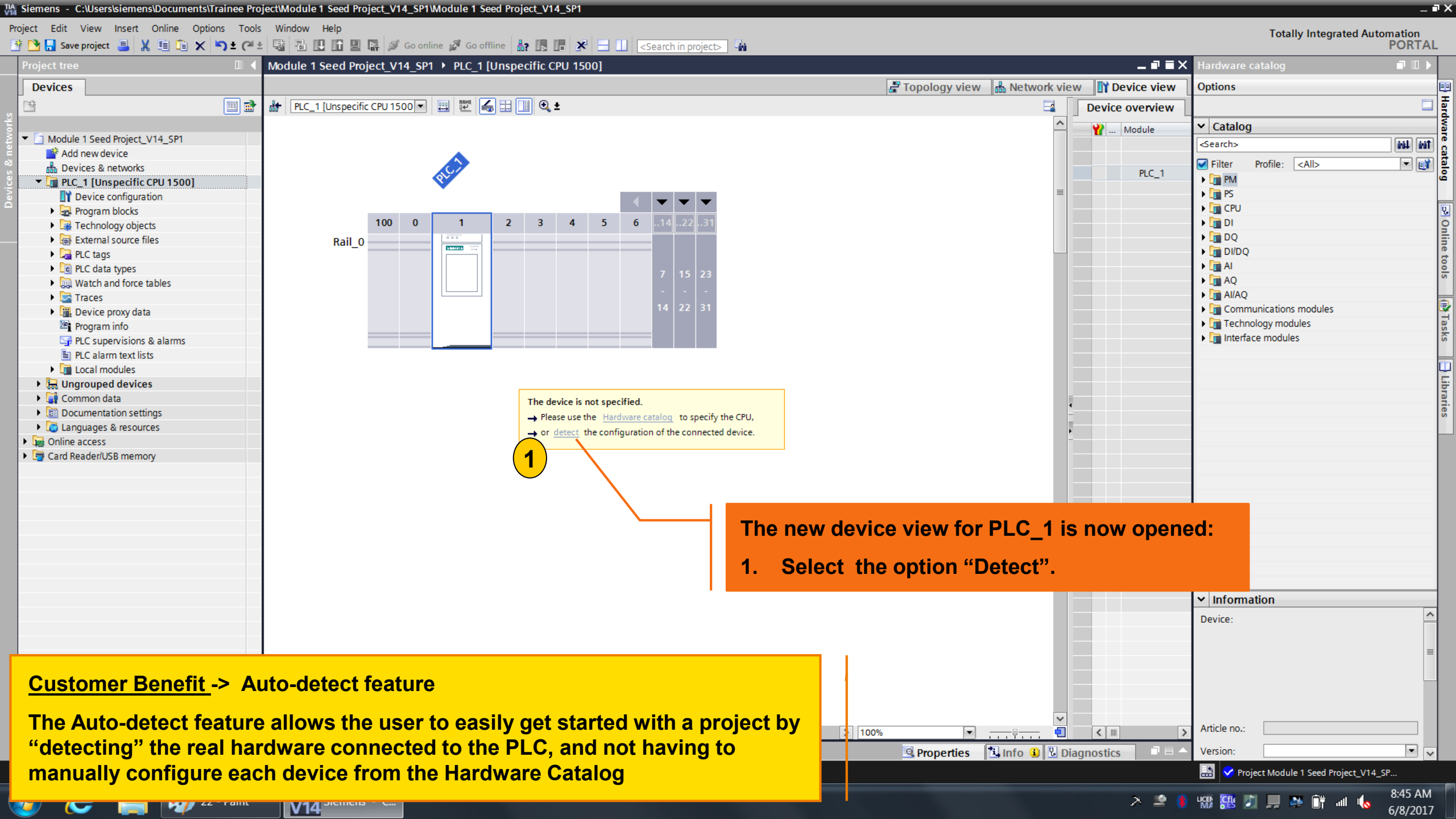

Siemens
Totally Integrated Automation
PORTAL
Start
Devices & networks
PLC programming
Motion & technology
Drive parameterization
Visualization
Online & Diagnostics
Open existing project
Create new project
Migrate project
Close project
Welcome Tour
First steps
Installed software
Help
User interface language
Open existing project
Recently used
Project
Path
Last change
Module 1 Seed Project_V14.ap14
D:\REE\REE V14 2-07-2017 - PPTs and Labs\Trainee Project\Module 1 Seed Project_V14
2/7/2017 3:21:24 PM
Module 1 Seed Project_V13_SP1_V14.ap14
D:\REE\REE V14 2-07-2017 - PPTs and Labs\Trainee Project\Module 1 Seed Project_V13_SP1_V14
2/7/2017 3:19:13 PM
Demo Project 8E Conveyor New HW_V13_SP1_V14.ap14
D:\REE\Upgrade Project\Demo Project 8E Conveyor New HW_V13_SP1_V14
2/7/2017 3:02:32 PM
PSD_DEMO_2015_V13_SP1_V14.ap14
C:\Users\siemens\Desktop\PSD_DEMO_2015_V13_SP1_V14
1/13/2017 3:15:56 PM
Safety 1200F SLS LED_V14.ap14
C:\Program Files (x86)\SIEMENS\Safety 1200F SLS LED_V14
12/14/2016 1:58:43 PM
Browse
Remove
Open
1. Open TIA Portal V14 and Switch to “Project View” if it’s not already open.
Project view
Module 1
Trainee Proje...
Microsoft Po...
Siemens
3:21 PM
2/7/2017


Siemens
Project
Edit
View
Insert
Online
Options
Tools
Window
Help
New...
Open... Ctrl+O
Migrate project...
Close Ctrl+W
Save Ctrl+S
Save as... Ctrl+Shift+S
Delete project... Ctrl+E
Archive...
Retrieve...
Manage multiuser server projects...
Card Reader/USB memory
Memory card file
Upgrade
D:\REE\REE V1...\Module 1 Seed Project_V14
D:\...\Module 1 Seed Project_V13_SP1_V14
D:\...\Demo Project 8E Conveyor New HW_...
C:\User...\PSD_DEMO_2015_V13_SP1_V14
C:\Program Fil...\Safety 1200F SLS LED_V14
Exit Alt+F4
1. Retrieve Project
Totally Integrated Automation
PORTAL
Tasks
Options
Find and replace
Find:
Whole words only
Match case
Find in substructures
Find in hidden texts
Use wildcards
Use regular expressions
Down
Up
Find
Replace with:
Whole document
From current position
Selection
Replace
Replace all
Languages & resources
Editing language:
Reference language:
Properties
Info
Diagnostics
General
Cross-references
Compile
Show all messages
Path
Description
Go to
Errors
Warnings
Time
Details view
Name
Portal view
Overview
Project closed.
Module 1
Trainee Proje...
Microsoft Po...
Siemens
Untitled - Pai...
3:21 PM
2/7/2017


Siemens
Project Edit View Insert Online Options Tools Window Help
Totally Integrated Automation PORTAL
Project tree
Devices
Online access
Card Reader/USB memory
Retrieve archived project
Libraries ▸ Documents ▸ Labs ▸ 1516F Seeds ▸ Module 1 ▸
Search Module 1
Organize
New folder
Favorites
Desktop
Downloads
Recent Places
Libraries
Documents
Music
Pictures
Documents library
Module 1
Arrange by: Folder
Name
Date modified
Type
Reference Project 1_V14_SP1
6/8/2017 7:46 AM
File folder
Module 1 Seed Project_V14_SP1
6/1/2017 12:56 PM
Siemens TIA Portal...
File name: Module 1 Seed Project_V14_SP1
TIA Portal project archive
Open
Cancel
1. “Module 1 Seed Project_V14_SP1” file is located in Documents > Labs > 1515F Seeds > Module 1 - Intuitive Development > Module 1 Seed Project
Note: If you are using the 1516F CPU, you will want to go to “1516F Seeds” rather than “1515F Seeds”.
Libraries
Options
Library view
Project library
All
Global libraries
Buttons-and-Switches
Drive_Lib_S7_1200_1500
Drive_Lib_S7_300_400
Long Functions
Monitoring-and-control-objects
Documentation templates
WinAC_MP
Details view
Properties
Info
Diagnostics
Info (Project library)
Portal view
Overview
Project closed.
Module 1
Totally Integ...
68 - Paint
8:30 AM
6/8/2017


Siemens
Project Edit View Insert Online Options Tools Window Help
Save project Go online Go offline <Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Online access
Card Reader/USB memory
Details view
Name
Tasks
Options
Find and replace
Find:
Whole words only
Match case
Find in substructures
Browse For Folder
Select target directory.
Desktop
Libraries
siemens
Computer
Network
Control Panel
Recycle Bin
PSD_DEMO_2015_V13_SP1
PSD_DEMO_2015_V13_SP1_V14
PSD_DEMO_2015_V13_SP1_V14.backup
Trainee Project
1
1. Select the “Trainee Project” folder under My Documents or C:
2. Click OK
2
Make New Folder
OK
Cancel
General
Cross-references
Compile
Show all messages
Path
Description
Portal view
Overview
Module 1
Trainee Proje...
Microsoft Po...
Siemens
20 - Paint
3:24 PM
2/7/2017


Siemens - C:\Users\siemens\Desktop\Nathan Burk\Module 1 Seed Project_V14\Module 1 Seed Project_V14
Project tree
Devices
Module 1 Seed Project_V14
Add new device
Devices & networks
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
1
Add new device
Device name:
PLC_1
4
Controllers
HMI
PC systems
Drives
2
SIMATIC S7-1500
CPU
CPU 1511-1 PN
CPU 1511C-1 PN
CPU 1512C-1 PN
CPU 1513-1 PN
CPU 1515-2 PN
CPU 1516-3 PN/DP
CPU 1517-3 PN/DP
CPU 1518-4 PN/DP
CPU 1518-4 PN/DP ODK
CPU 1511F-1 PN
CPU 1513F-1 PN
CPU 1515F-2 PN
CPU 1516F-3 PN/DP
CPU 1517F-3 PN/DP
CPU 1518F-4 PN/DP
CPU 1518F-4 PN/DP ODK
CPU 1511T-1 PN
CPU 1515T-2 PN
CPU 1517T-3 PN/DP
CPU 1511TF-1 PN
CPU 1515TF-2 PN
CPU 1517TF-3 PN/DP
Unspecified CPU 1500
6ES7 5XX-XXXXX-XXXX
3
Device:
Unspecified CPU 1500
Article no.:
6ES7 5XX-XXXXX-XXXX
Version:
V2.1
Description:
Unspecified CPU 1500
General
No 'properties' available.
No 'properties' can be shown at
5
Open device view
6
OK
Details view
Name
Tasks
Options
Find and replace
Find:
Whole words only
Match case
Find in substructures
Find in hidden texts
Use wildcards
Use regular expressions
Down
Up
Find
Replace with:
Whole document
1. Double click on “Add new device” in the Project tree to bring up window.
2. Select “Controllers”.
3. Select “6ES7 5XX-XXXXX-XXXX” under Controllers > SIMATIC S7-1500 > CPU > Unspecified CPU 1500.
4. Keep the name “PLC_1”.
5. Make sure “Open device view” is checked.
6. Click “OK”.
Portal view
Overview
Project Module 1 Seed Project_V14 ope...

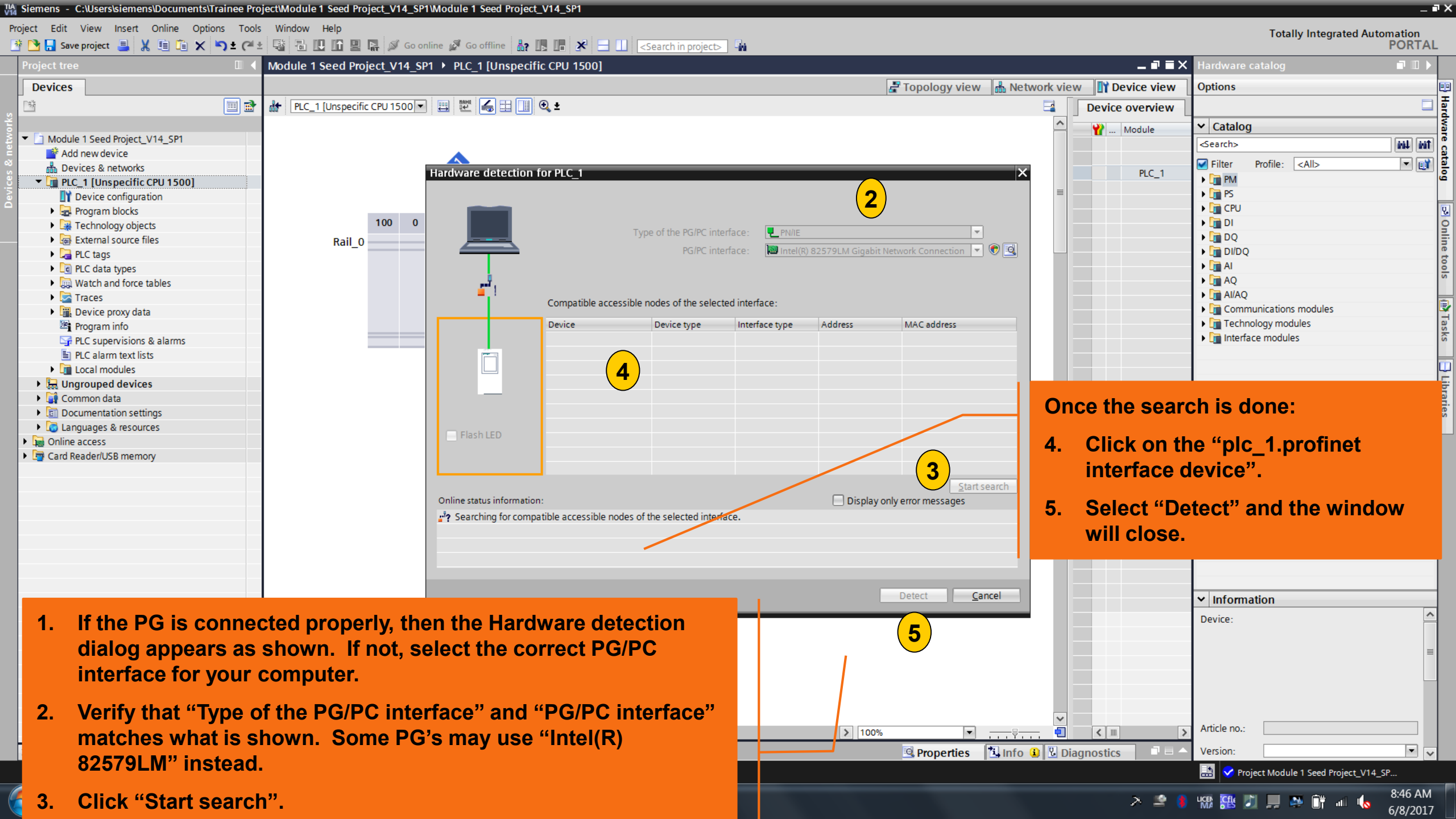


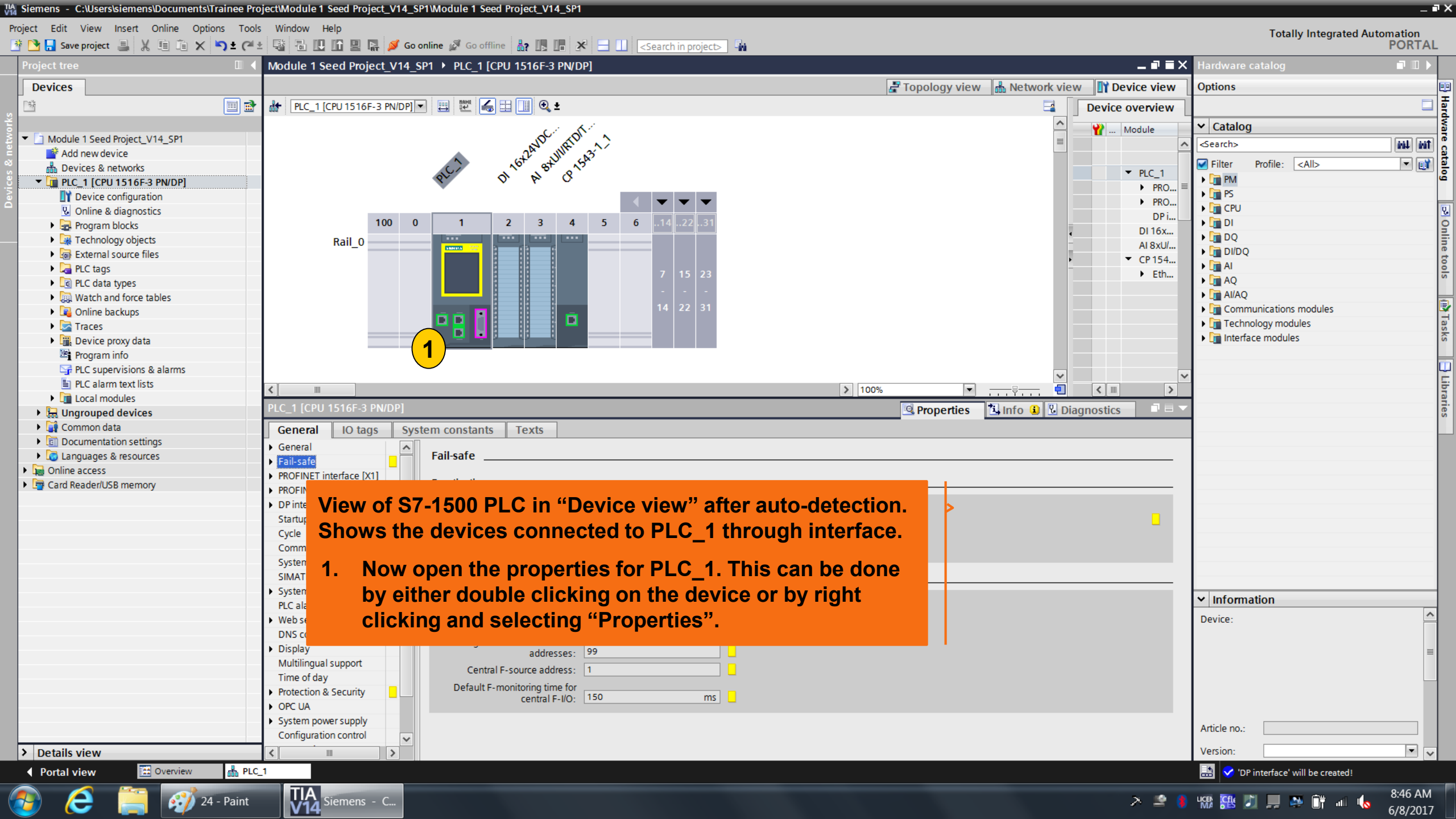
The new device view for PLC_1 is now opened:

1. **Select the option “Detect”.**

Customer Benefit -> Auto-detect feature

The Auto-detect feature allows the user to easily get started with a project by “detecting” the real hardware connected to the PLC, and not having to manually configure each device from the Hardware Catalog


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [Unspecific CPU 1500]
Device configuration
Program blocks
Technology objects
External source files
PLC tags
PLC data types
Watch and force tables
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [Unspecific CPU 1500]
Topology view
Network view
Device view
Device overview
Module
PLC_1
Hardware catalog
Options
Catalog
Filter
Profile:
PM
PS
CPU
DI
DQ
DI/DQ
AI
AQ
AI/AQ
Communications modules
Technology modules
Interface modules
Information
Device:
Article no.:
Version:
Rail_0
Hardware detection for PLC_1
2
Type of the PG/PC interface:
PN/IE
PG/PC interface:
Intel(R) 82579LM Gigabit Network Connection
Compatible accessible nodes of the selected interface:
Device
Device type
Interface type
Address
MAC address
4
Flash LED
3
Start search
Online status information:
Display only error messages
Searching for compatible accessible nodes of the selected interface.
Detect
Cancel
5
Once the search is done:
4. Click on the “plc_1.profinet interface device”.
5. Select “Detect” and the window will close.
1. If the PG is connected properly, then the Hardware detection dialog appears as shown. If not, select the correct PG/PC interface for your computer.
2. Verify that “Type of the PG/PC interface” and “PG/PC interface” matches what is shown. Some PG’s may use “Intel(R) 82579LM” instead.
3. Click “Start search”.
Properties
Info
Diagnostics
8:46 AM
6/8/2017

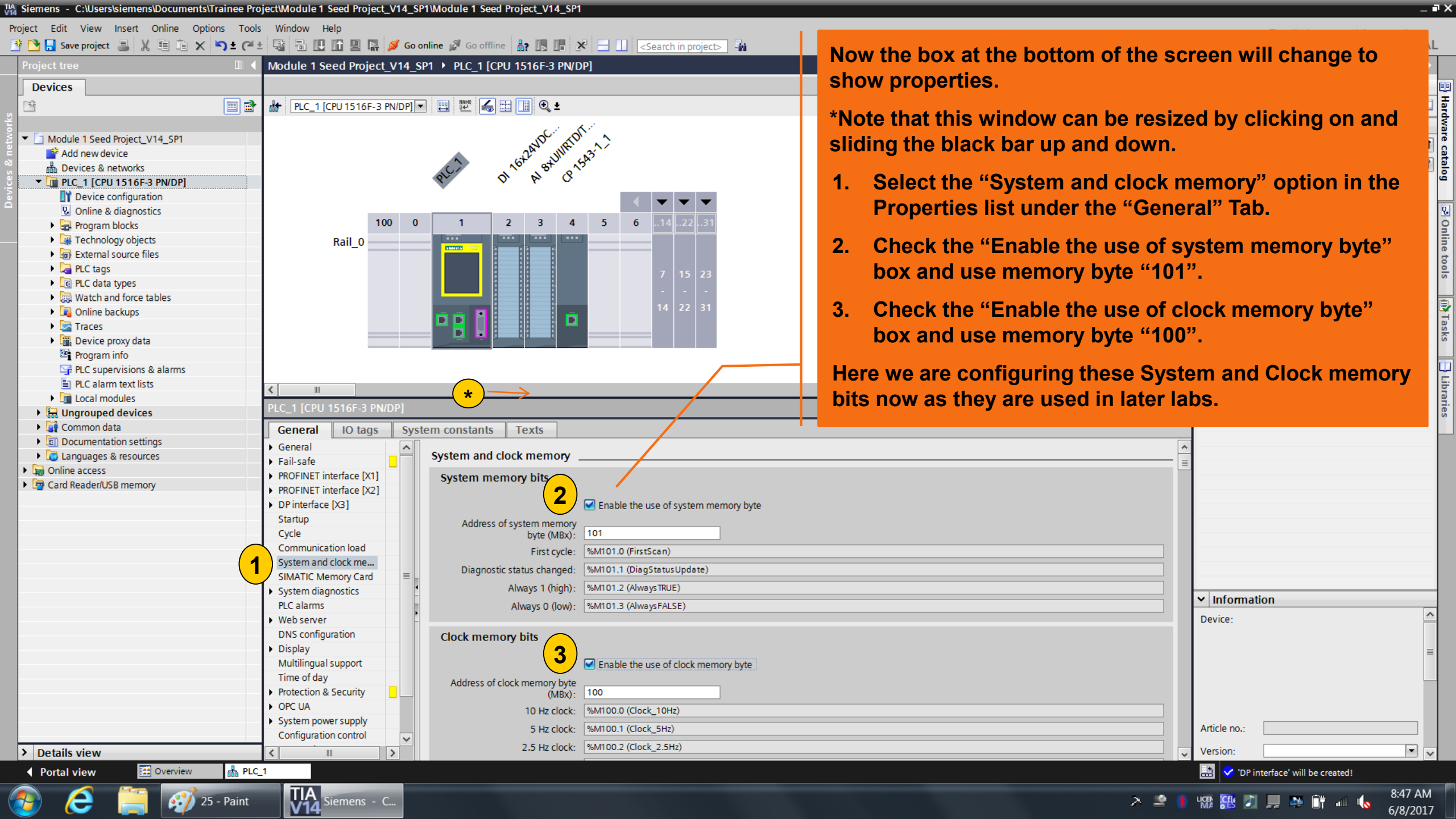

Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project
Go online
Go offline
<Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
Device configuration
Online & diagnostics
Program blocks
Technology objects
External source files
PLC tags
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP]
Topology view
Network view
Device view
PLC_1 [CPU 1516F-3 PN/DP]
Device overview
PLC_1
DI 16x24VDC...
AI 8xU/I/RTD/T...
CP 1543-1_1
Rail_0
100 0 1 2 3 4 5 6 ..14 ..22 ..31
7 - 14
15 - 22
23 - 31
1
100%
PLC_1 [CPU 1516F-3 PN/DP]
Properties
Info
Diagnostics
General
IO tags
System constants
Texts
General
Fail-safe
PROFINET interface [X1]
Startup
Cycle
Comm
System
SIMAT
System
PLC ala
Web se
DNS co
Display
Multilingual support
Time of day
Protection & Security
OPC UA
System power supply
Configuration control
Fail-safe
addresses: 99
Central F-source address: 1
Default F-monitoring time for central F-I/O: 150 ms
View of S7-1500 PLC in “Device view” after auto-detection. Shows the devices connected to PLC_1 through interface.
1. Now open the properties for PLC_1. This can be done by either double clicking on the device or by right clicking and selecting “Properties”.
Hardware catalog
Options
Catalog
<Search>
Filter
Profile: <All>
PM
PS
CPU
DI
DQ
DI/DQ
AI
AQ
AI/AQ
Communications modules
Technology modules
Interface modules
Information
Device:
Article no.:
Version:
Hardware catalog
Online tools
Tasks
Libraries
Devices & networks
Portal view
Overview
PLC_1
'DP interface' will be created!
24 - Paint
Siemens - C...
8:46 AM
6/8/2017

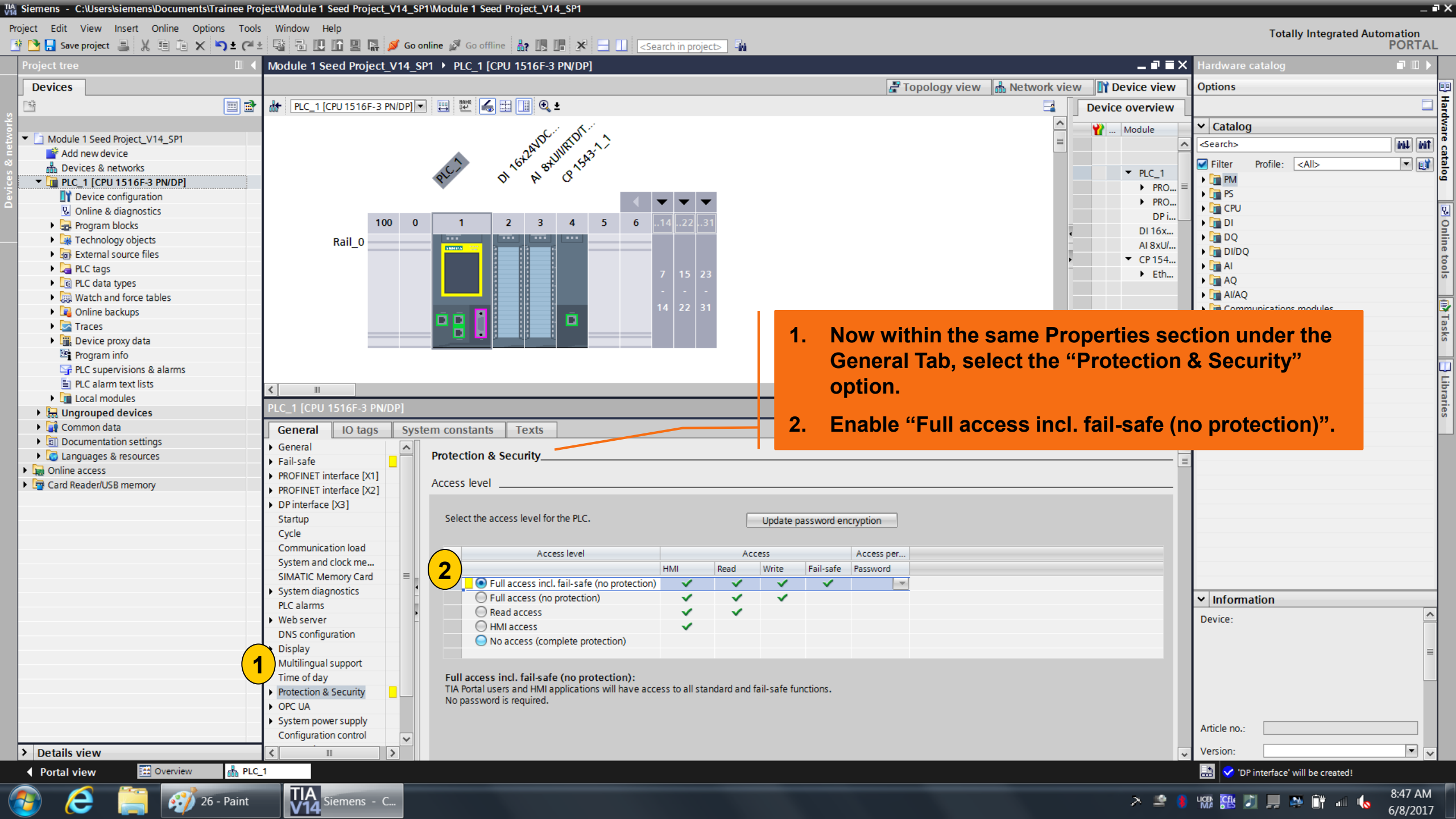
Now the box at the bottom of the screen will change to show properties.

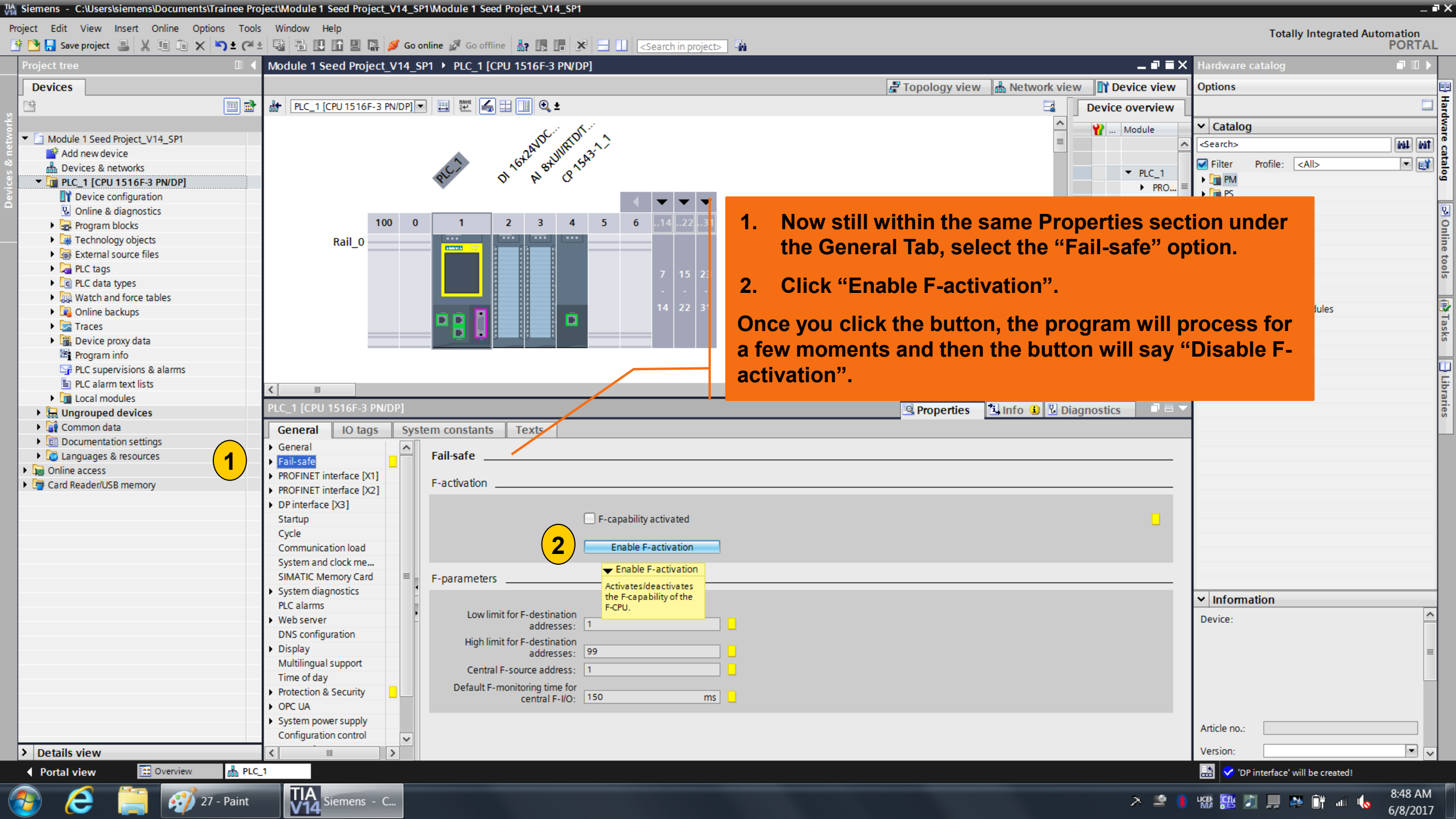
*Note that this window can be resized by clicking on and sliding the black bar up and down.

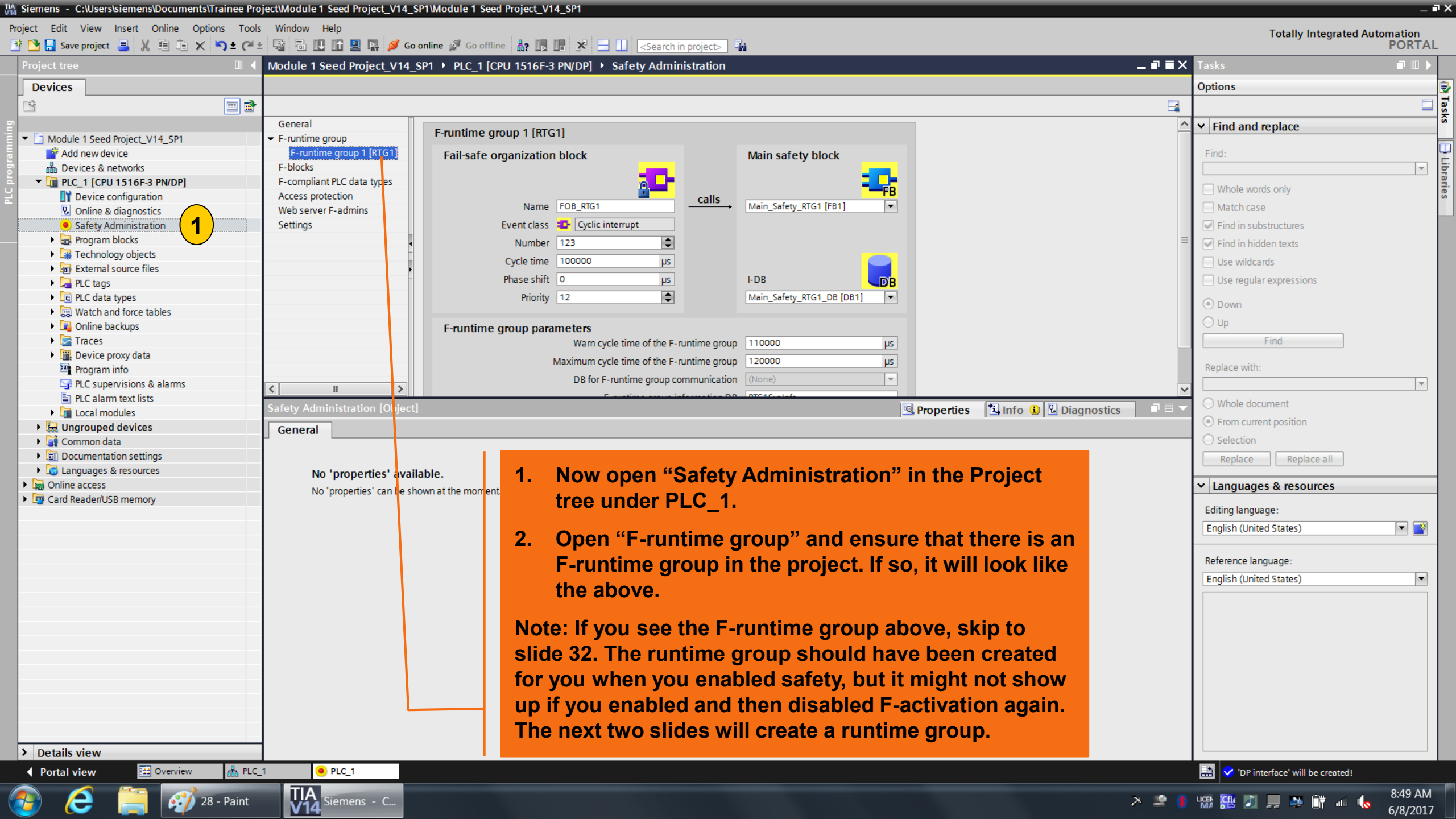
1. Select the “System and clock memory” option in the Properties list under the “General” Tab.
2. Check the “Enable the use of system memory byte” box and use memory byte “101”.
3. Check the “Enable the use of clock memory byte” box and use memory byte “100”.

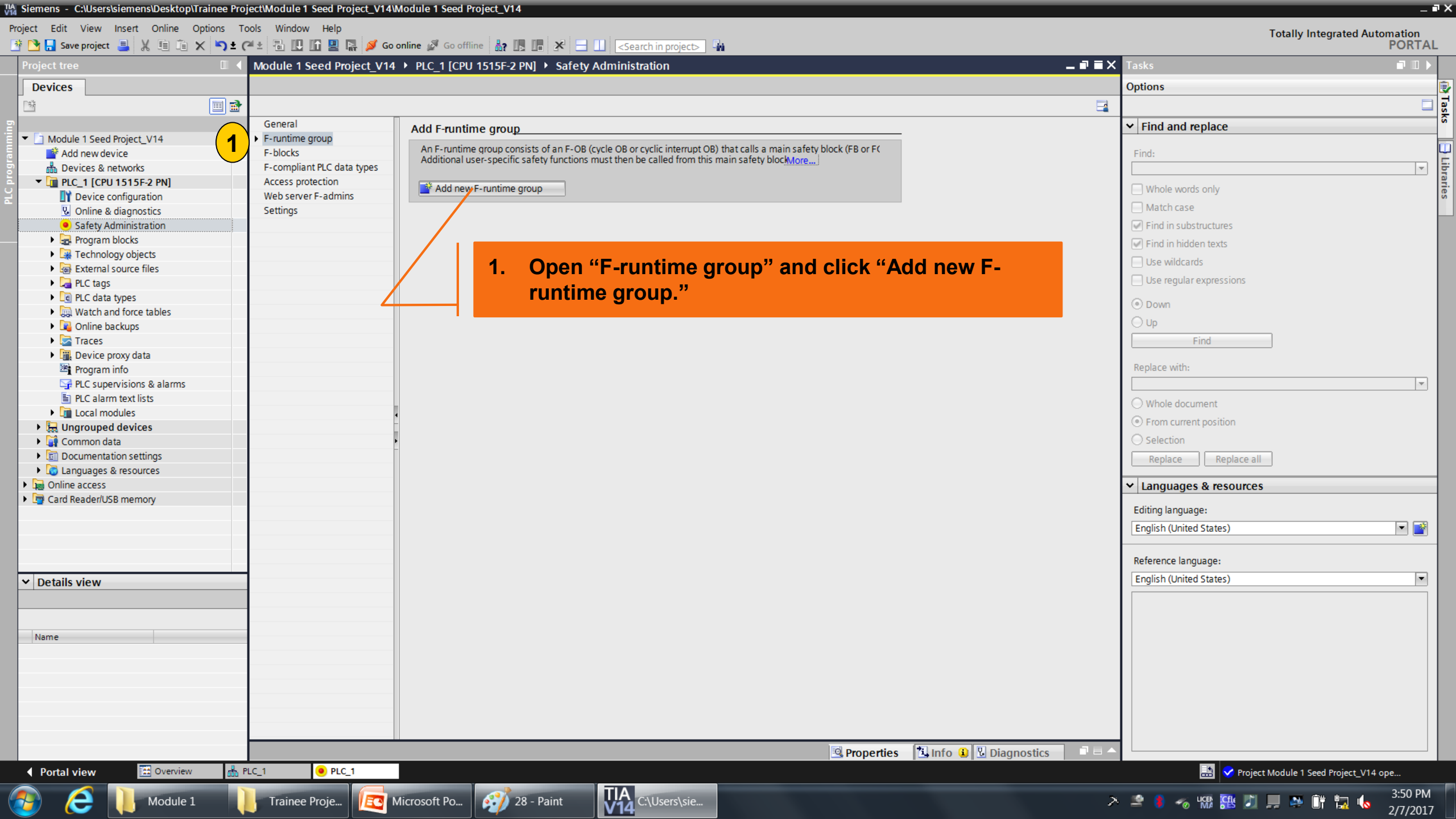
Here we are configuring these System and Clock memory bits now as they are used in later labs.

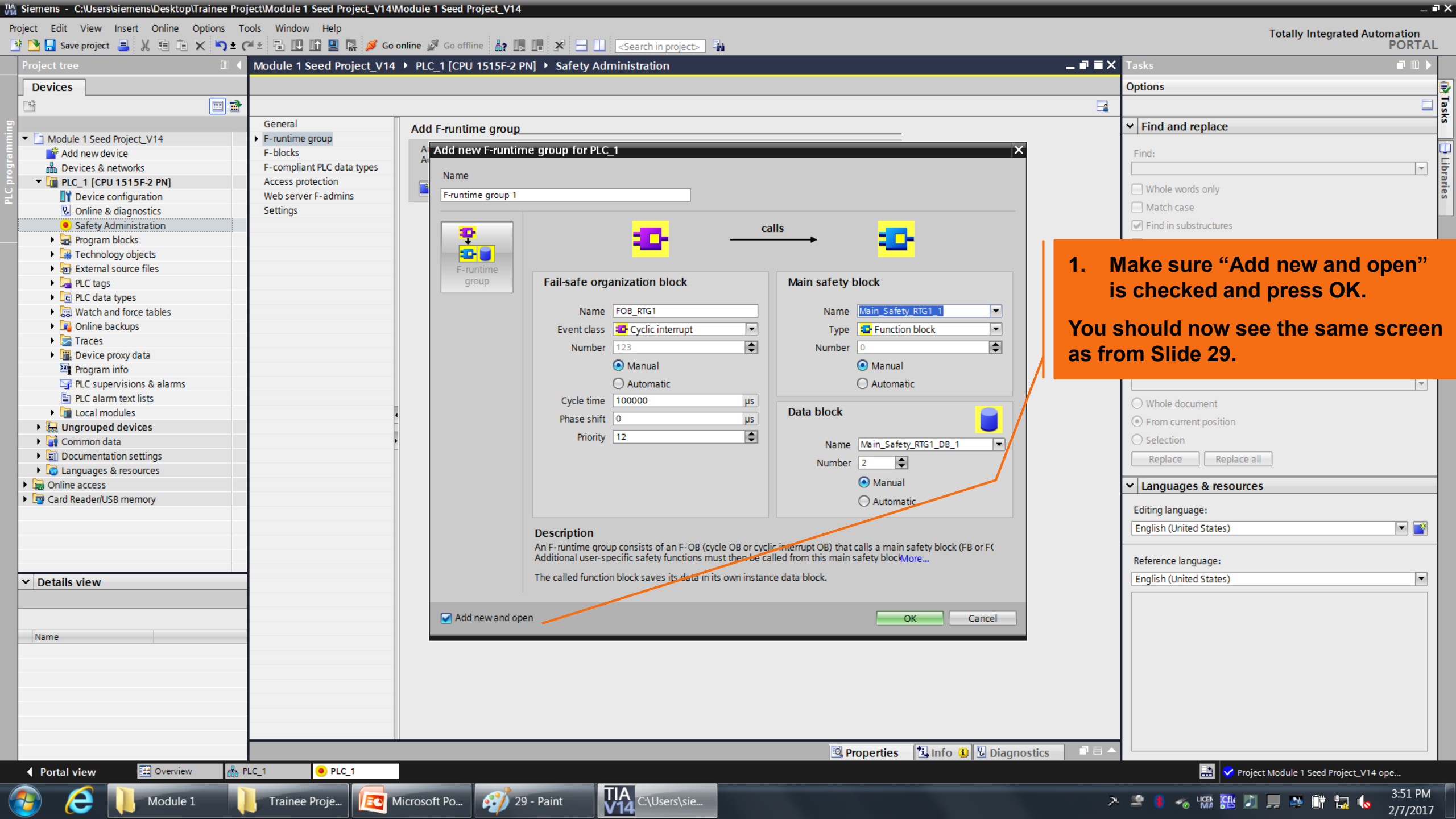



Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project Go online Go offline <Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
Device configuration
Online & diagnostics
Program blocks
Technology objects
External source files
PLC tags
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP]
Topology view
Network view
Device view
PLC_1 [CPU 1516F-3 PN/DP]
Device overview
PLC_1
DI 16x24VDC...
AI 8xU/I/RTD/T...
CP 1543-1_1
Rail_0
100 0 1 2 3 4 5 6 ..14 ..22 ..31
7 - 14 15 - 22 23 - 31
PLC_1 [CPU 1516F-3 PN/DP]
General
IO tags
System constants
Texts
General
Fail-safe
PROFINET interface [X1]
PROFINET interface [X2]
DP interface [X3]
Startup
Cycle
Communication load
System and clock me...
SIMATIC Memory Card
System diagnostics
PLC alarms
Web server
DNS configuration
Display
Multilingual support
Time of day
Protection & Security
OPC UA
System power supply
Configuration control
1
Protection & Security
Access level
Select the access level for the PLC.
Update password encryption
2
Access level
Access
Access per...
HMI
Read
Write
Fail-safe
Password
Full access incl. fail-safe (no protection)
Full access (no protection)
Read access
HMI access
No access (complete protection)
Full access incl. fail-safe (no protection):
TIA Portal users and HMI applications will have access to all standard and fail-safe functions.
No password is required.
1. Now within the same Properties section under the General Tab, select the "Protection & Security" option.
2. Enable "Full access incl. fail-safe (no protection)".
Hardware catalog
Options
Catalog
<Search>
Filter
Profile:
<All>
PM
PS
CPU
DI
DQ
DI/DQ
AI
AQ
AI/AQ
Communications modules
Information
Device:
Article no.:
Version:
Hardware catalog
Online tools
Tasks
Libraries
Portal view
Overview
PLC_1
'DP interface' will be created!
26 - Paint
Siemens - C...
8:47 AM
6/8/2017


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project Go online Go offline <Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
Device configuration
Online & diagnostics
Program blocks
Technology objects
External source files
PLC tags
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
1
Details view
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP]
Topology view Network view Device view
PLC_1 [CPU 1516F-3 PN/DP]
Device overview
PLC_1
DI 16x24VDC...
AI 8xU/I/RTD/T...
CP 1543-1_1
Rail_0
100 0 1 2 3 4 5 6
1. Now still within the same Properties section under the General Tab, select the “Fail-safe” option.
2. Click “Enable F-activation”.
Once you click the button, the program will process for a few moments and then the button will say “Disable F-activation”.
PLC_1 [CPU 1516F-3 PN/DP]
Properties Info Diagnostics
General IO tags System constants Texts
General
Fail-safe
PROFINET interface [X1]
PROFINET interface [X2]
DP interface [X3]
Startup
Cycle
Communication load
System and clock me...
SIMATIC Memory Card
System diagnostics
PLC alarms
Web server
DNS configuration
Display
Multilingual support
Time of day
Protection & Security
OPC UA
System power supply
Configuration control
Fail-safe
F-activation
F-capability activated
2
Enable F-activation
Enable F-activation
Activates/deactivates the F-capability of the F-CPU.
F-parameters
Low limit for F-destination addresses: 1
High limit for F-destination addresses: 99
Central F-source address: 1
Default F-monitoring time for central F-I/O: 150 ms
Hardware catalog
Options
Catalog
<Search>
Filter Profile: <All>
PM
PS
Information
Device:
Article no.:
Version:
Portal view Overview PLC_1
'DP interface' will be created!
27 - Paint
Siemens - C...
8:48 AM
6/8/2017


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
Device configuration
Online & diagnostics
Safety Administration
1
Program blocks
Technology objects
External source files
PLC tags
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP] ▸ Safety Administration
General
F-runtime group
F-runtime group 1 [RTG1]
F-blocks
F-compliant PLC data types
Access protection
Web server F-admins
Settings
F-runtime group 1 [RTG1]
Fail-safe organization block
Name FOB_RTG1
Event class Cyclic interrupt
Number 123
Cycle time 100000 µs
Phase shift 0 µs
Priority 12
calls
Main safety block
Main_Safety_RTG1 [FB1]
I-DB
Main_Safety_RTG1_DB [DB1]
F-runtime group parameters
Warn cycle time of the F-runtime group 110000 µs
Maximum cycle time of the F-runtime group 120000 µs
DB for F-runtime group communication (None)
Safety Administration [Object]
Properties
Info
Diagnostics
General
No 'properties' available.
No 'properties' can be shown at the moment.
1. Now open “Safety Administration” in the Project tree under PLC_1.
2. Open “F-runtime group” and ensure that there is an F-runtime group in the project. If so, it will look like the above.
Note: If you see the F-runtime group above, skip to slide 32. The runtime group should have been created for you when you enabled safety, but it might not show up if you enabled and then disabled F-activation again. The next two slides will create a runtime group.
Tasks
Options
Find and replace
Find:
Whole words only
Match case
Find in substructures
Find in hidden texts
Use wildcards
Use regular expressions
Down
Up
Find
Replace with:
Whole document
From current position
Selection
Replace
Replace all
Languages & resources
Editing language:
English (United States)
Reference language:
English (United States)
Portal view
Overview
PLC_1
PLC_1
'DP interface' will be created!
28 - Paint
Siemens - C...
8:49 AM
6/8/2017


Siemens - C:\Users\siemens\Desktop\Trainee Project\Module 1 Seed Project_V14\Module 1 Seed Project_V14
Project Edit View Insert Online Options Tools Window Help
Save project Go online Go offline <Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14 ▸ PLC_1 [CPU 1515F-2 PN] ▸ Safety Administration
Tasks
Options
Module 1 Seed Project_V14
Add new device
Devices & networks
PLC_1 [CPU 1515F-2 PN]
Device configuration
Online & diagnostics
Safety Administration
Program blocks
Technology objects
External source files
PLC tags
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
1
General
F-runtime group
F-blocks
F-compliant PLC data types
Access protection
Web server F-admins
Settings
Add F-runtime group
An F-runtime group consists of an F-OB (cycle OB or cyclic interrupt OB) that calls a main safety block (FB or F(
Additional user-specific safety functions must then be called from this main safety block More...
Add new F-runtime group
1. Open “F-runtime group” and click “Add new F-runtime group.”
Find and replace
Find:
Whole words only
Match case
Find in substructures
Find in hidden texts
Use wildcards
Use regular expressions
Down
Up
Find
Replace with:
Whole document
From current position
Selection
Replace
Replace all
Languages & resources
Editing language:
English (United States)
Reference language:
English (United States)
Details view
Name
Properties
Info
Diagnostics
Portal view
Overview
PLC_1
PLC_1
Project Module 1 Seed Project_V14 ope...
Module 1
Trainee Proje...
Microsoft Po...
28 - Paint
C:\Users\sie...
3:50 PM
2/7/2017


Siemens - C:\Users\siemens\Desktop\Trainee Project\Module 1 Seed Project_V14\Module 1 Seed Project_V14
Project Edit View Insert Online Options Tools Window Help
Save project Go online Go offline <Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14
Add new device
Devices & networks
PLC_1 [CPU 1515F-2 PN]
Device configuration
Online & diagnostics
Safety Administration
Program blocks
Technology objects
External source files
PLC tags
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Name
Module 1 Seed Project_V14 ▸ PLC_1 [CPU 1515F-2 PN] ▸ Safety Administration
General
F-runtime group
F-blocks
F-compliant PLC data types
Access protection
Web server F-admins
Settings
Add F-runtime group
Add new F-runtime group for PLC_1
Name
F-runtime group 1
F-runtime group
calls
Fail-safe organization block
Name FOB_RTG1
Event class Cyclic interrupt
Number 123
Manual
Automatic
Cycle time 100000 µs
Phase shift 0 µs
Priority 12
Main safety block
Name Main_Safety_RTG1_1
Type Function block
Number 0
Manual
Automatic
Data block
Name Main_Safety_RTG1_DB_1
Number 2
Manual
Automatic
Description
An F-runtime group consists of an F-OB (cycle OB or cyclic interrupt OB) that calls a main safety block (FB or F(
Additional user-specific safety functions must then be called from this main safety block More...
The called function block saves its data in its own instance data block.
Add new and open
OK
Cancel
1. Make sure “Add new and open” is checked and press OK.
You should now see the same screen as from Slide 29.
Tasks
Options
Find and replace
Find:
Whole words only
Match case
Find in substructures
Whole document
From current position
Selection
Replace
Replace all
Languages & resources
Editing language:
English (United States)
Reference language:
English (United States)
Properties
Info
Diagnostics
Portal view
Overview
PLC_1
PLC_1
Project Module 1 Seed Project_V14 ope...
Module 1
Trainee Proje...
Microsoft Po...
29 - Paint
C:\Users\sie...
3:51 PM
2/7/2017

Task 2

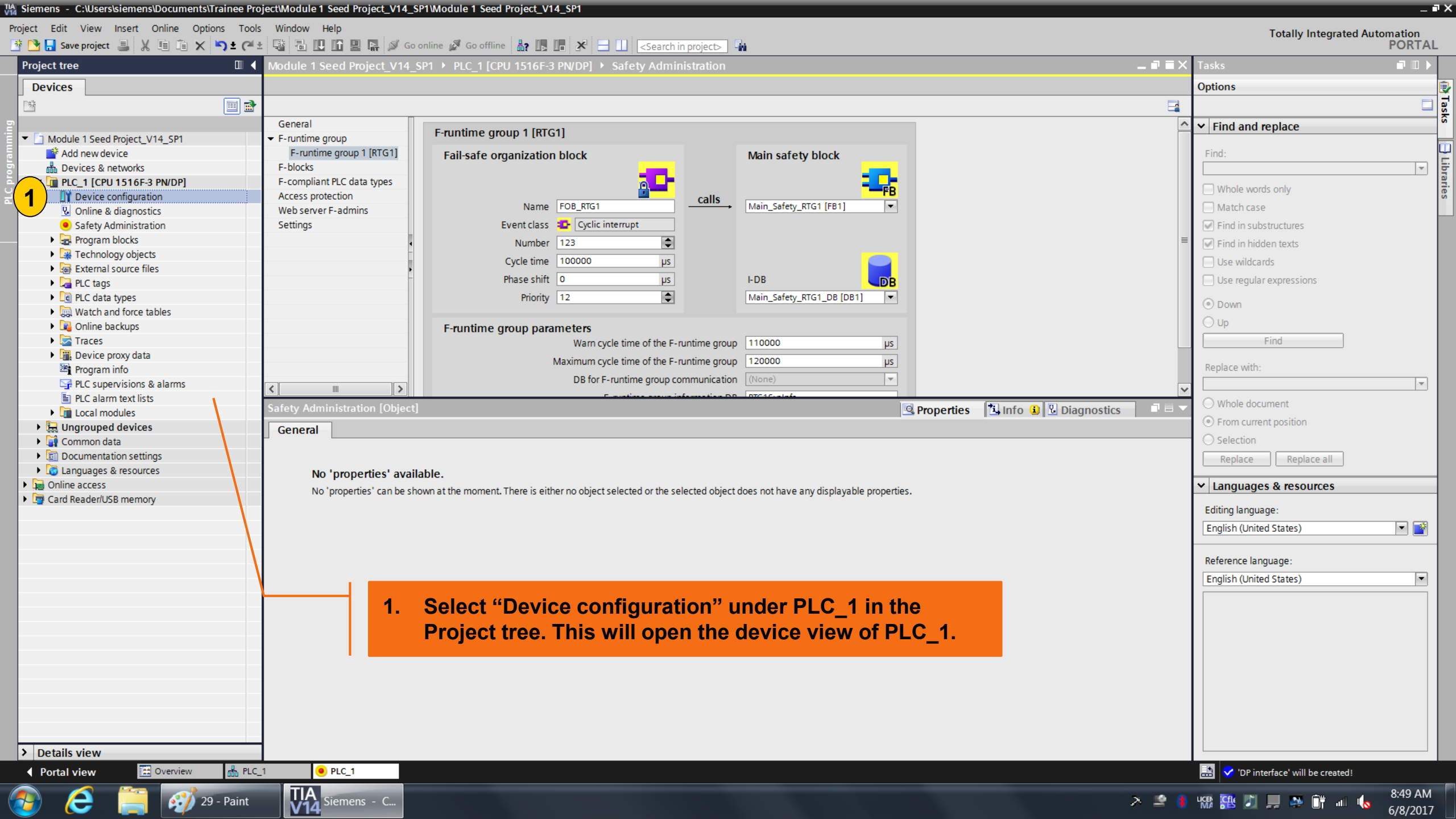
SIEMENS
Ingenuity for life

Objective:

Configure the Remote I/O and Project Library.

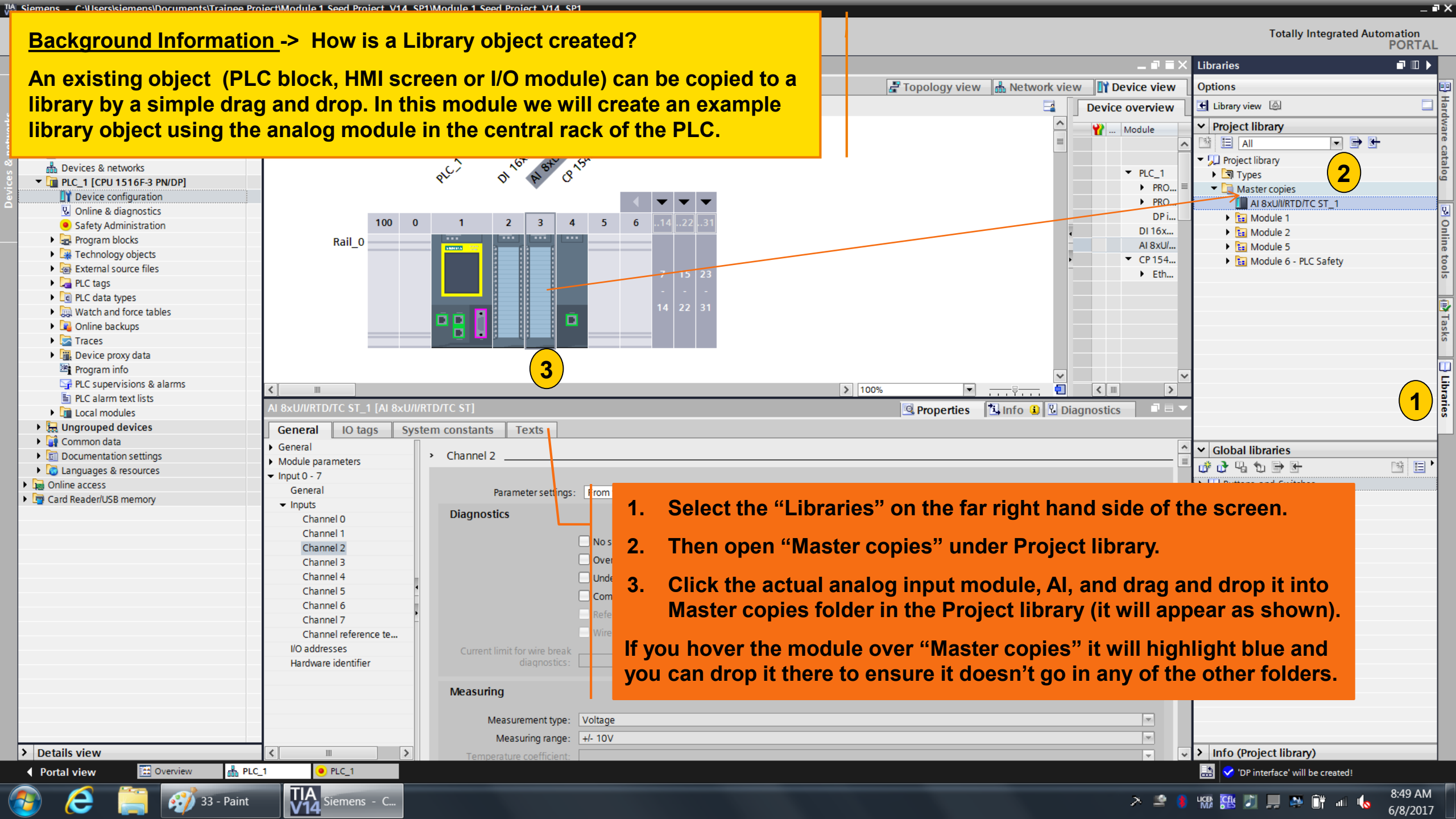
Overview:

1. Create a new library object
   - Open the Project Library and place the analog input module in the Master Copies section.
2. Use preconfigured library objects
   - Add 4 preconfigure devices and connect to the PROFINET network.


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project
Go online
Go offline
<Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
1
Device configuration
Online & diagnostics
Safety Administration
Program blocks
Technology objects
External source files
PLC tags
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP] ▸ Safety Administration
General
F-runtime group
F-runtime group 1 [RTG1]
F-blocks
F-compliant PLC data types
Access protection
Web server F-admins
Settings
F-runtime group 1 [RTG1]
Fail-safe organization block
Name FOB_RTG1
Event class Cyclic interrupt
Number 123
Cycle time 100000 µs
Phase shift 0 µs
Priority 12
calls
Main safety block
FB
Main_Safety_RTG1 [FB1]
I-DB
DB
Main_Safety_RTG1_DB [DB1]
F-runtime group parameters
Warn cycle time of the F-runtime group 110000 µs
Maximum cycle time of the F-runtime group 120000 µs
DB for F-runtime group communication (None)
Safety Administration [Object]
Properties
Info
Diagnostics
General
No 'properties' available.
No 'properties' can be shown at the moment. There is either no object selected or the selected object does not have any displayable properties.
Tasks
Options
Find and replace
Find:
Whole words only
Match case
Find in substructures
Find in hidden texts
Use wildcards
Use regular expressions
Down
Up
Find
Replace with:
Whole document
From current position
Selection
Replace
Replace all
Languages & resources
Editing language:
English (United States)
Reference language:
English (United States)
1. Select “Device configuration” under PLC_1 in the Project tree. This will open the device view of PLC_1.
Portal view
Overview
PLC_1
PLC_1
'DP interface' will be created!
29 - Paint
Siemens - C...
8:49 AM
6/8/2017

Background Information -> How is a Library object created?

An existing object (PLC block, HMI screen or I/O module) can be copied to a library by a simple drag and drop. In this module we will create an example library object using the analog module in the central rack of the PLC.



1. **Select the "Libraries" on the far right hand side of the screen.**
2. **Then open "Master copies" under Project library.**
3. **Click the actual analog input module, AI, and drag and drop it into Master copies folder in the Project library (it will appear as shown).**

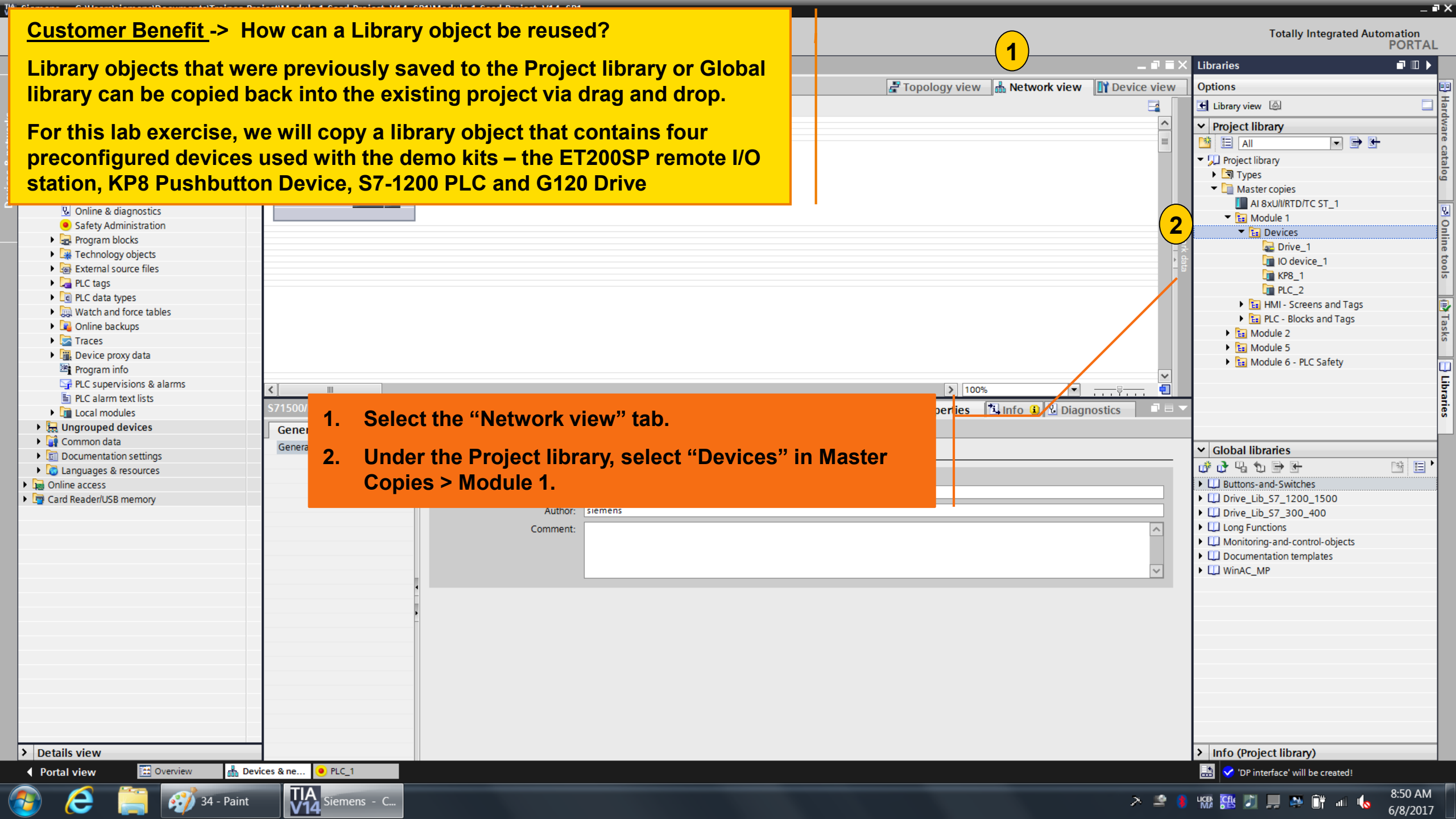
If you hover the module over "Master copies" it will highlight blue and you can drop it there to ensure it doesn't go in any of the other folders.

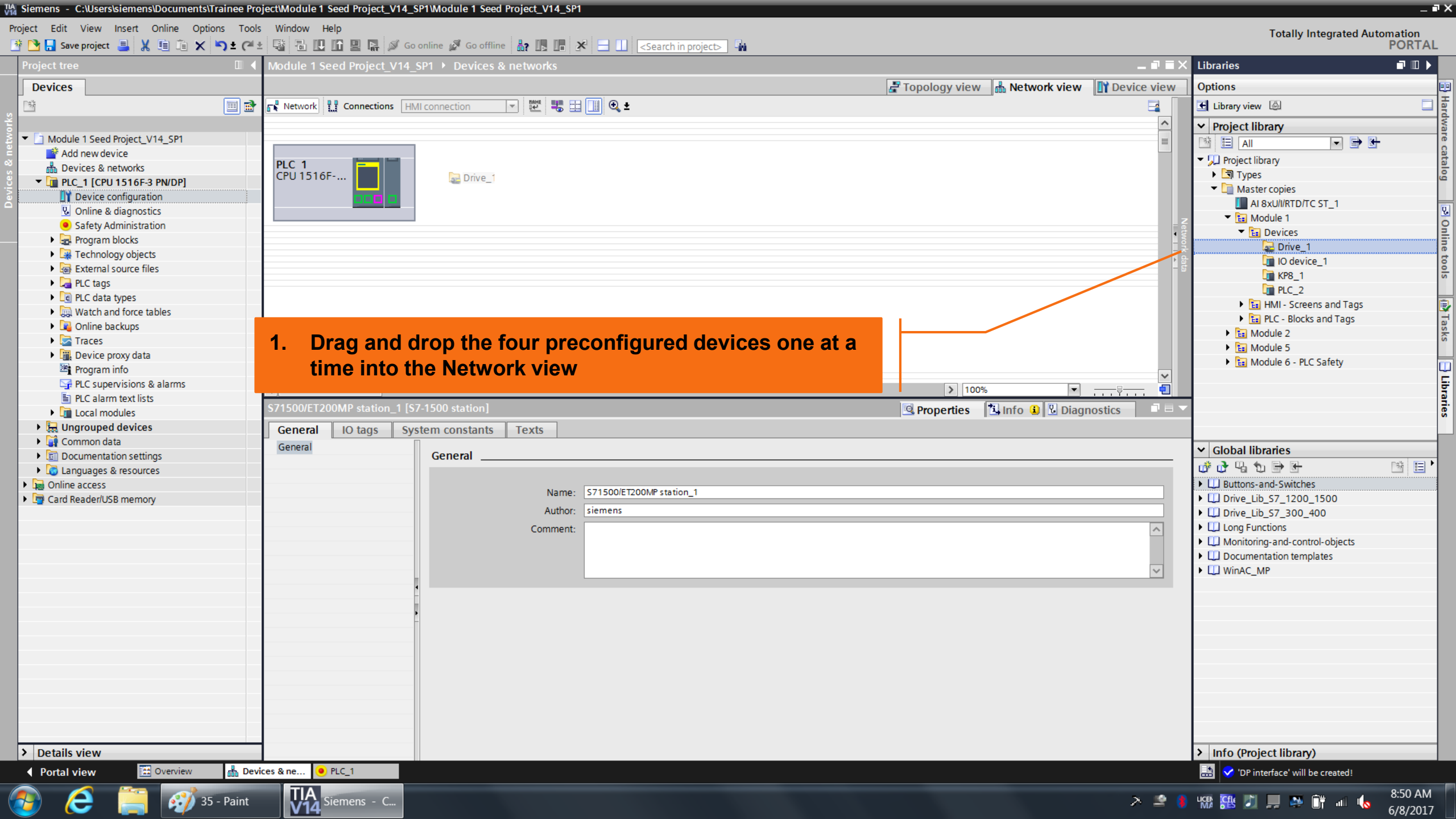
Customer Benefit -> How can a Library object be reused?

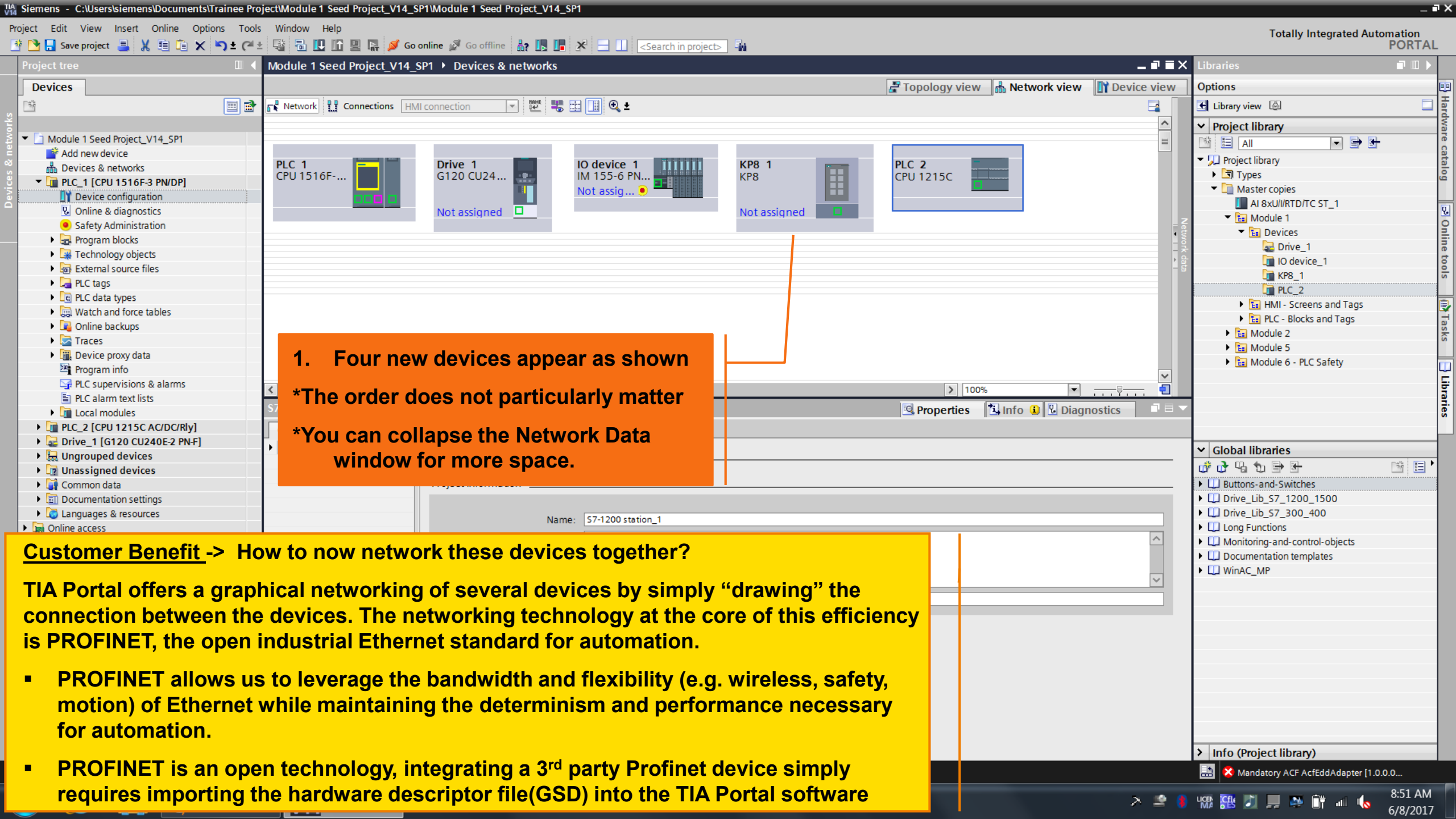
Library objects that were previously saved to the Project library or Global library can be copied back into the existing project via drag and drop.

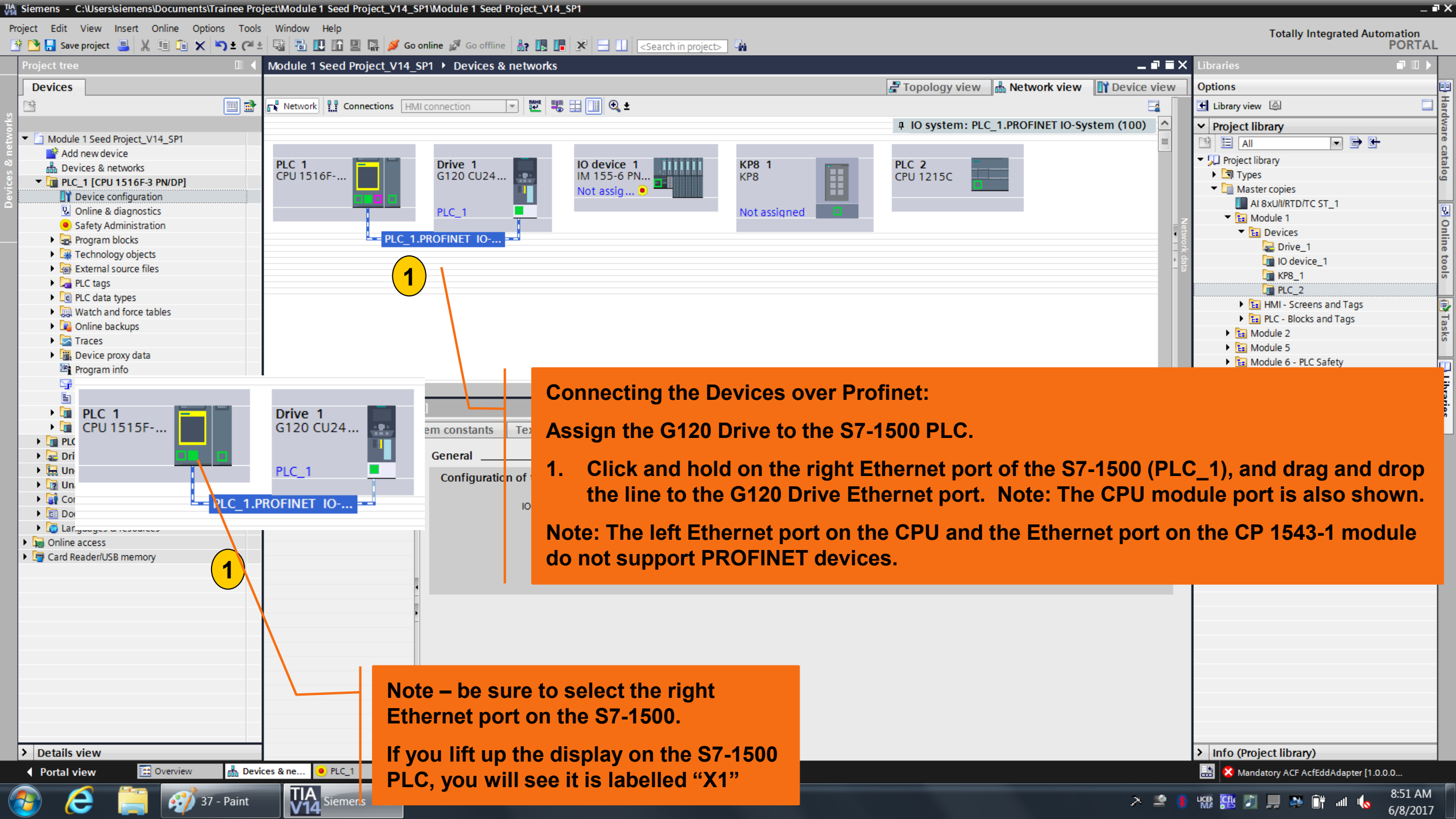
For this lab exercise, we will copy a library object that contains four preconfigured devices used with the demo kits – the ET200SP remote I/O station, KP8 Pushbutton Device, S7-1200 PLC and G120 Drive

1. **Select the "Network view" tab.**
2. **Under the Project library, select "Devices" in Master Copies > Module 1.**




Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project Go online Go offline <Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
Device configuration
Online & diagnostics
Safety Administration
Program blocks
Technology objects
External source files
PLC tags
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14_SP1 ▸ Devices & networks
Topology view
Network view
Device view
Network
Connections
HMI connection
PLC_1
CPU 1516F-...
Drive_1
100%
1. Drag and drop the four preconfigured devices one at a time into the Network view
S71500/ET200MP station_1 [S7-1500 station]
Properties
Info
Diagnostics
General
IO tags
System constants
Texts
General
Name: S71500/ET200MP station_1
Author: siemens
Comment:
Libraries
Options
Library view
Project library
All
Project library
Types
Master copies
AI 8xU/I/RTD/TC ST_1
Module 1
Devices
Drive_1
IO device_1
KP8_1
PLC_2
HMI - Screens and Tags
PLC - Blocks and Tags
Module 2
Module 5
Module 6 - PLC Safety
Global libraries
Buttons-and-Switches
Drive_Lib_S7_1200_1500
Drive_Lib_S7_300_400
Long Functions
Monitoring-and-control-objects
Documentation templates
WinAC_MP
Info (Project library)
'DP interface' will be created!
Portal view
Overview
Devices & ne...
PLC_1
35 - Paint
Siemens - C...
8:50 AM
6/8/2017


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project tree
Devices
Module 1 Seed Project_V14_SP1 ▸ Devices & networks
Topology view
Network view
Device view
Libraries
Options
Project library
PLC 1
CPU 1516F-...
Drive 1
G120 CU24...
Not assigned
IO device 1
IM 155-6 PN...
Not assig...
KP8 1
KP8
Not assigned
PLC 2
CPU 1215C
1. Four new devices appear as shown
*The order does not particularly matter
*You can collapse the Network Data window for more space.
Properties
Info
Diagnostics
Name: S7-1200 station_1
Global libraries
Customer Benefit -> How to now network these devices together?
TIA Portal offers a graphical networking of several devices by simply "drawing" the connection between the devices. The networking technology at the core of this efficiency is PROFINET, the open industrial Ethernet standard for automation.
PROFINET allows us to leverage the bandwidth and flexibility (e.g. wireless, safety, motion) of Ethernet while maintaining the determinism and performance necessary for automation.
PROFINET is an open technology, integrating a 3rd party Profinet device simply requires importing the hardware descriptor file(GSD) into the TIA Portal software



Connecting the Devices over Profinet:

Assign the G120 Drive to the S7-1500 PLC.

1. **Click and hold on the right Ethernet port of the S7-1500 (PLC_1), and drag and drop the line to the G120 Drive Ethernet port. Note: The CPU module port is also shown.**

Note: The left Ethernet port on the CPU and the Ethernet port on the CP 1543-1 module do not support PROFINET devices.

Note – be sure to select the right Ethernet port on the S7-1500.

If you lift up the display on the S7-1500 PLC, you will see it is labelled "X1"

Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1

Project Edit View Insert Online Options Tools Window Help

Save project | Go online | Go offline | <Search in project>

Totally Integrated Automation PORTAL

Project tree

Devices

Module 1 Seed Project_V14_SP1
- Add new device
- Devices & networks
- PLC_1 [CPU 1516F-3 PN/DP]
  - Device configuration
  - Online & diagnostics
  - Safety Administration
  - Program blocks
  - Technology objects
  - External source files
  - PLC tags
  - PLC data types
  - Watch and force tables
  - Online backups
  - Traces
  - Device proxy data
  - Program info
  - PLC supervisions
  - PLC alarm text li
  - Local modules
  - Distributed I/O
- PLC_2 [CPU 1215C
- Drive_1 [G120 CU
- Ungrouped devic
- Common data
- Documentation set
- Languages & resou
- Online access
- Card Reader/USB memory

Details view

Module 1 Seed Project_V14_SP1 ▸ Devices & networks

Topology view | Network view | Device view

Network | Connections | HMI connection

IO system: PLC_1.PROFINET IO-System (100)

PLC 1
CPU 1516F-...

Drive 1
G120 CU24...
PLC_1

IO device 1
IM 155-6 PN...
PLC_1

KP8 1
KP8
PLC_1

PLC 2
CPU 1215C

PLC_1.PROFINET IO-...

1

PLC 1
CPU 1515F-...

PLC_1.P

properties' available.

roperties' can be shown at the moment. There is either no object selected o

1

Libraries

Options

Library view

Project library

All

Project library
- Types
- Master copies
  - AI 8xU/I/RTD/TC ST_1
  - Module 1
    - Devices
      - Drive_1
      - IO device_1
      - KP8_1
      - PLC_2
    - HMI - Screens and Tags
    - PLC - Blocks and Tags
  - Module 2
- Documentation templates
- WinAC_MP

Info (Project library)

Mandatory ACF AcfEddAdapter [1.0.0.0...

Connecting the Devices over Profinet:

Now assign the KP8 key panel, the ET200SP and the S7-1215 CPU to the S7-1500 PLC.

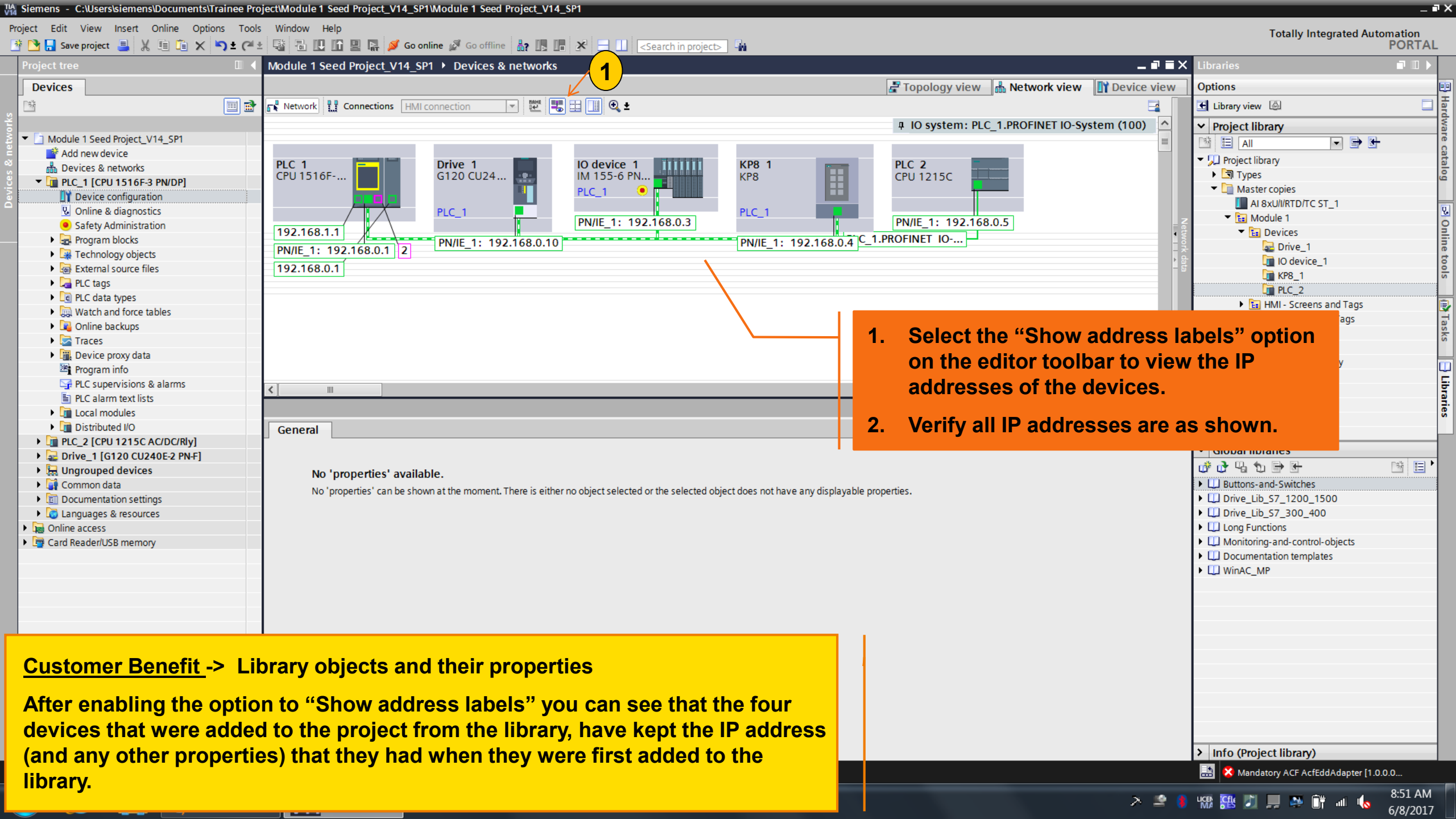
1. **Selecting the right Ethernet port of the S7-1500 (PLC_1), drag and drop the line to the Ethernet port on each of the other devices. Be sure to start from PLC_1 each time.**

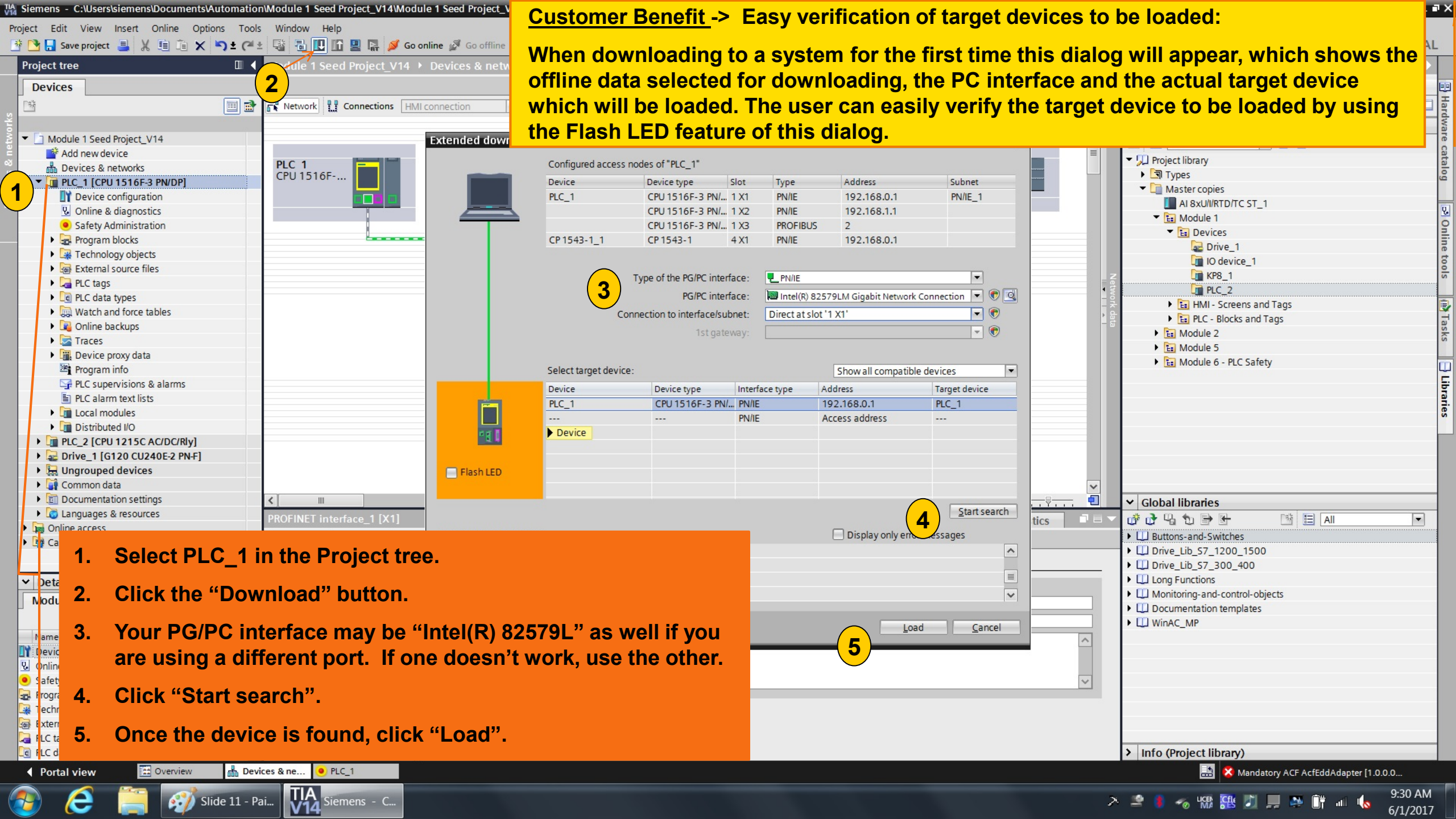
Note – when assigning the other devices to the S7-1500, be sure to begin the drag and drop from the right Ethernet port on the S7-1500.

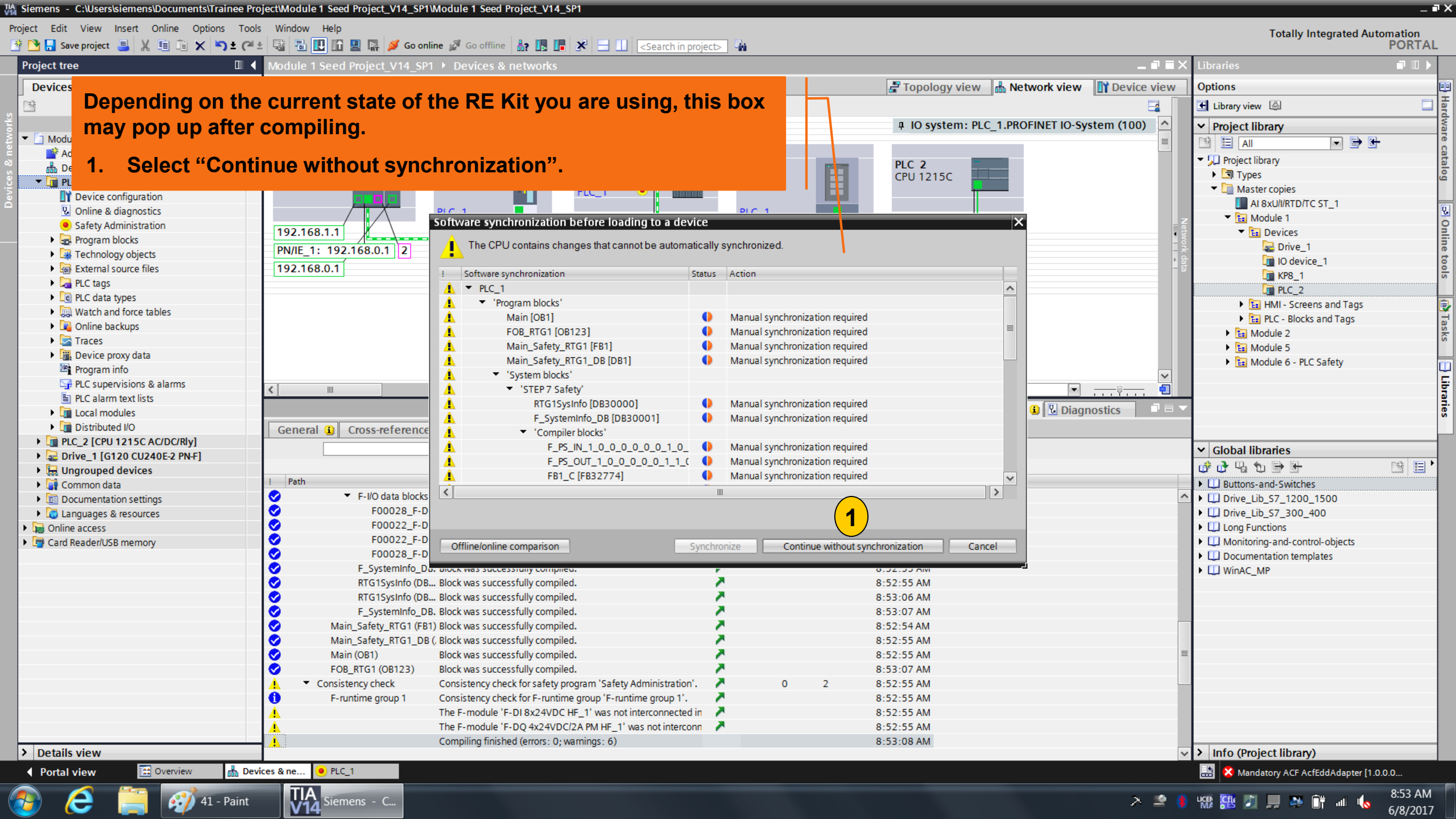
Portal view | Overview | Devices & ne... | PLC_1

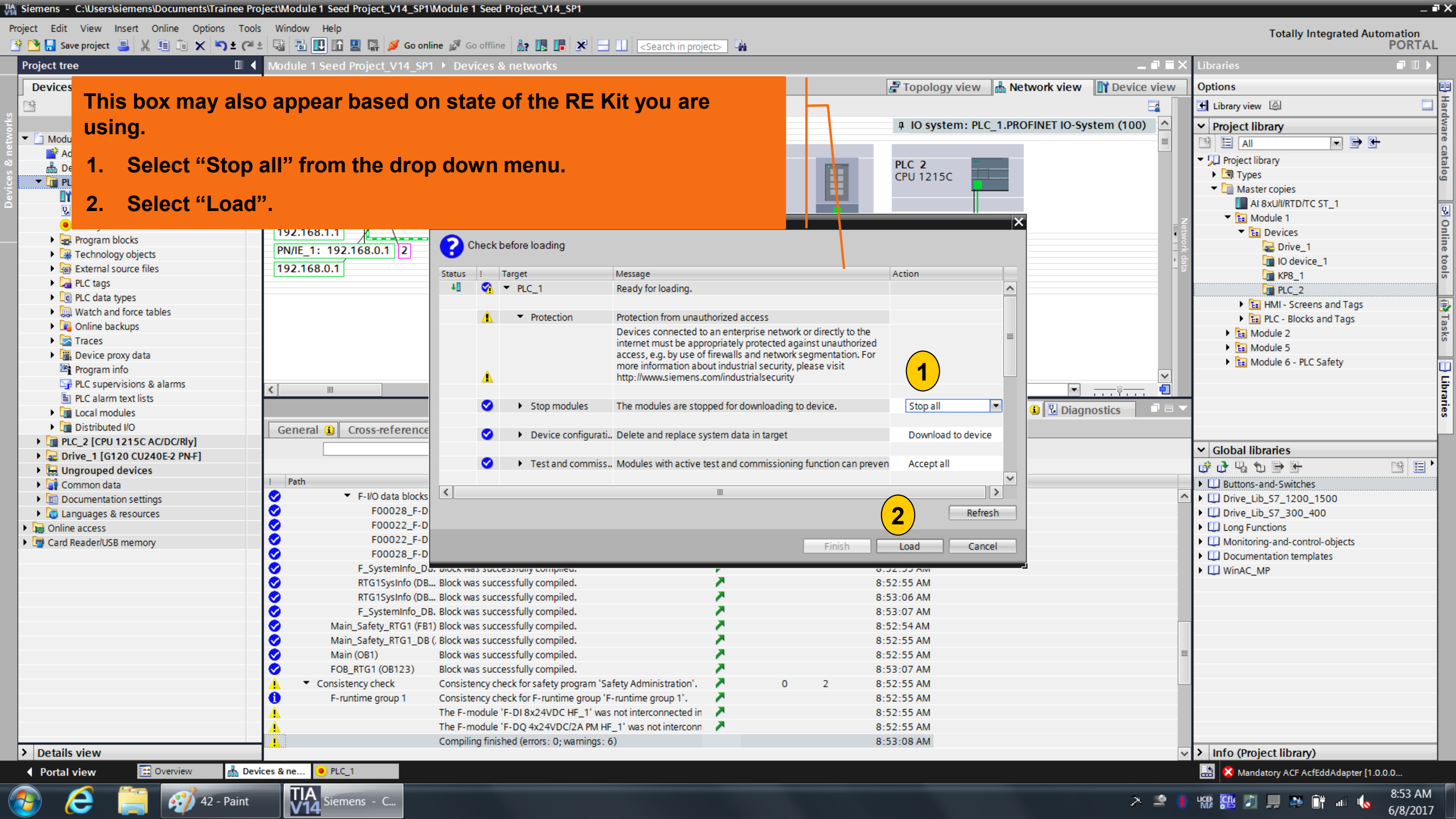
38 - Paint | Siemens - C...

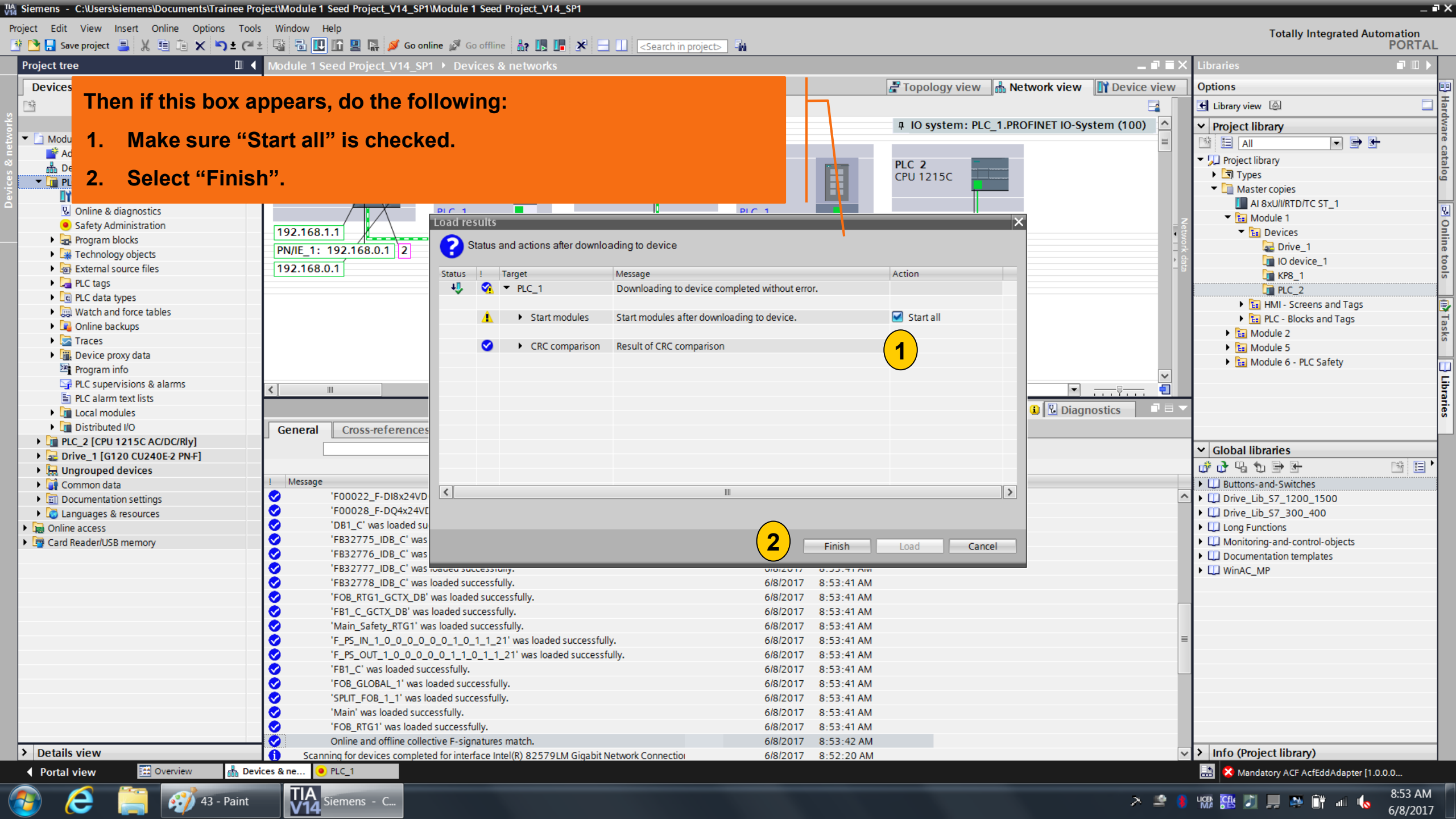
8:51 AM
6/8/2017

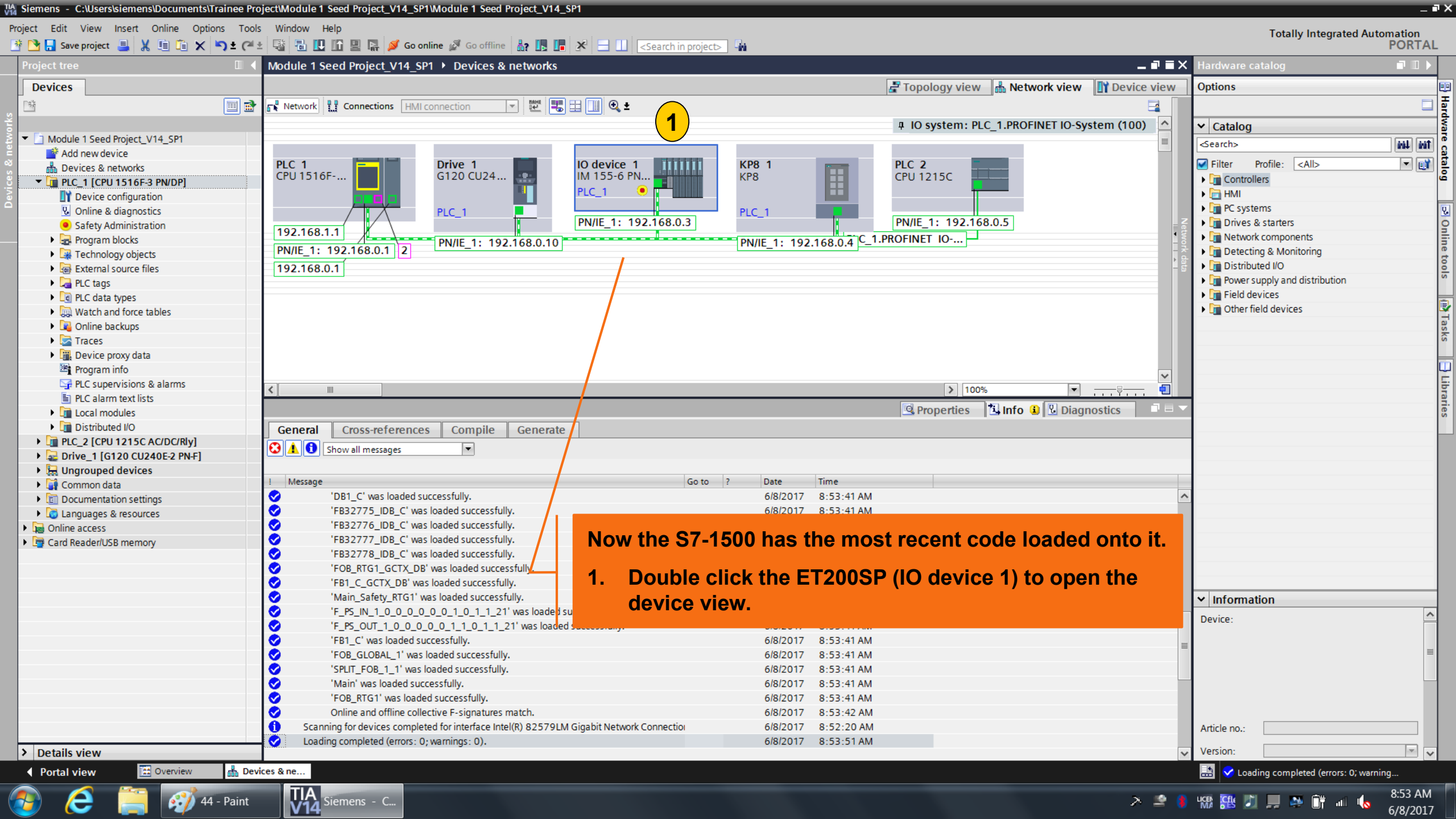

Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project tree
Devices
Module 1 Seed Project_V14_SP1 ▸ Devices & networks
Topology view
Network view
Device view
Network
Connections
HMI connection
IO system: PLC_1.PROFINET IO-System (100)
PLC 1
CPU 1516F-...
Drive 1
G120 CU24...
IO device 1
IM 155-6 PN...
KP8 1
KP8
PLC 2
CPU 1215C
192.168.1.1
PN/IE_1: 192.168.0.1
2
192.168.0.1
PN/IE_1: 192.168.0.10
PN/IE_1: 192.168.0.3
PN/IE_1: 192.168.0.4
PN/IE_1: 192.168.0.5
1
1. Select the "Show address labels" option on the editor toolbar to view the IP addresses of the devices.
2. Verify all IP addresses are as shown.
General
No 'properties' available.
No 'properties' can be shown at the moment. There is either no object selected or the selected object does not have any displayable properties.
Libraries
Project library
Customer Benefit -> Library objects and their properties
After enabling the option to "Show address labels" you can see that the four devices that were added to the project from the library, have kept the IP address (and any other properties) that they had when they were first added to the library.

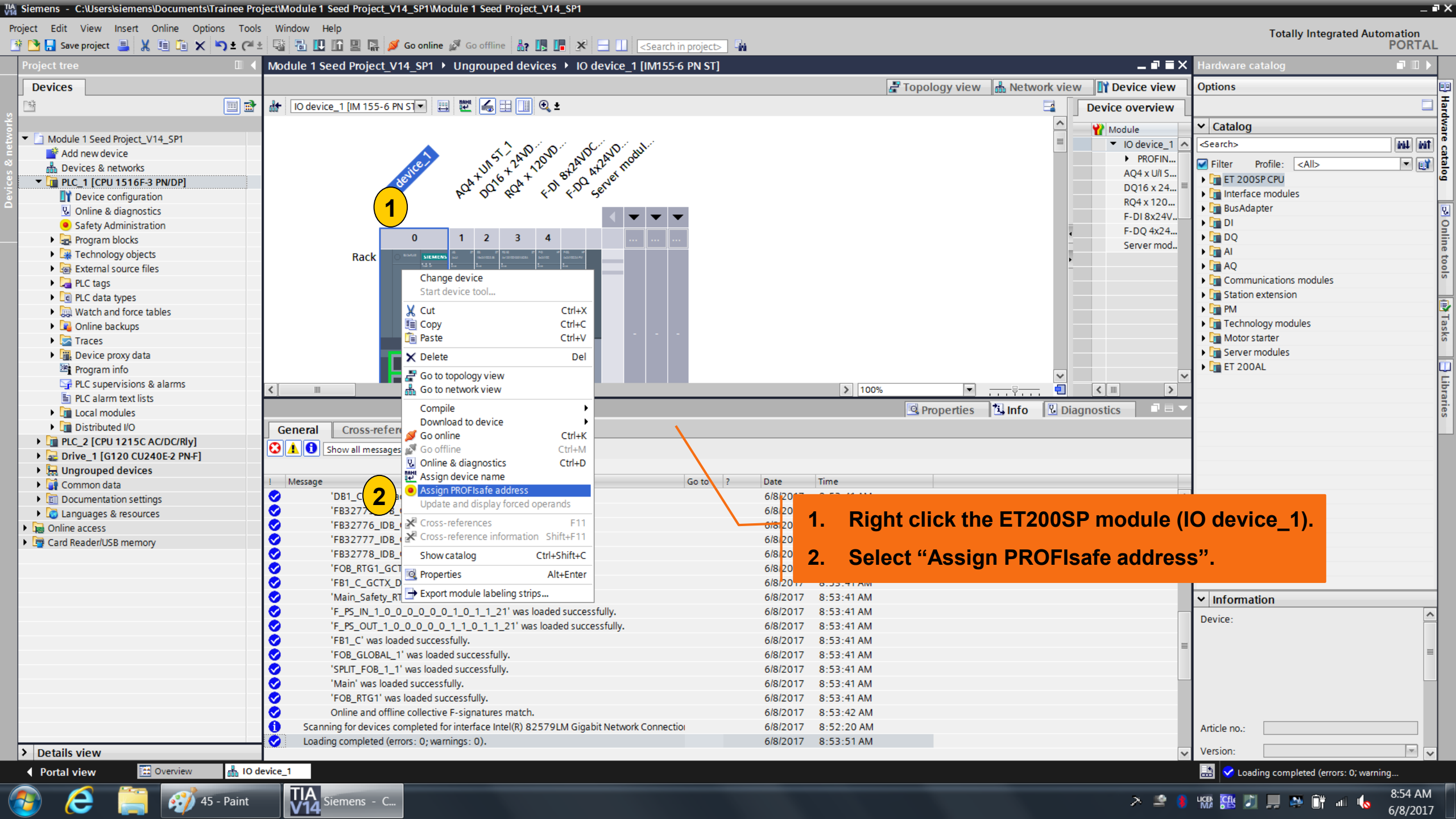

Customer Benefit -> Easy verification of target devices to be loaded:
When downloading to a system for the first time this dialog will appear, which shows the offline data selected for downloading, the PC interface and the actual target device which will be loaded. The user can easily verify the target device to be loaded by using the Flash LED feature of this dialog.
1
2
3
4
5
Configured access nodes of "PLC_1"
Type of the PG/PC interface:
PG/PC interface:
Connection to interface/subnet:
1st gateway:
Select target device:
Show all compatible devices
Flash LED
Start search
Load
Cancel
1. Select PLC_1 in the Project tree.
2. Click the "Download" button.
3. Your PG/PC interface may be "Intel(R) 82579L" as well if you are using a different port. If one doesn't work, use the other.
4. Click "Start search".
5. Once the device is found, click "Load".

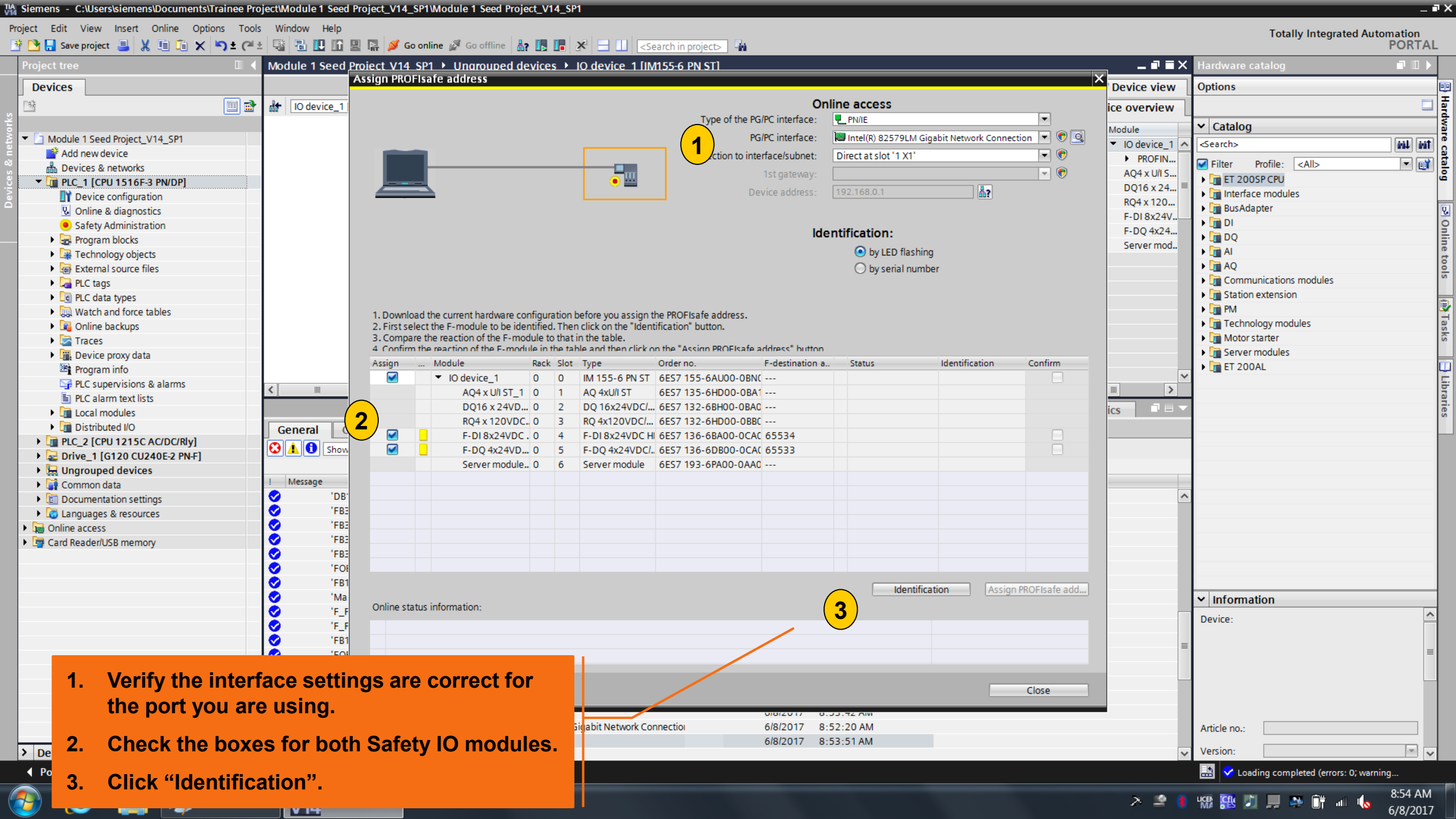

Depending on the current state of the RE Kit you are using, this box may pop up after compiling.
1. Select “Continue without synchronization”.
Software synchronization before loading to a device
The CPU contains changes that cannot be automatically synchronized.
Offline/online comparison
Synchronize
Continue without synchronization
Cancel
1

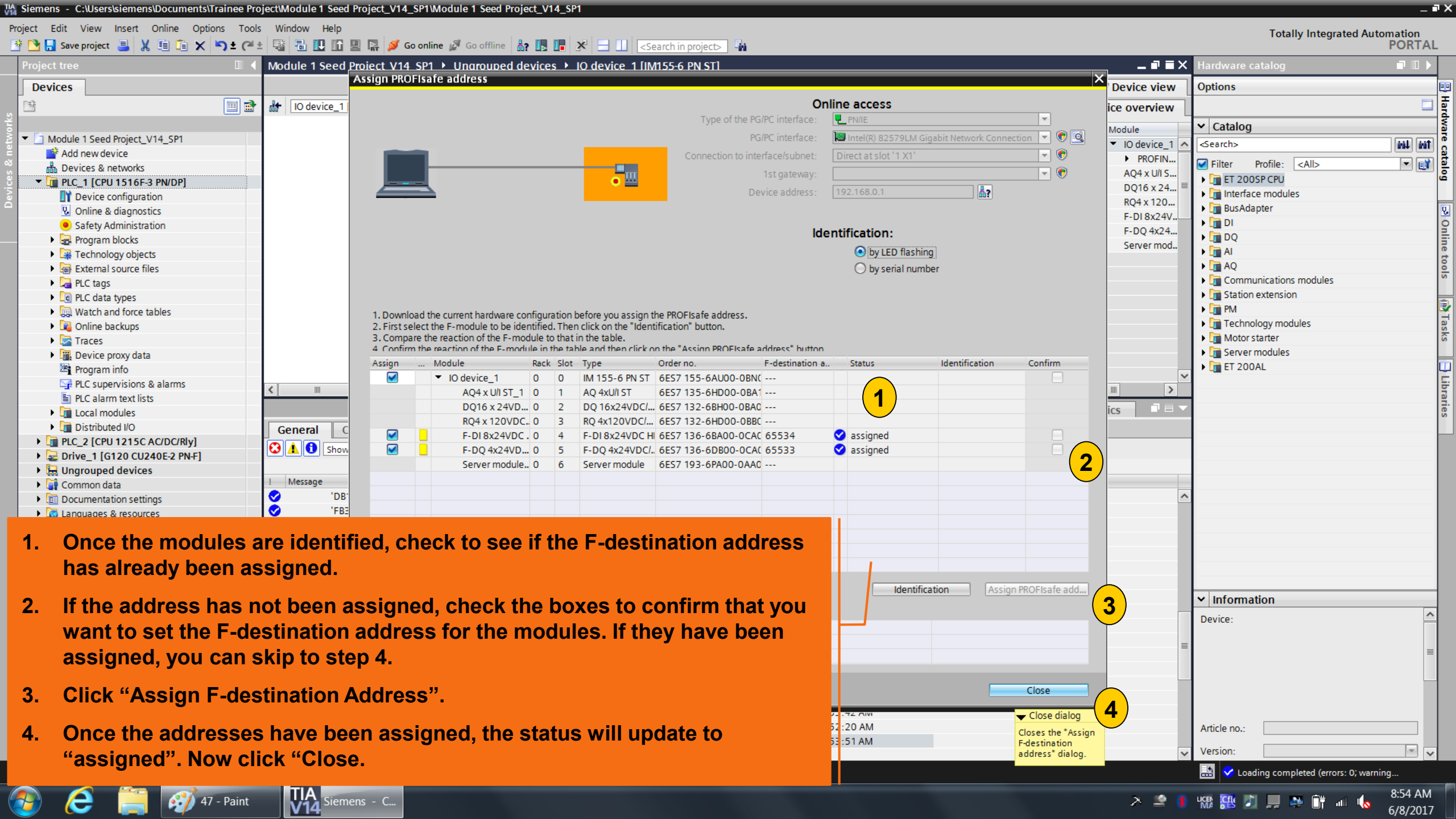

This box may also appear based on state of the RE Kit you are using.
1. Select “Stop all” from the drop down menu.
2. Select “Load”.
Check before loading
Status
Target
Message
Action
PLC_1
Ready for loading.
Protection
Protection from unauthorized access
Devices connected to an enterprise network or directly to the internet must be appropriately protected against unauthorized access, e.g. by use of firewalls and network segmentation. For more information about industrial security, please visit http://www.siemens.com/industrialsecurity
Stop modules
The modules are stopped for downloading to device.
Stop all
Device configurati..
Delete and replace system data in target
Download to device
Test and commiss..
Modules with active test and commissioning function can preven
Accept all
1
2
Refresh
Finish
Load
Cancel


Then if this box appears, do the following:
1. Make sure “Start all” is checked.
2. Select “Finish”.
Load results
Status and actions after downloading to device
Status
Target
Message
Action
PLC_1
Downloading to device completed without error.
Start modules
Start modules after downloading to device.
Start all
CRC comparison
Result of CRC comparison
1
2
Finish
Load
Cancel
Project tree
Libraries
Options
Project library
Global libraries
Topology view
Network view
Device view
IO system: PLC_1.PROFINET IO-System (100)
PLC 2
CPU 1215C
192.168.1.1
PN/IE_1: 192.168.0.1
192.168.0.1
Diagnostics
General
Cross-references
Details view
Info (Project library)
Portal view
Overview
Devices & ne...
PLC_1
Totally Integrated Automation
PORTAL


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project Go online Go offline <Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
Device configuration
Online & diagnostics
Safety Administration
Program blocks
Technology objects
External source files
PLC tags
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Distributed I/O
PLC_2 [CPU 1215C AC/DC/Rly]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14_SP1 ▸ Devices & networks
Topology view
Network view
Device view
Network
Connections
HMI connection
1
IO system: PLC_1.PROFINET IO-System (100)
PLC 1
CPU 1516F-...
Drive 1
G120 CU24...
PLC_1
IO device 1
IM 155-6 PN...
PLC_1
KP8 1
KP8
PLC_1
PLC 2
CPU 1215C
192.168.1.1
PN/IE_1: 192.168.0.1
2
192.168.0.1
PN/IE_1: 192.168.0.10
PN/IE_1: 192.168.0.3
PN/IE_1: 192.168.0.4
PN/IE_1: 192.168.0.5
100%
Properties
Info
Diagnostics
General
Cross-references
Compile
Generate
Show all messages
Message
Go to
Date
Time
'DB1_C' was loaded successfully. 6/8/2017 8:53:41 AM
'FB32775_IDB_C' was loaded successfully. 6/8/2017 8:53:41 AM
'FB32776_IDB_C' was loaded successfully.
'FB32777_IDB_C' was loaded successfully.
'FB32778_IDB_C' was loaded successfully.
'FOB_RTG1_GCTX_DB' was loaded successfully.
'FB1_C_GCTX_DB' was loaded successfully.
'Main_Safety_RTG1' was loaded successfully.
'F_PS_IN_1_0_0_0_0_0_1_0_1_1_21' was loaded su
'F_PS_OUT_1_0_0_0_0_0_1_1_0_1_1_21' was loaded
'FB1_C' was loaded successfully. 6/8/2017 8:53:41 AM
'FOB_GLOBAL_1' was loaded successfully. 6/8/2017 8:53:41 AM
'SPLIT_FOB_1_1' was loaded successfully. 6/8/2017 8:53:41 AM
'Main' was loaded successfully. 6/8/2017 8:53:41 AM
'FOB_RTG1' was loaded successfully. 6/8/2017 8:53:41 AM
Online and offline collective F-signatures match. 6/8/2017 8:53:42 AM
Scanning for devices completed for interface Intel(R) 82579LM Gigabit Network Connectio 6/8/2017 8:52:20 AM
Loading completed (errors: 0; warnings: 0). 6/8/2017 8:53:51 AM
Now the S7-1500 has the most recent code loaded onto it.
1. Double click the ET200SP (IO device 1) to open the device view.
Hardware catalog
Options
Catalog
<Search>
Filter Profile: <All>
Controllers
HMI
PC systems
Drives & starters
Network components
Detecting & Monitoring
Distributed I/O
Power supply and distribution
Field devices
Other field devices
Information
Device:
Article no.:
Version:
Portal view
Overview
Devices & ne...
Loading completed (errors: 0; warning...
44 - Paint
Siemens - C...
8:53 AM
6/8/2017


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
Device configuration
Online & diagnostics
Safety Administration
Program blocks
Technology objects
External source files
PLC tags
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Distributed I/O
PLC_2 [CPU 1215C AC/DC/Rly]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14_SP1 ▸ Ungrouped devices ▸ IO device_1 [IM155-6 PN ST]
Topology view
Network view
Device view
IO device_1 [IM 155-6 PN ST]
Device overview
Module
IO device_1
PROFIN...
AQ4 x U/I S...
DQ16 x 24...
RQ4 x 120...
F-DI 8x24V...
F-DQ 4x24...
Server mod...
device_1
AQ4 x U/I ST_1
DQ16 x 24VD...
RQ4 x 120VD...
F-DI 8x24VDC...
F-DQ 4x24VD...
Server modul...
1
Rack
0 1 2 3 4
Change device
Start device tool...
Cut Ctrl+X
Copy Ctrl+C
Paste Ctrl+V
Delete Del
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
Assign PROFIsafe address
Update and display forced operands
Cross-references F11
Cross-reference information Shift+F11
Show catalog Ctrl+Shift+C
Properties Alt+Enter
Export module labeling strips...
2
100%
Properties
Info
Diagnostics
General
Cross-refer
Show all messages
Message
Go to
?
Date
Time
'DB1_C
'FB3277
'FB32776_IDB_
'FB32777_IDB_
'FB32778_IDB_
'FOB_RTG1_GCT
'FB1_C_GCTX_D
'Main_Safety_RT
6/8/2017 8:53:41 AM
'F_PS_IN_1_0_0_0_0_0_0_1_0_1_1_21' was loaded successfully.
'F_PS_OUT_1_0_0_0_0_0_0_1_1_0_1_1_21' was loaded successfully.
'FB1_C' was loaded successfully.
'FOB_GLOBAL_1' was loaded successfully.
'SPLIT_FOB_1_1' was loaded successfully.
'Main' was loaded successfully.
'FOB_RTG1' was loaded successfully.
Online and offline collective F-signatures match.
6/8/2017 8:53:42 AM
Scanning for devices completed for interface Intel(R) 82579LM Gigabit Network Connectio
6/8/2017 8:52:20 AM
Loading completed (errors: 0; warnings: 0).
6/8/2017 8:53:51 AM
1. Right click the ET200SP module (IO device_1).
2. Select “Assign PROFIsafe address”.
Hardware catalog
Options
Catalog
<Search>
Filter Profile: <All>
ET 200SP CPU
Interface modules
BusAdapter
DI
DQ
AI
AQ
Communications modules
Station extension
PM
Technology modules
Motor starter
Server modules
ET 200AL
Information
Device:
Article no.:
Version:
Hardware catalog
Online tools
Tasks
Libraries
Portal view
Overview
IO device_1
Loading completed (errors: 0; warning...
45 - Paint
Siemens - C...
8:54 AM
6/8/2017


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project tree
Module 1 Seed Project_V14_SP1 ▸ Ungrouped devices ▸ IO device_1 [IM155-6 PN ST]
Assign PROFIsafe address
Online access
Type of the PG/PC interface: PN/IE
PG/PC interface: Intel(R) 82579LM Gigabit Network Connection
Direct at slot '1 X1'
1st gateway:
Device address: 192.168.0.1
Identification:
by LED flashing
by serial number
1. Download the current hardware configuration before you assign the PROFIsafe address.
2. First select the F-module to be identified. Then click on the "Identification" button.
3. Compare the reaction of the F-module to that in the table.
4. Confirm the reaction of the F-module in the table and then click on the "Assign PROFIsafe address" button.
Assign | Module | Rack | Slot | Type | Order no. | F-destination a.. | Status | Identification | Confirm
IO device_1 | 0 | 0 | IM 155-6 PN ST | 6ES7 155-6AU00-0BN0
AQ4 x U/I ST_1 | 0 | 1 | AQ 4xU/I ST | 6ES7 135-6HD00-0BA1
DQ16 x 24VD... | 0 | 2 | DQ 16x24VDC/... | 6ES7 132-6BH00-0BA0
RQ4 x 120VDC.. | 0 | 3 | RQ 4x120VDC/... | 6ES7 132-6HD00-0BB0
F-DI 8x24VDC . | 0 | 4 | F-DI 8x24VDC HI | 6ES7 136-6BA00-0CA0 | 65534
F-DQ 4x24VD... | 0 | 5 | F-DQ 4x24VDC/.. | 6ES7 136-6DB00-0CA0 | 65533
Server module.. | 0 | 6 | Server module | 6ES7 193-6PA00-0AA0
Identification
Assign PROFIsafe add...
Online status information:
Close
1
2
3
1. Verify the interface settings are correct for the port you are using.
2. Check the boxes for both Safety IO modules.
3. Click “Identification”.
Hardware catalog
Catalog
ET 200SP CPU
Interface modules
BusAdapter
DI
DQ
AI
AQ
Communications modules
Station extension
PM
Technology modules
Motor starter
Server modules
ET 200AL
Information
Device:
Article no.:
Version:
Loading completed (errors: 0; warning...
8:54 AM
6/8/2017


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
Device configuration
Online & diagnostics
Safety Administration
Program blocks
Technology objects
External source files
PLC tags
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Distributed I/O
PLC_2 [CPU 1215C AC/DC/Rly]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Module 1 Seed Project_V14_SP1 ▸ Ungrouped devices ▸ IO device_1 [IM155-6 PN ST]
Assign PROFIsafe address
Online access
Type of the PG/PC interface: PN/IE
PG/PC interface: Intel(R) 82579LM Gigabit Network Connection
Connection to interface/subnet: Direct at slot '1 X1'
1st gateway:
Device address: 192.168.0.1
Identification:
by LED flashing
by serial number
1. Download the current hardware configuration before you assign the PROFIsafe address.
2. First select the F-module to be identified. Then click on the "Identification" button.
3. Compare the reaction of the F-module to that in the table.
4. Confirm the reaction of the F-module in the table and then click on the "Assign PROFIsafe address" button.
Assign | Module | Rack | Slot | Type | Order no. | F-destination a.. | Status | Identification | Confirm
IO device_1 | 0 | 0 | IM 155-6 PN ST | 6ES7 155-6AU00-0BN0 | ---
AQ4 x U/I ST_1 | 0 | 1 | AQ 4xU/I ST | 6ES7 135-6HD00-0BA1 | ---
DQ16 x 24VD... | 0 | 2 | DQ 16x24VDC/... | 6ES7 132-6BH00-0BA0 | ---
RQ4 x 120VDC.. | 0 | 3 | RQ 4x120VDC/... | 6ES7 132-6HD00-0BB0 | ---
F-DI 8x24VDC . | 0 | 4 | F-DI 8x24VDC HI | 6ES7 136-6BA00-0CA0 | 65534 | assigned
F-DQ 4x24VD... | 0 | 5 | F-DQ 4x24VDC/.. | 6ES7 136-6DB00-0CA0 | 65533 | assigned
Server module.. | 0 | 6 | Server module | 6ES7 193-6PA00-0AA0 | ---
1
2
Identification
Assign PROFIsafe add...
3
Close
4
Close dialog
Closes the "Assign F-destination address" dialog.
Hardware catalog
Options
Catalog
Filter
Profile: <All>
ET 200SP CPU
Interface modules
BusAdapter
DI
DQ
AI
AQ
Communications modules
Station extension
PM
Technology modules
Motor starter
Server modules
ET 200AL
Information
Device:
Article no.:
Version:
Loading completed (errors: 0; warning...
1. Once the modules are identified, check to see if the F-destination address has already been assigned.
2. If the address has not been assigned, check the boxes to confirm that you want to set the F-destination address for the modules. If they have been assigned, you can skip to step 4.
3. Click “Assign F-destination Address”.
4. Once the addresses have been assigned, the status will update to “assigned”. Now click “Close.
47 - Paint
Siemens - C...
8:54 AM
6/8/2017

Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1

Project Edit View Insert Online Options Tools Window Help

Save project | Go online | Go offline | <Search in project>

Totally Integrated Automation PORTAL

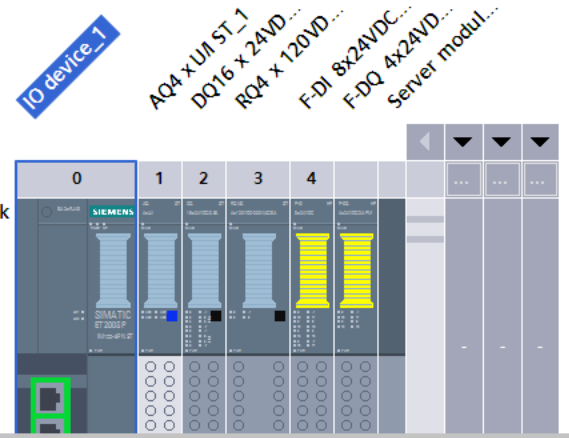
1

Module 1 Seed Project_V14_SP1 ▸ Ungrouped devices ▸ IO device_1 [IM155-6 PN ST]

Topology view | Network view | Device view

IO device_1 [IM 155-6 PN ST]

Device overview



Module
IO device_1
PROFIN...
AQ4 x U/I S...
DQ16 x 24...
RQ4 x 120...
F-DI 8x24V...
F-DQ 4x24...
Server mod...

100%

Properties | Info | Diagnostics

General | Cross-references | Compile | Generate

Show all messages

1. Save project.

!	Message	Go to	?	Date	Time
	'FB32776_IDB_C' was loaded successfully.			6/8/2017	8:53:41 AM
	'FB32777_IDB_C' was loaded successfully.			6/8/2017	8:53:41 AM
	'FB32778_IDB_C' was loaded successfully.			6/8/2017	8:53:41 AM
	'FOB_RTG1_GCTX_DB' was loaded successfully.			6/8/2017	8:53:41 AM
	'FB1_C_GCTX_DB' was loaded successfully.			6/8/2017	8:53:41 AM
	'Main_Safety_RTG1' was loaded successfully.			6/8/2017	8:53:41 AM
	'F_PS_IN_1_0_0_0_0_0_0_1_0_1_1_21' was loaded successfully.			6/8/2017	8:53:41 AM
	'F_PS_OUT_1_0_0_0_0_0_0_1_1_0_1_1_21' was loaded successfully.			6/8/2017	8:53:41 AM
	'FB1_C' was loaded successfully.			6/8/2017	8:53:41 AM
	'FOB_GLOBAL_1' was loaded successfully.			6/8/2017	8:53:41 AM
	'SPLIT_FOB_1_1' was loaded successfully.			6/8/2017	8:53:41 AM
	'Main' was loaded successfully.			6/8/2017	8:53:41 AM
	'FOB_RTG1' was loaded successfully.			6/8/2017	8:53:41 AM
	Online and offline collective F-signatures match.			6/8/2017	8:53:42 AM
	Scanning for devices completed for interface Intel(R) 82579LM Gigabit Network Connectio			6/8/2017	8:52:20 AM
	Loading completed (errors: 0; warnings: 0).			6/8/2017	8:53:51 AM
	Connected to PLC_1, via address IP=192.168.0.1.			6/8/2017	8:54:40 AM
	Connection to PLC_1 terminated.			6/8/2017	8:54:53 AM

Hardware catalog

Options

Catalog

<Search>

Filter Profile: <All>

- ET 200SP CPU
- Interface modules
- BusAdapter
- DI
- DQ
- AI
- AQ
- Communications modules
- Station extension
- PM
- Technology modules
- Motor starter
- Server modules
- ET 200AL

Information

Device:

Article no.:

Version:

Module 1 Seed Project_V14_SP1
- Add new device
- Devices & networks
- PLC_1 [CPU 1516F-3 PN/DP]
  - Device configuration
  - Online & diagnostics
  - Safety Administration
  - Program blocks
  - Technology objects
  - External source files
  - PLC tags
  - PLC data types
  - Watch and force tables
  - Online backups
  - Traces
  - Device proxy data
  - Program info
  - PLC supervisions & alarms
  - PLC alarm text lists
  - Local modules
  - Distributed I/O
- PLC_2 [CPU 1215C AC/DC/Rly]
- Drive_1 [G120 CU240E-2 PN-F]
- Ungrouped devices
- Common data
- Documentation settings
- Languages & resources
- Online access
- Card Reader/USB memory

Details view

Portal view | Overview | IO device_1

Connection to PLC_1 terminated.

Devices & networks | Online tools | Tasks | Libraries | Hardware catalog

48 - Paint | Siemens - C...

8:54 AM 6/8/2017

Task 3

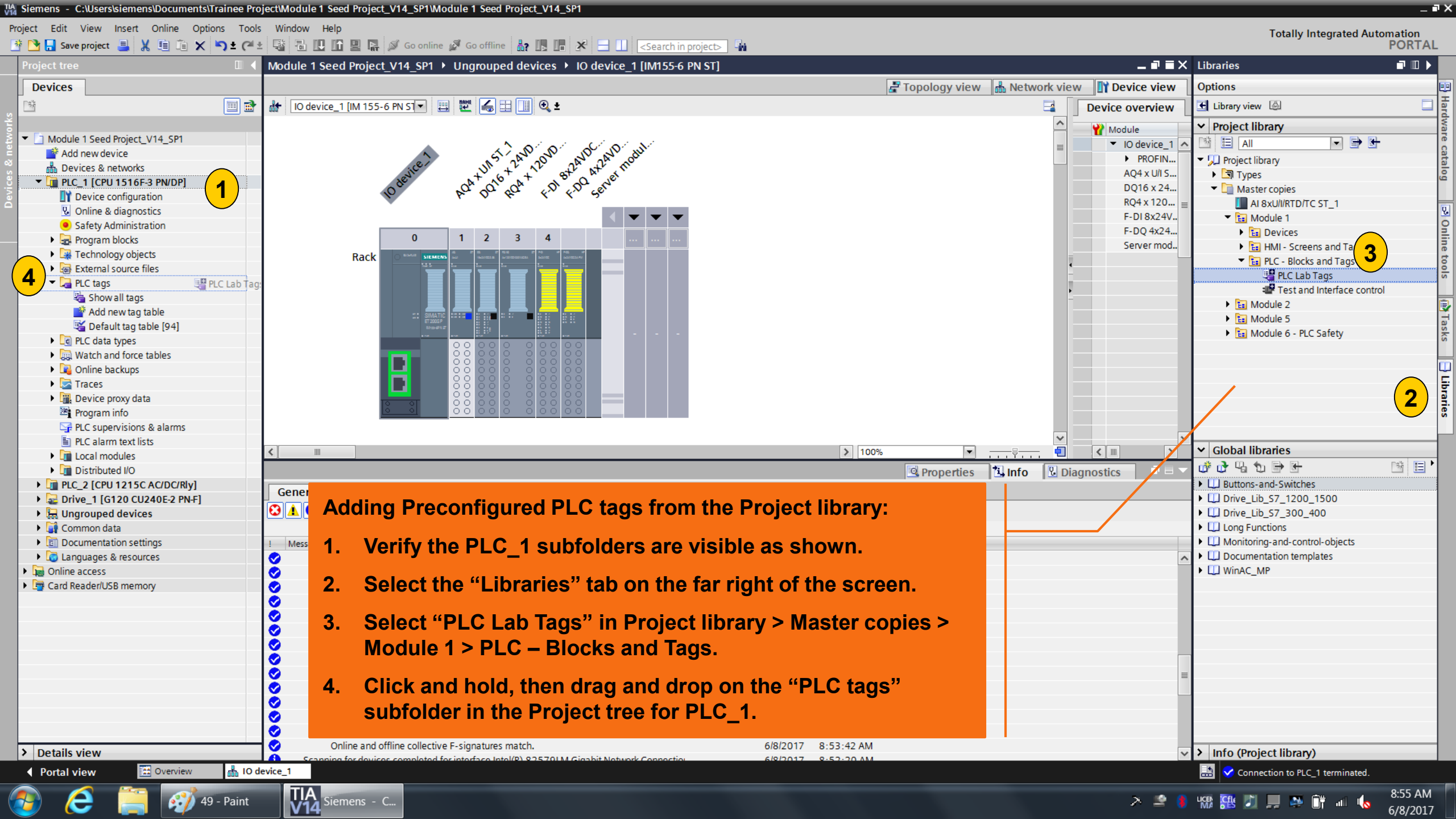
SIEMENS
Ingenuity for life

Objective:

Use the Project Library to add preconfigured PLC tags and then add some test logic.

Overview:

1. Add preconfigured PLC tag tables for the Project Library.
2. Add test logic for potentiometers on the demo kits.


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
Device configuration
Online & diagnostics
Safety Administration
Program blocks
Technology objects
External source files
PLC tags
Show all tags
Add new tag table
Default tag table [94]
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Distributed I/O
PLC_2 [CPU 1215C AC/DC/Rly]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14_SP1 ▸ Ungrouped devices ▸ IO device_1 [IM155-6 PN ST]
Topology view
Network view
Device view
IO device_1 [IM 155-6 PN ST]
Device overview
IO device_1
AQ4 x U/I ST_1
DQ16 x 24VD...
RQ4 x 120VD...
F-DI 8x24VDC...
F-DQ 4x24VD...
Server modul...
Rack
0
1
2
3
4
100%
Properties
Info
Diagnostics
Online and offline collective F-signatures match.
6/8/2017
8:53:42 AM
Libraries
Options
Library view
Project library
All
Project library
Types
Master copies
AI 8xU/I/RTD/TC ST_1
Module 1
Devices
HMI - Screens and Ta
PLC - Blocks and Tags
PLC Lab Tags
Test and Interface control
Module 2
Module 5
Module 6 - PLC Safety
Global libraries
Buttons-and-Switches
Drive_Lib_S7_1200_1500
Drive_Lib_S7_300_400
Long Functions
Monitoring-and-control-objects
Documentation templates
WinAC_MP
Info (Project library)
Connection to PLC_1 terminated.
Portal view
Overview
IO device_1
Hardware catalog
Online tools
Tasks
Libraries
1
2
3
4
Adding Preconfigured PLC tags from the Project library:
1. Verify the PLC_1 subfolders are visible as shown.
2. Select the “Libraries” tab on the far right of the screen.
3. Select “PLC Lab Tags” in Project library > Master copies > Module 1 > PLC – Blocks and Tags.
4. Click and hold, then drag and drop on the “PLC tags” subfolder in the Project tree for PLC_1.
49 - Paint
Siemens - C...
8:55 AM
6/8/2017

Siemens - C:\Users\siemens\Desktop\Trainee Project\Module 1 Seed Project_V14\Module 1 Seed Project_V14

Project Edit View Insert Online Options Tools Window Help

Save project | Go online | Go offline | <Search in project>

Totally Integrated Automation PORTAL

Project tree

Devices

Module 1 Seed Project_V14 ▸ Ungrouped devices ▸ IO device_1 [IM155-6 PN ST]

Topology view | Network view | Device view

Device overview

Libraries

Options

Library view

Project library

Global libraries

Hardware catalog | Online tools | Tasks | Libraries

Devices & networks

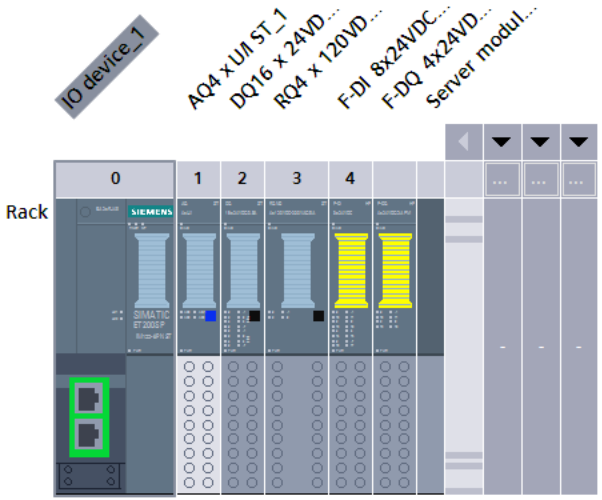
2

1

Module 1 Seed Project_V14
- Add new device
- Devices & networks
- PLC_1 [CPU 1515F-2 PN]
  - Device configuration
  - Online & diagnostics
  - Safety Administration
  - Program blocks
    - Add new block
    - Main [OB1]
    - FOB_RTG1 [OB123]
    - Main_Safety_RTG1 [FB1]
    - Main_Safety_RTG1_DB [DB1]
    - Test and Interface control
  - System blocks
  - Technology objects
  - External source files
  - PLC tags
    - Show all tags
    - Add new tag table
    - Default tag table [94]
    - PLC Lab Tags
  - PLC data types
  - Watch and force tables
  - Online backups
  - Traces
  - Device proxy data
  - Program info
  - PLC supervisions & alarms
  - PLC alarm text lists
  - Local modules
  - Distributed I/O
- PLC_2 [CPU 1215C AC/DC/Rly]
- Drive_1 [G120 CU240E-2 PN-F]
- Ungrouped devices
- Common data
- Documentation settings
- Languages & resources
- Online access
- Card Reader/USB memory

Details view

IO device_1 [IM 155-6 PN ST]



Module
- IO device_1
  - PROFINET in...
  - AQ4 x U/I ST_1
  - DQ16 x 24VDC ...
  - RQ4 x 120VDC ...
  - F-DI 8x24VDC ...
  - F-DQ 4x24VDC/...
  - Server module_1

Project library
- Types
- Master copies
  - AI 8xU/I/RTD/TC ST_1
- Module 1
  - Devices
  - HMI - Screens and Tags
  - PLC - Blocks and Tags
    - PLC Lab Tags
    - Test and Interface control
- Module 2
- Module 5
- Module 6 - PLC Safety

Global libraries
- Buttons-and-Switches
- Drive_Lib_S7_1200_1500
- Drive_Lib_S7_300_400
- Long Functions
- Monitoring-and-control-objects
- Documentation templates
- WinAC_MP

Adding Preconfigured PLC code blocks from Library:

1. **Now select “Test and Interface control” in the same Project library folder directory as “PLC Lab tags”.**
2. **Click and hold, then drag and drop on the “Program blocks” subfolder in the Project tree for PLC_1.**

100%

Properties | Info | Diagnostics

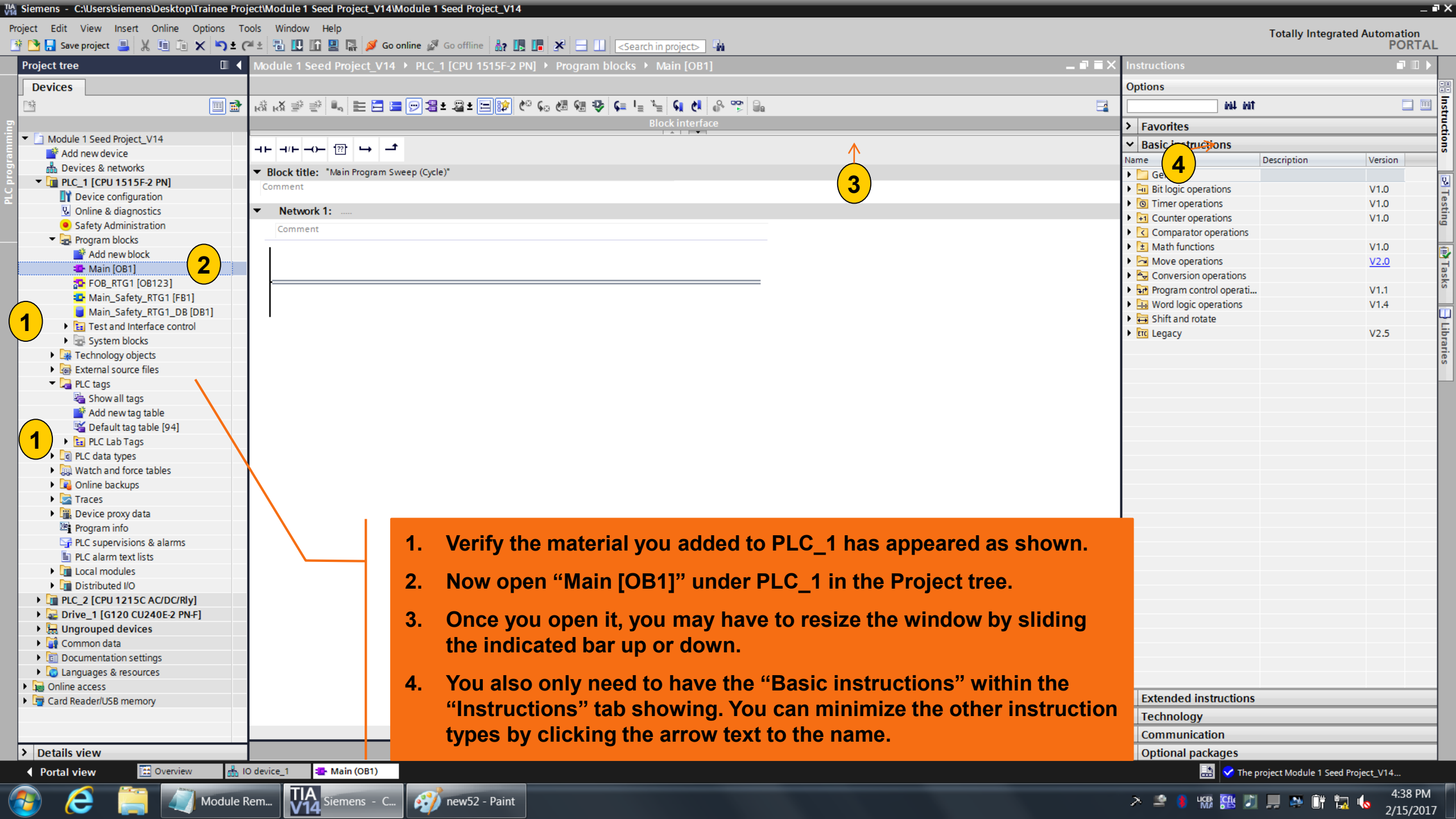
Info (Project library)

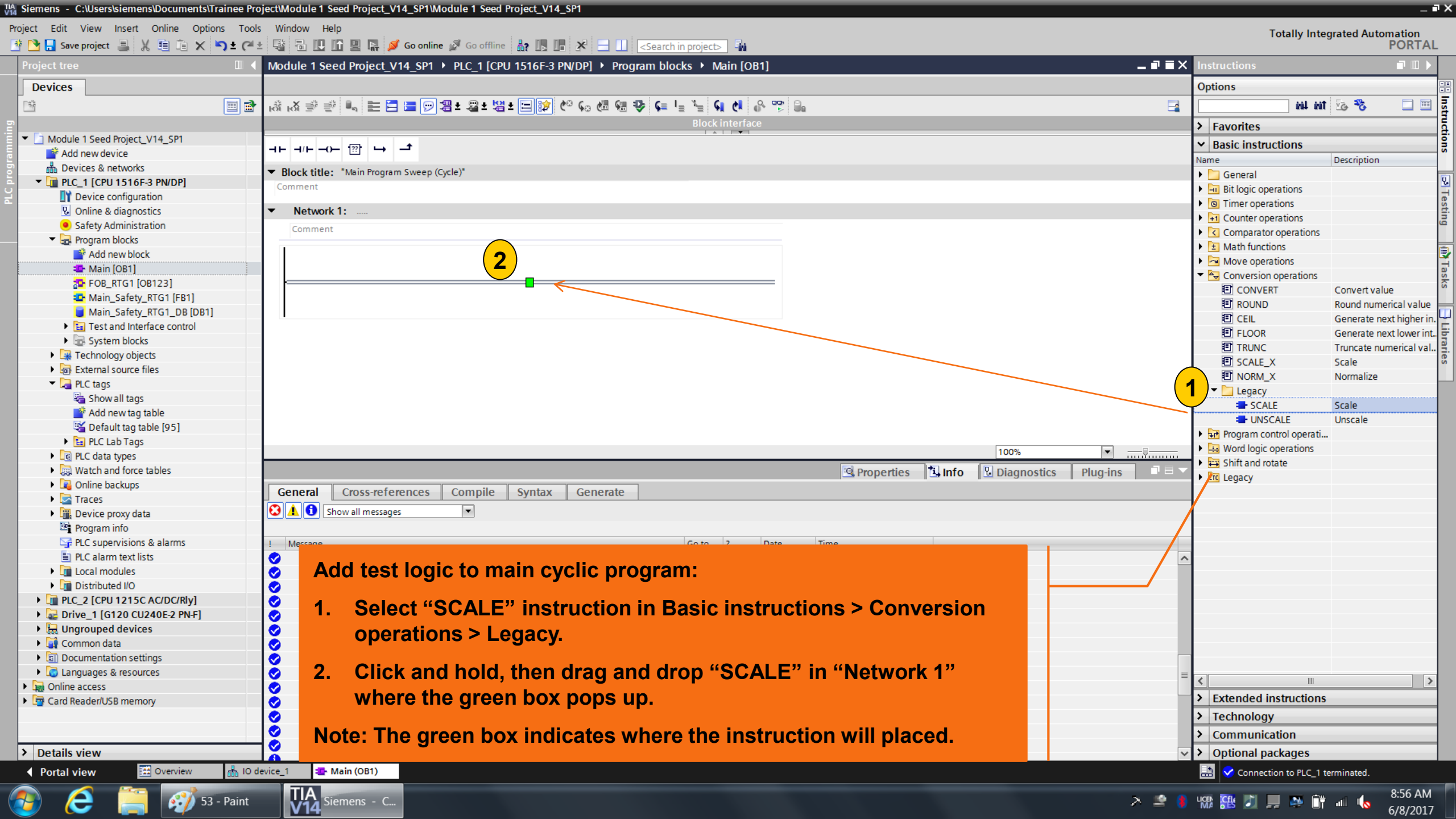
Portal view | Overview | IO device_1

The project Module 1 Seed Project_V14...

Module Rem... | Siemens - C... | new44 - Paint

4:36 PM
2/15/2017


Siemens - C:\Users\siemens\Desktop\Trainee Project\Module 1 Seed Project_V14\Module 1 Seed Project_V14
Project Edit View Insert Online Options Tools Window Help
Save project Go online Go offline <Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14 ▸ PLC_1 [CPU 1515F-2 PN] ▸ Program blocks ▸ Main [OB1]
Block interface
Block title: "Main Program Sweep (Cycle)"
Comment
Network 1:
Comment
Instructions
Options
Favorites
Basic instructions
Name Description Version
Bit logic operations V1.0
Timer operations V1.0
Counter operations V1.0
Comparator operations
Math functions V1.0
Move operations V2.0
Conversion operations
Program control operati... V1.1
Word logic operations V1.4
Shift and rotate
Legacy V2.5
Extended instructions
Technology
Communication
Optional packages
Module 1 Seed Project_V14
Add new device
Devices & networks
PLC_1 [CPU 1515F-2 PN]
Device configuration
Online & diagnostics
Safety Administration
Program blocks
Add new block
Main [OB1]
FOB_RTG1 [OB123]
Main_Safety_RTG1 [FB1]
Main_Safety_RTG1_DB [DB1]
Test and Interface control
System blocks
Technology objects
External source files
PLC tags
Show all tags
Add new tag table
Default tag table [94]
PLC Lab Tags
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Distributed I/O
PLC_2 [CPU 1215C AC/DC/Rly]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
1
2
3
4
1. Verify the material you added to PLC_1 has appeared as shown.
2. Now open “Main [OB1]” under PLC_1 in the Project tree.
3. Once you open it, you may have to resize the window by sliding the indicated bar up or down.
4. You also only need to have the “Basic instructions” within the “Instructions” tab showing. You can minimize the other instruction types by clicking the arrow text to the name.
Portal view
Overview
IO device_1
Main (OB1)
The project Module 1 Seed Project_V14...
Module Rem...
Siemens - C...
new52 - Paint
4:38 PM
2/15/2017


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project tree
Devices
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP] ▸ Program blocks ▸ Main [OB1]
Instructions
Options
Favorites
Basic instructions
Name
Description
Block interface
Block title: "Main Program Sweep (Cycle)"
Comment
Network 1:
Comment
2
1
100%
Properties
Info
Diagnostics
Plug-ins
General
Cross-references
Compile
Syntax
Generate
Show all messages
Add test logic to main cyclic program:
1. Select “SCALE” instruction in Basic instructions > Conversion operations > Legacy.
2. Click and hold, then drag and drop “SCALE” in “Network 1” where the green box pops up.
Note: The green box indicates where the instruction will placed.
Portal view
Overview
IO device_1
Main (OB1)
Connection to PLC_1 terminated.
8:56 AM
6/8/2017

Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1

Project Edit View Insert Online Options Tools Window Help

Save project | Go online | Go offline | <Search in project>

Totally Integrated Automation PORTAL

Project tree

Devices

- Module 1 Seed Project_V14_SP1
  - Add new device
  - Devices & networks
  - PLC_1 [CPU 1516F-3 PN/DP]
    - Device configuration
    - Online & diagnostics
    - Safety Administration
    - Program blocks
      - Add new block
      - Main [OB1]
      - FOB_RTG1 [OB123]
      - Main_Safety_RTG1 [FB1]
      - Main_Safety_RTG1_DB [DB1]
    - Test and Interface control
    - System blocks
    - Technology objects
    - External source files
    - PLC tags
      - Show all tags
      - Add new tag table
      - Default tag table [95]
      - PLC Lab Tags
    - PLC data types
    - Watch and force tables
    - Online backups
    - Traces
    - Device proxy data
    - Program info
    - PLC supervisions & alarms
    - PLC alarm text lists
    - Local modules
    - Distributed I/O
  - PLC_2 [CPU 1215C AC/DC/Rly]
  - Drive_1 [G120 CU240E-2 PN-F]
  - Ungrouped devices
  - Common data
  - Documentation settings
  - Languages & resources
- Online access
- Card Reader/USB memory

Details view

Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP] ▸ Program blocks ▸ Main [OB1]

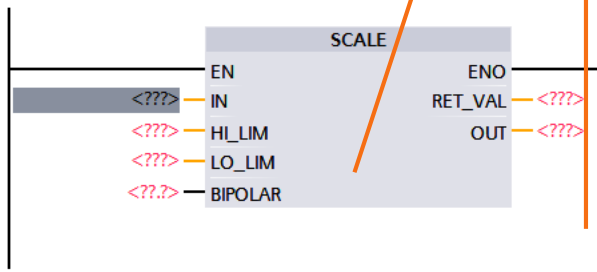
Block interface

Block title: "Main Program Sweep (Cycle)"

Comment

Network 1:

Comment

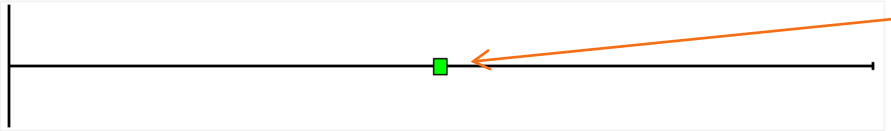


It should now look like the below.

1. Select another “SCALE” instruction from the same location.
2. Drag and drop it right below the first “SCALE” block.

Network 2:

Comment



1

2

100%

Properties | Info | Diagnostics | Plug-ins

Instructions

Options

Favorites

Basic instructions

Name	Description
General	
Bit logic operations	
Timer operations	
Counter operations	
Comparator operations	
Math functions	
Move operations	
Conversion operations	
CONVERT	Convert value
ROUND	Round numerical value
CEIL	Generate next higher in...
FLOOR	Generate next lower int...
TRUNC	Truncate numerical val...
SCALE_X	Scale
NORM_X	Normalize
Legacy	
SCALE	Scale
UNSCALE	Unscale
Program control operati...	
Word logic operations	
Shift and rotate	
Legacy	

Extended instructions

Technology

Communication

Optional packages

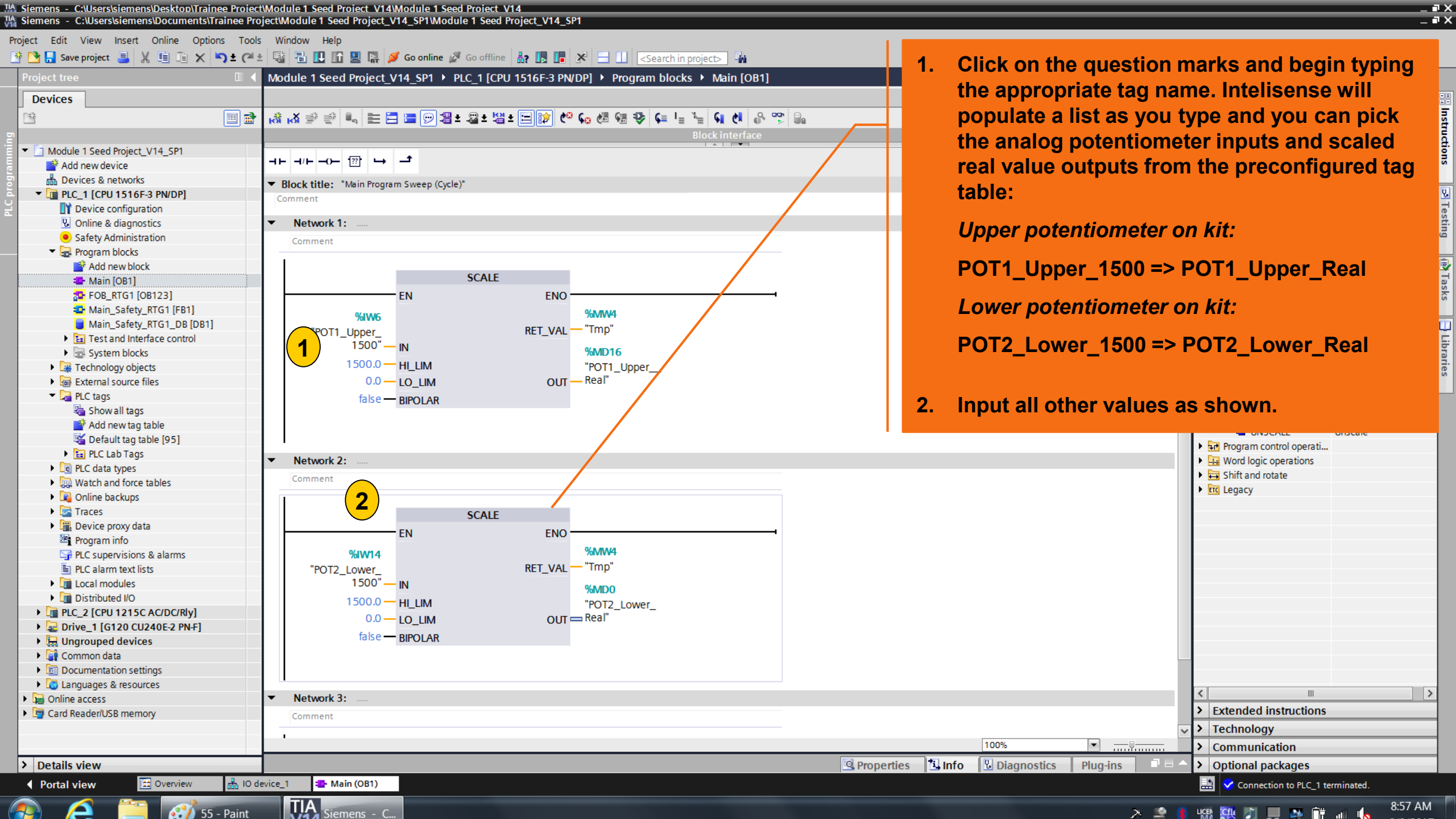
Instructions | Testing | Tasks | Libraries

Portal view | Overview | IO device_1 | Main (OB1)

Connection to PLC_1 terminated.

54 - Paint | Siemens - C...

8:56 AM 6/8/2017



1. **Click on the question marks and begin typing the appropriate tag name. Intelisense will populate a list as you type and you can pick the analog potentiometer inputs and scaled real value outputs from the preconfigured tag table:**

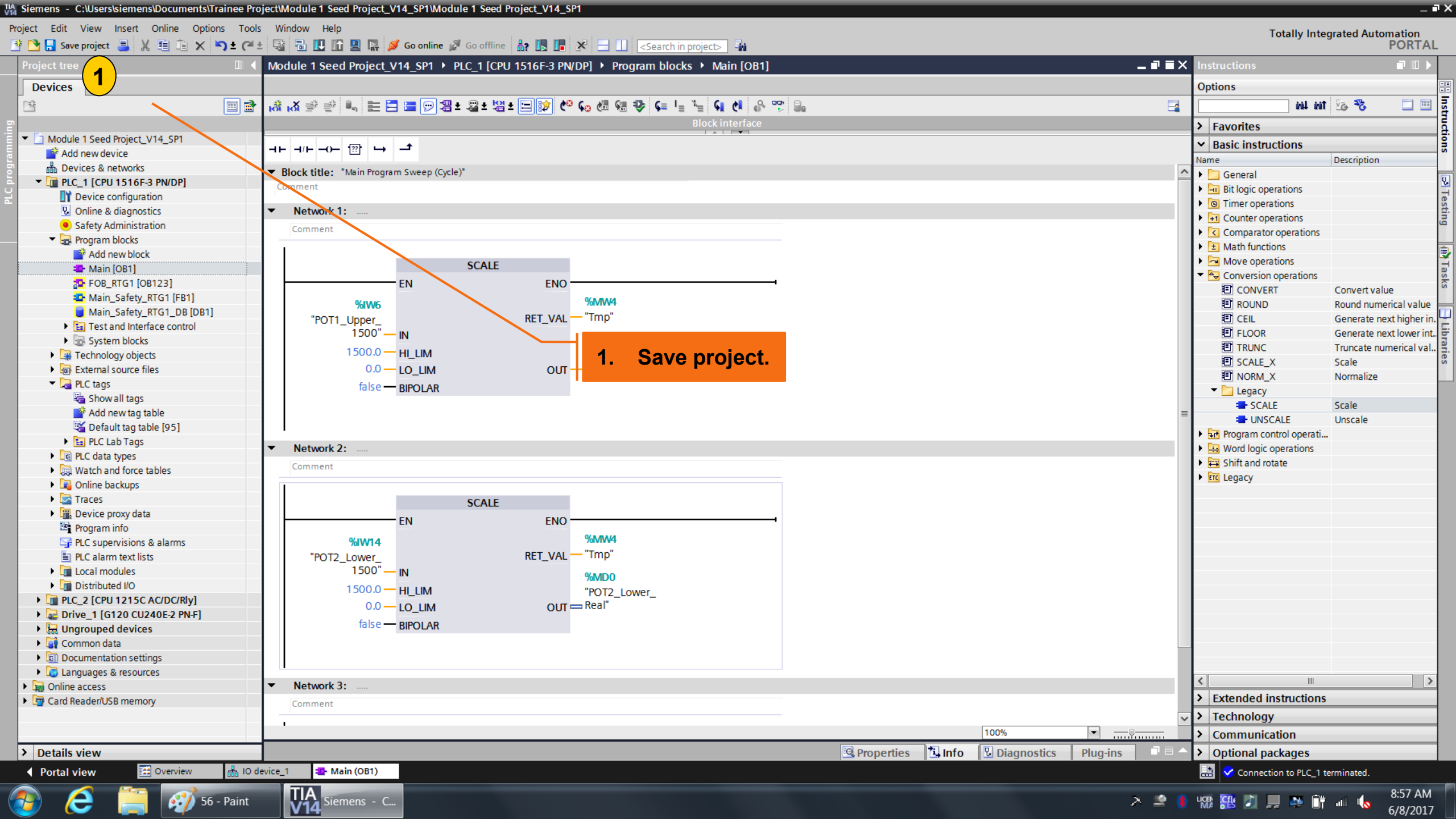
   Upper potentiometer on kit:

   POT1_Upper_1500 => POT1_Upper_Real

   Lower potentiometer on kit:

   POT2_Lower_1500 => POT2_Lower_Real

2. **Input all other values as shown.**


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project
Go online
Go offline
<Search in project>
Totally Integrated Automation PORTAL
Project tree
1
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
Device configuration
Online & diagnostics
Safety Administration
Program blocks
Add new block
Main [OB1]
FOB_RTG1 [OB123]
Main_Safety_RTG1 [FB1]
Main_Safety_RTG1_DB [DB1]
Test and Interface control
System blocks
Technology objects
External source files
PLC tags
Show all tags
Add new tag table
Default tag table [95]
PLC Lab Tags
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Distributed I/O
PLC_2 [CPU 1215C AC/DC/Rly]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP] ▸ Program blocks ▸ Main [OB1]
Block interface
Block title: "Main Program Sweep (Cycle)"
Comment
Network 1:
Comment
SCALE
EN
ENO
%IW6
"POT1_Upper_ 1500"
IN
1500.0
HI_LIM
0.0
LO_LIM
false
BIPOLAR
%MW4
"Tmp"
RET_VAL
OUT
1. Save project.
Network 2:
Comment
SCALE
EN
ENO
%IW14
"POT2_Lower_ 1500"
IN
1500.0
HI_LIM
0.0
LO_LIM
false
BIPOLAR
%MW4
"Tmp"
RET_VAL
%MD0
"POT2_Lower_ Real"
OUT
Network 3:
Comment
100%
Properties
Info
Diagnostics
Plug-ins
Instructions
Options
Favorites
Basic instructions
Name
Description
General
Bit logic operations
Timer operations
Counter operations
Comparator operations
Math functions
Move operations
Conversion operations
CONVERT
Convert value
ROUND
Round numerical value
CEIL
Generate next higher in.
FLOOR
Generate next lower int.
TRUNC
Truncate numerical val.
SCALE_X
Scale
NORM_X
Normalize
Legacy
SCALE
Scale
UNSCALE
Unscale
Program control operati...
Word logic operations
Shift and rotate
Legacy
Extended instructions
Technology
Communication
Optional packages
Instructions
Testing
Tasks
Libraries
PLC programming
Portal view
Overview
IO device_1
Main (OB1)
Connection to PLC_1 terminated.
56 - Paint
Siemens - C...
8:57 AM
6/8/2017

Task 3

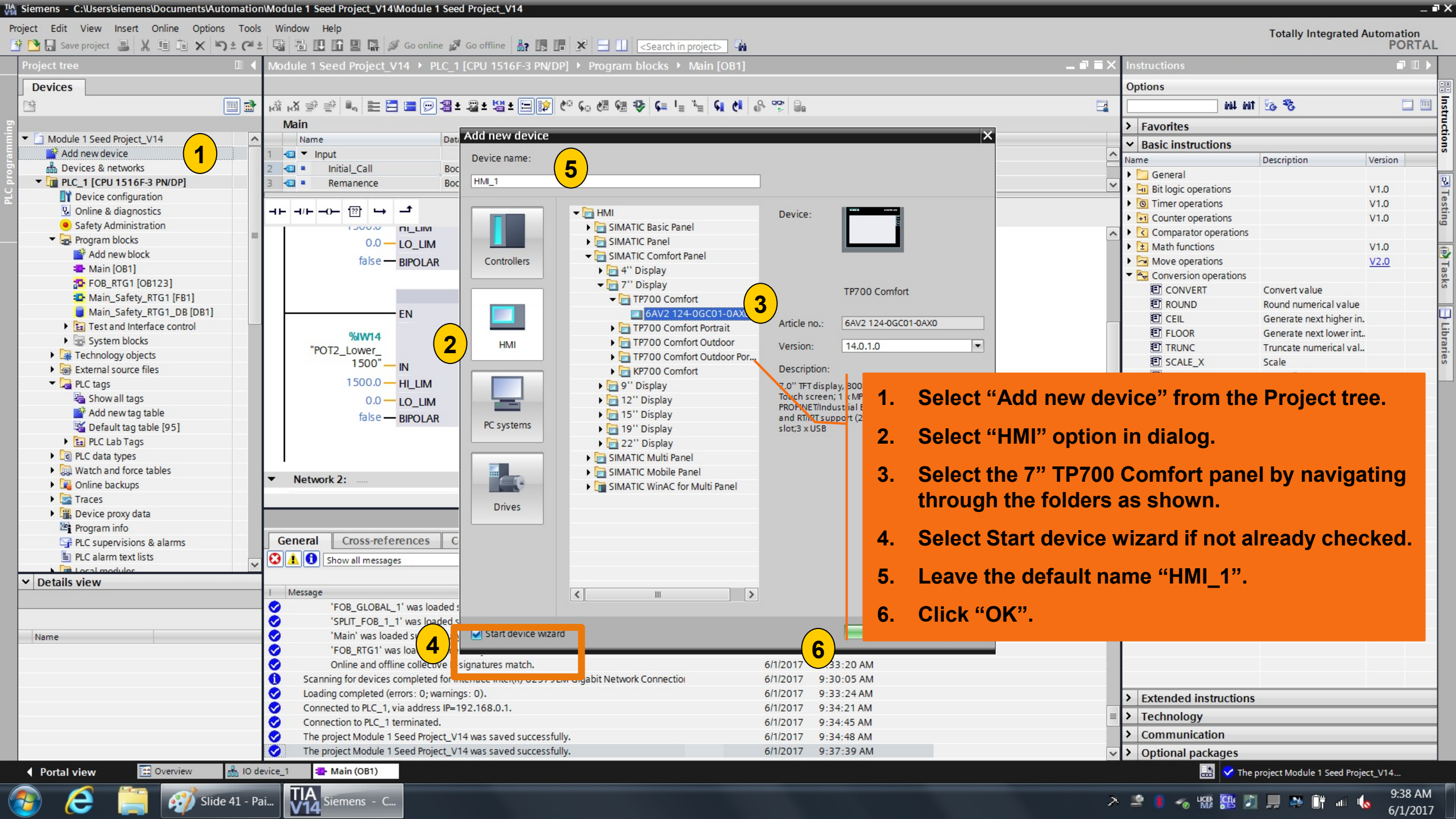
SIEMENS
Ingenuity for life

Objective:

Add a HMI Panel.

Overview:

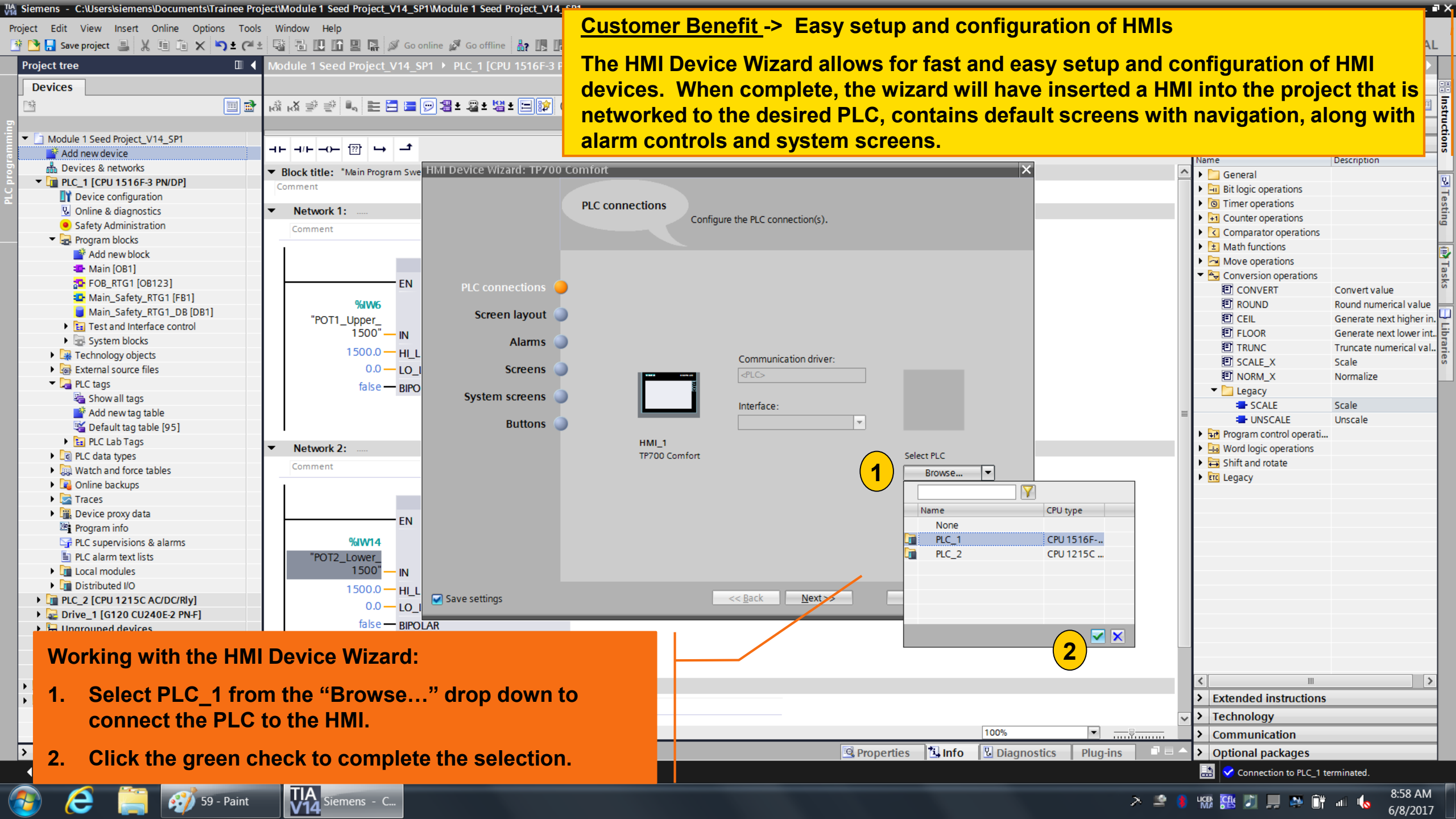
1. Add a Comfort Panel HMI to the project.
2. Use the **HMI Device Wizard** to connect it to the S7-1500 PLC and PROFINET Network, and to create default screens and screen navigation.
3. Add a **preconfigured HMI tag table from the Project Library**.
4. Add a **preconfigured HMI screen from a Reference Project**.



1. Select “Add new device” from the Project tree.
2. Select “HMI” option in dialog.
3. Select the 7” TP700 Comfort panel by navigating through the folders as shown.
4. Select Start device wizard if not already checked.
5. Leave the default name “HMI_1”.
6. Click “OK”.

Customer Benefit -> Easy setup and configuration of HMIs

The HMI Device Wizard allows for fast and easy setup and configuration of HMI devices. When complete, the wizard will have inserted a HMI into the project that is networked to the desired PLC, contains default screens with navigation, along with alarm controls and system screens.

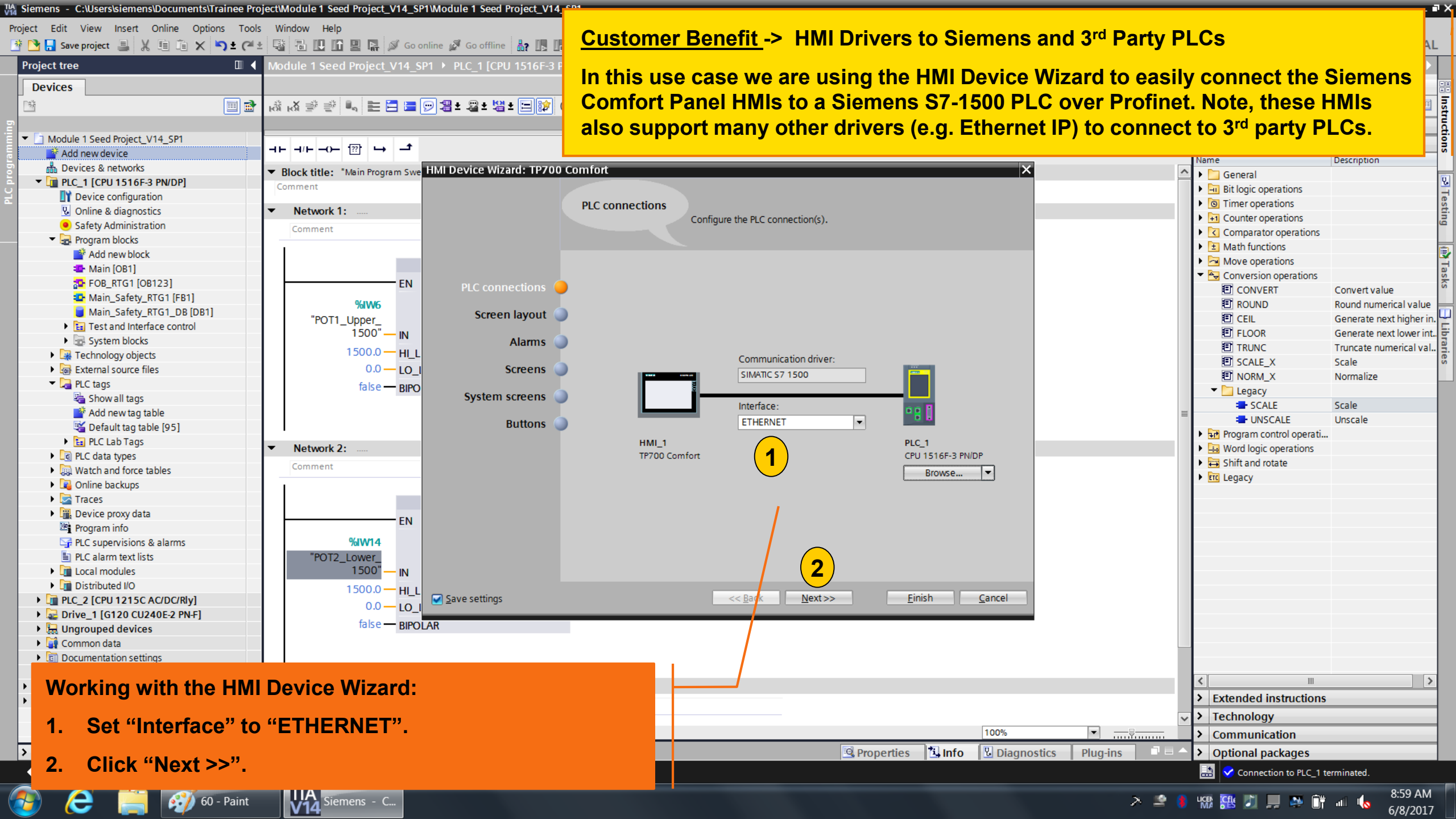


Working with the HMI Device Wizard:

1. **Select PLC_1 from the "Browse…" drop down to connect the PLC to the HMI.**
2. **Click the green check to complete the selection.**

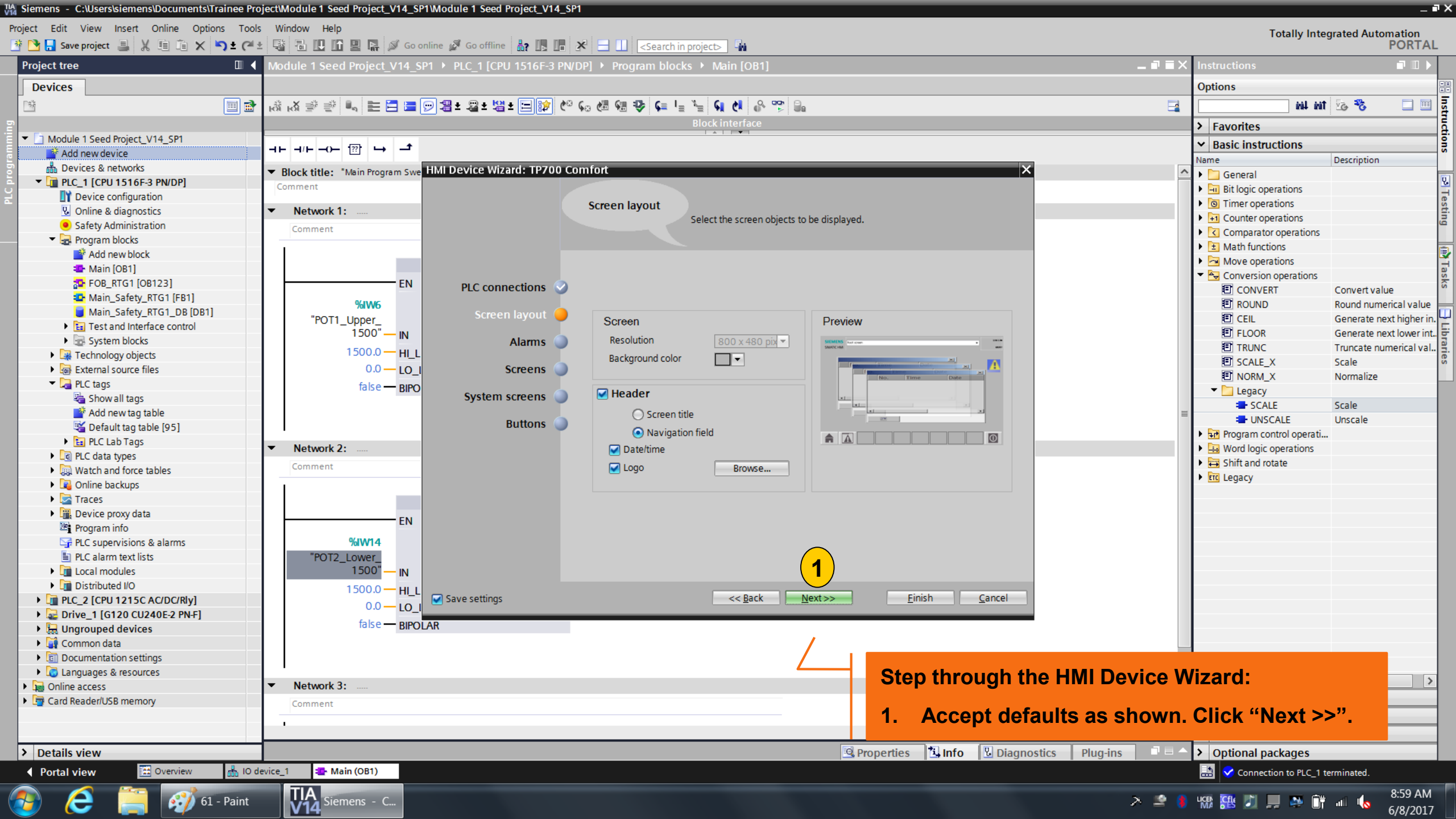
Customer Benefit -> HMI Drivers to Siemens and 3rd Party PLCs

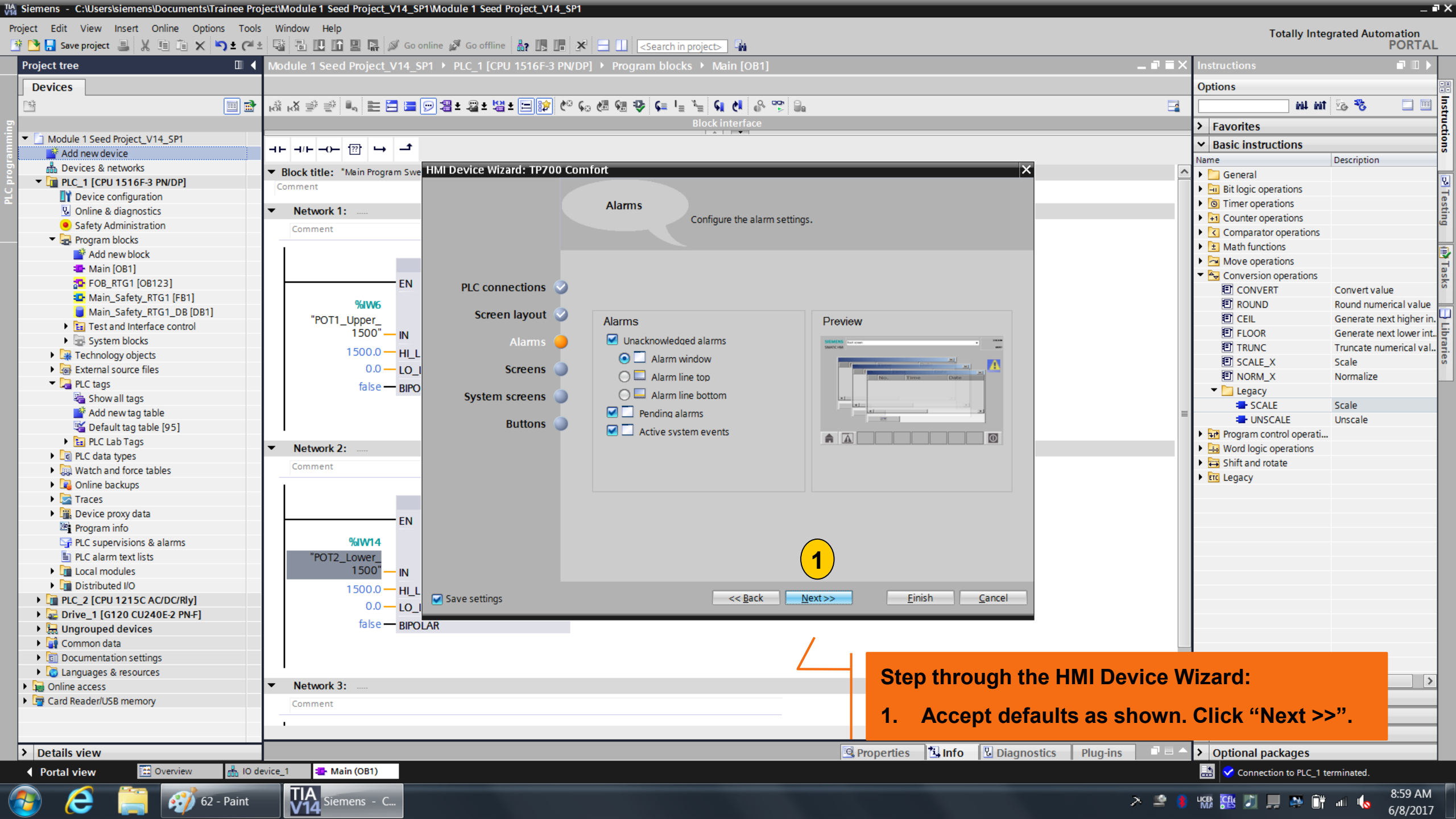
In this use case we are using the HMI Device Wizard to easily connect the Siemens Comfort Panel HMIs to a Siemens S7-1500 PLC over Profinet. Note, these HMIs also support many other drivers (e.g. Ethernet IP) to connect to 3rd party PLCs.



Working with the HMI Device Wizard:

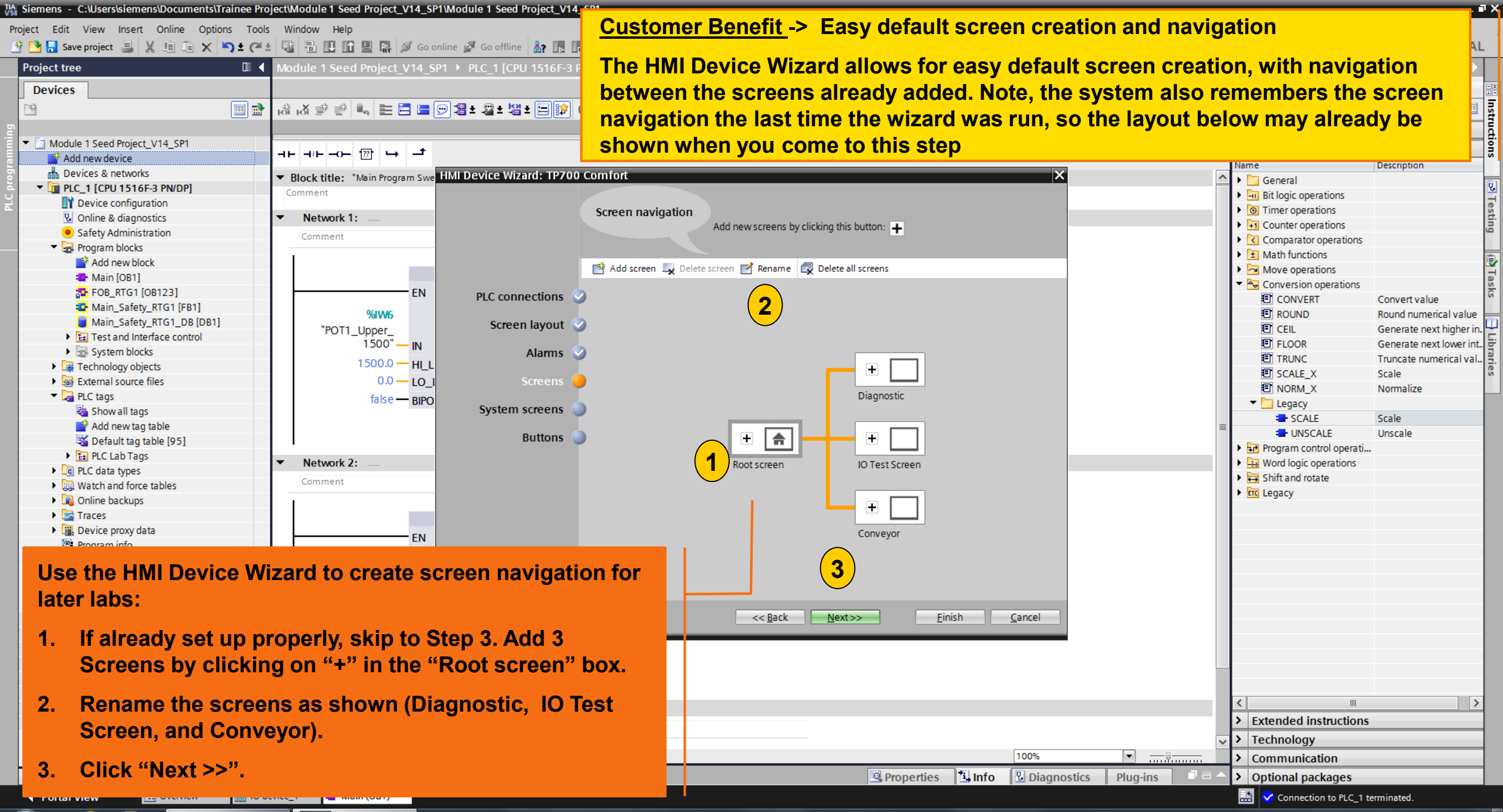
1. **Set “Interface” to “ETHERNET”.**
2. **Click “Next >>”.**


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
Device configuration
Online & diagnostics
Safety Administration
Program blocks
Add new block
Main [OB1]
FOB_RTG1 [OB123]
Main_Safety_RTG1 [FB1]
Main_Safety_RTG1_DB [DB1]
Test and Interface control
System blocks
Technology objects
External source files
PLC tags
Show all tags
Add new tag table
Default tag table [95]
PLC Lab Tags
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Distributed I/O
PLC_2 [CPU 1215C AC/DC/Rly]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP] ▸ Program blocks ▸ Main [OB1]
Block interface
Block title: "Main Program Swe
Comment
Network 1:
Comment
%IW6
"POT1_Upper_1500"
1500.0
0.0
false
EN
IN
HI_L
LO_L
BIPO
Network 2:
Comment
%IW14
"POT2_Lower_1500"
1500.0
0.0
false
EN
IN
HI_L
LO_L
BIPOLAR
Network 3:
Comment
HMI Device Wizard: TP700 Comfort
Screen layout
Select the screen objects to be displayed.
PLC connections
Screen layout
Alarms
Screens
System screens
Buttons
Screen
Resolution
800 x 480 pix
Background color
Header
Screen title
Navigation field
Date/time
Logo
Browse...
Preview
Save settings
<< Back
Next >>
Finish
Cancel
1
Step through the HMI Device Wizard:
1. Accept defaults as shown. Click “Next >>”.
Instructions
Options
Favorites
Basic instructions
Name
Description
General
Bit logic operations
Timer operations
Counter operations
Comparator operations
Math functions
Move operations
Conversion operations
CONVERT
Convert value
ROUND
Round numerical value
CEIL
Generate next higher in.
FLOOR
Generate next lower int.
TRUNC
Truncate numerical val.
SCALE_X
Scale
NORM_X
Normalize
Legacy
SCALE
Scale
UNSCALE
Unscale
Program control operati...
Word logic operations
Shift and rotate
Legacy
Properties
Info
Diagnostics
Plug-ins
Optional packages
Portal view
Overview
IO device_1
Main (OB1)
Connection to PLC_1 terminated.
61 - Paint
Siemens - C...
8:59 AM
6/8/2017


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
Device configuration
Online & diagnostics
Safety Administration
Program blocks
Add new block
Main [OB1]
FOB_RTG1 [OB123]
Main_Safety_RTG1 [FB1]
Main_Safety_RTG1_DB [DB1]
Test and Interface control
System blocks
Technology objects
External source files
PLC tags
Show all tags
Add new tag table
Default tag table [95]
PLC Lab Tags
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Distributed I/O
PLC_2 [CPU 1215C AC/DC/Rly]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP] ▸ Program blocks ▸ Main [OB1]
Block interface
Block title: "Main Program Swe
Comment
Network 1:
Network 2:
Network 3:
%IW6
"POT1_Upper_1500"
%IW14
"POT2_Lower_1500"
1500.0
0.0
false
BIPOLAR
HMI Device Wizard: TP700 Comfort
Alarms
Configure the alarm settings.
PLC connections
Screen layout
Alarms
Screens
System screens
Buttons
Unacknowledged alarms
Alarm window
Alarm line top
Alarm line bottom
Pending alarms
Active system events
Preview
Save settings
<< Back
Next >>
Finish
Cancel
1
Step through the HMI Device Wizard:
1. Accept defaults as shown. Click “Next >>”.
Instructions
Options
Favorites
Basic instructions
Name
Description
General
Bit logic operations
Timer operations
Counter operations
Comparator operations
Math functions
Move operations
Conversion operations
CONVERT
Convert value
ROUND
Round numerical value
CEIL
Generate next higher in.
FLOOR
Generate next lower int.
TRUNC
Truncate numerical val.
SCALE_X
Scale
NORM_X
Normalize
Legacy
SCALE
Scale
UNSCALE
Unscale
Program control operati...
Word logic operations
Shift and rotate
Legacy
Properties
Info
Diagnostics
Plug-ins
Optional packages
Portal view
Overview
IO device_1
Main (OB1)
Connection to PLC_1 terminated.
62 - Paint
Siemens - C...
8:59 AM
6/8/2017

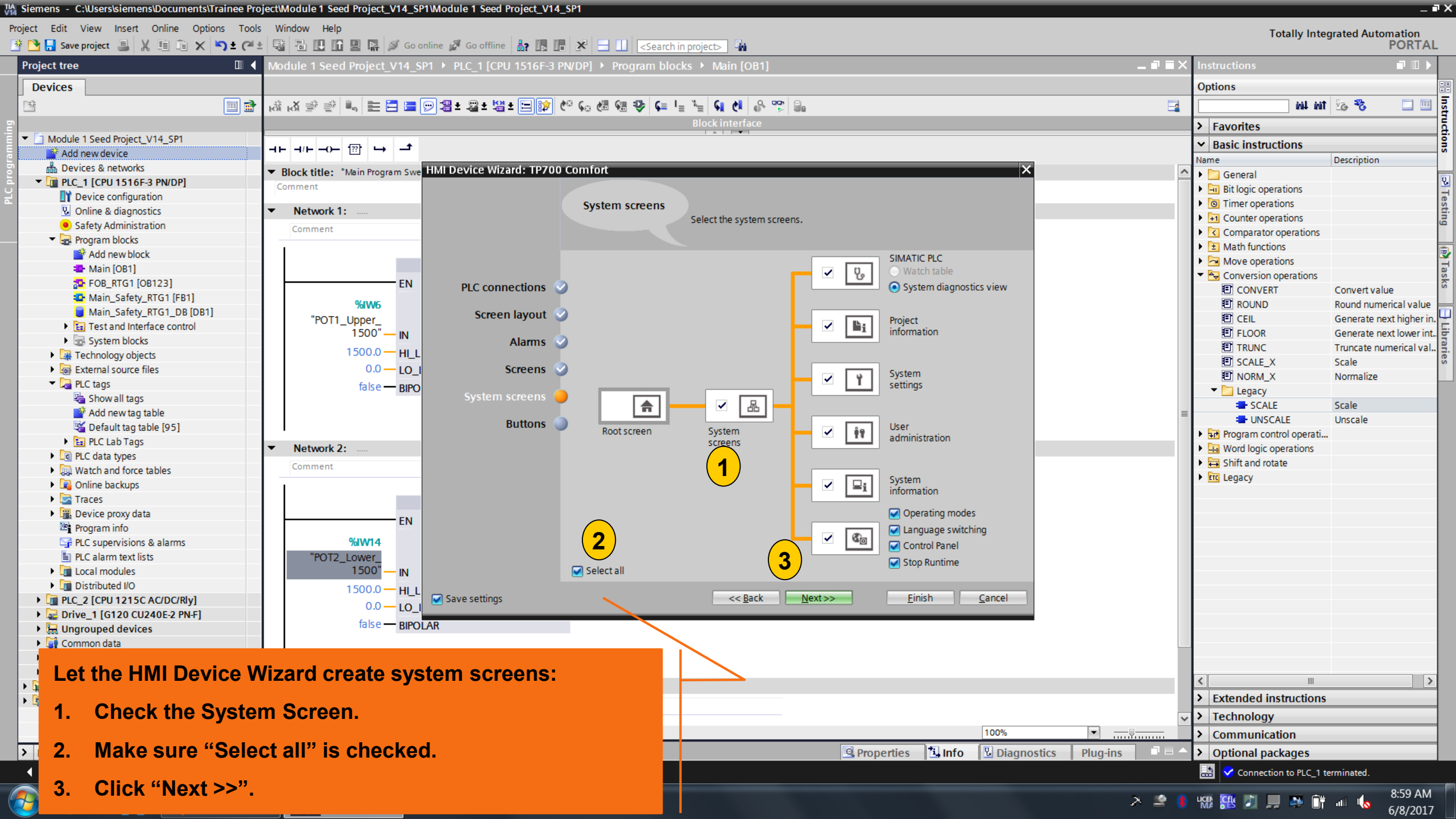
Customer Benefit -> Easy default screen creation and navigation

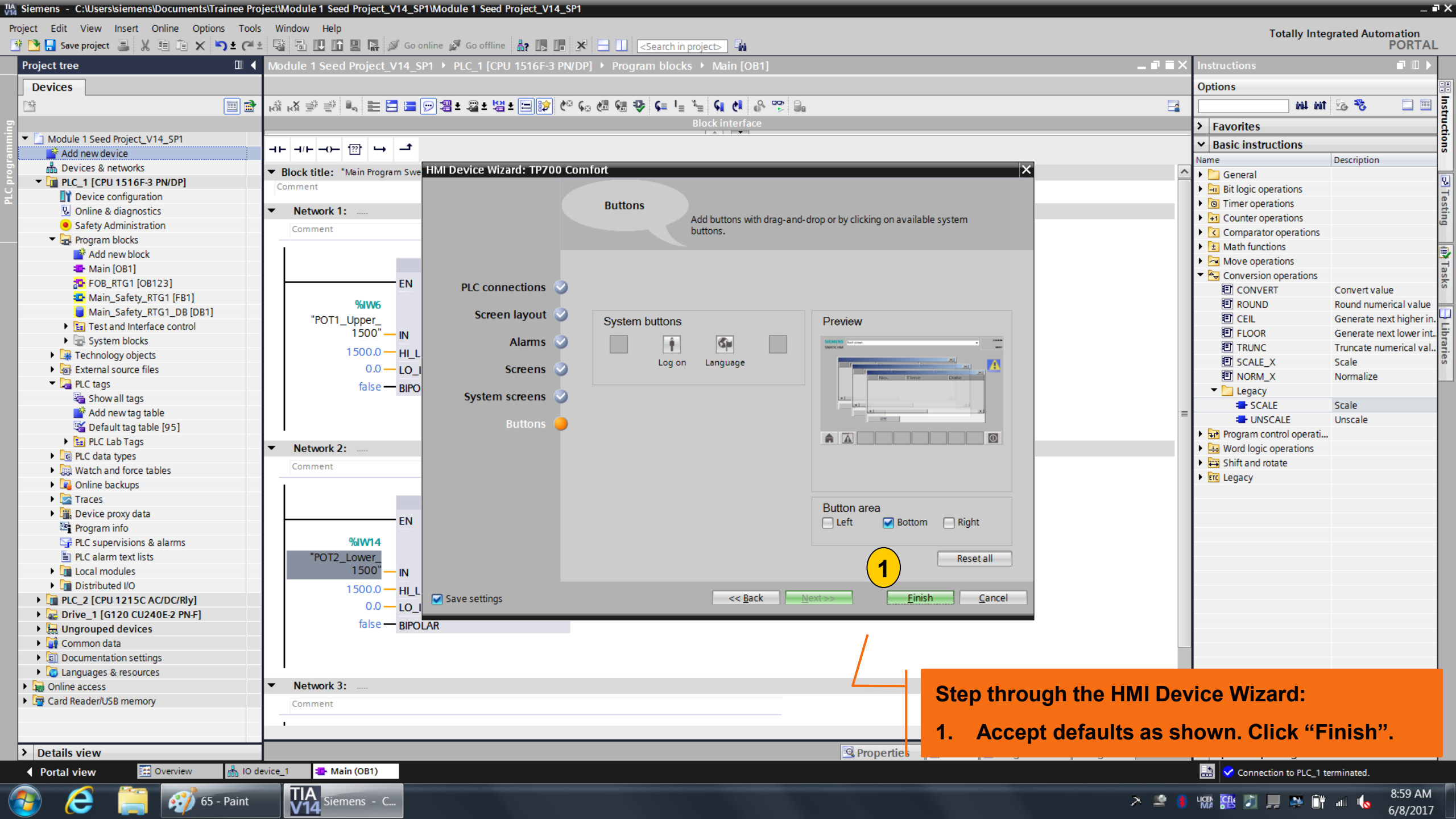
The HMI Device Wizard allows for easy default screen creation, with navigation between the screens already added. Note, the system also remembers the screen navigation the last time the wizard was run, so the layout below may already be shown when you come to this step

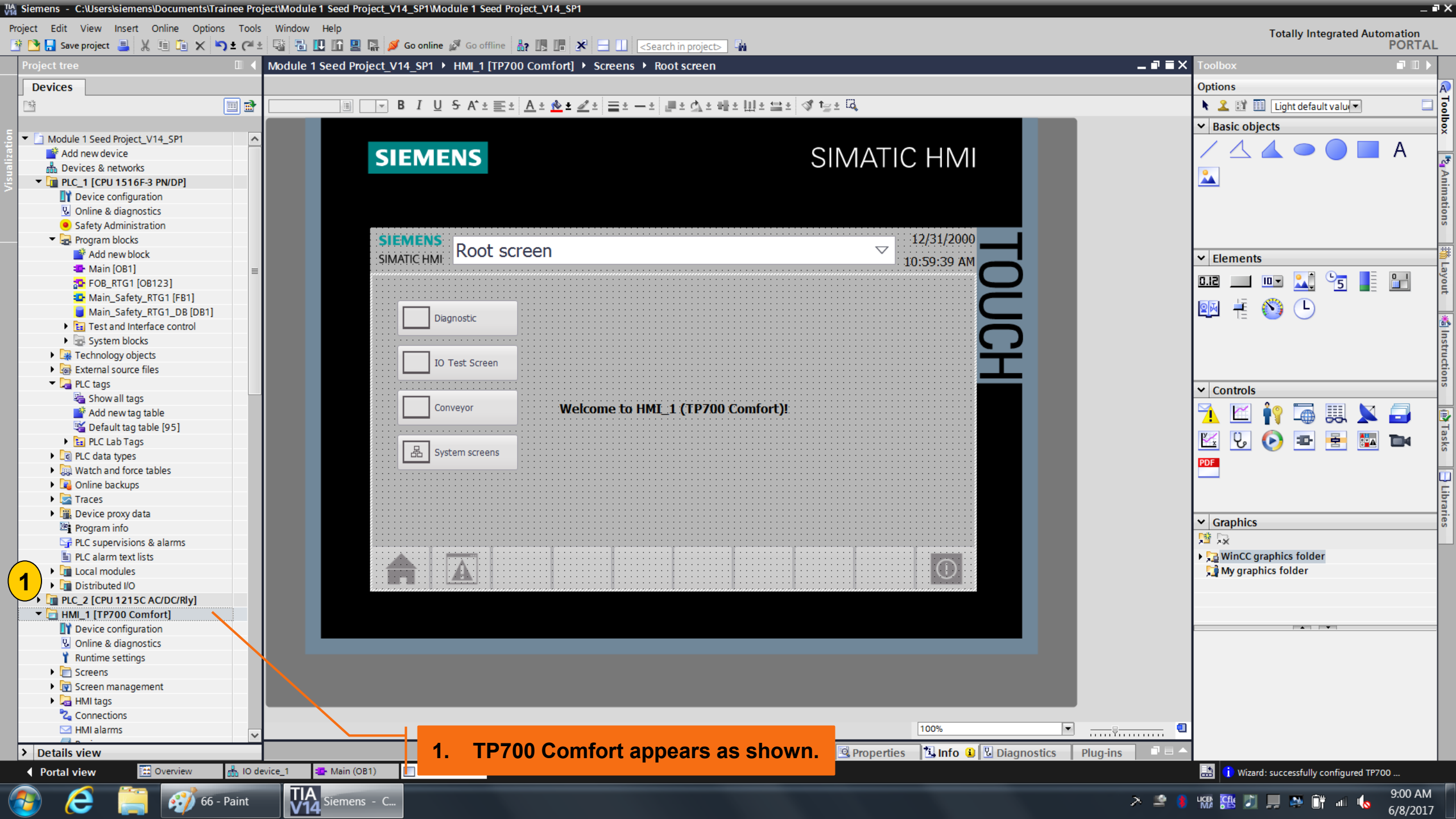


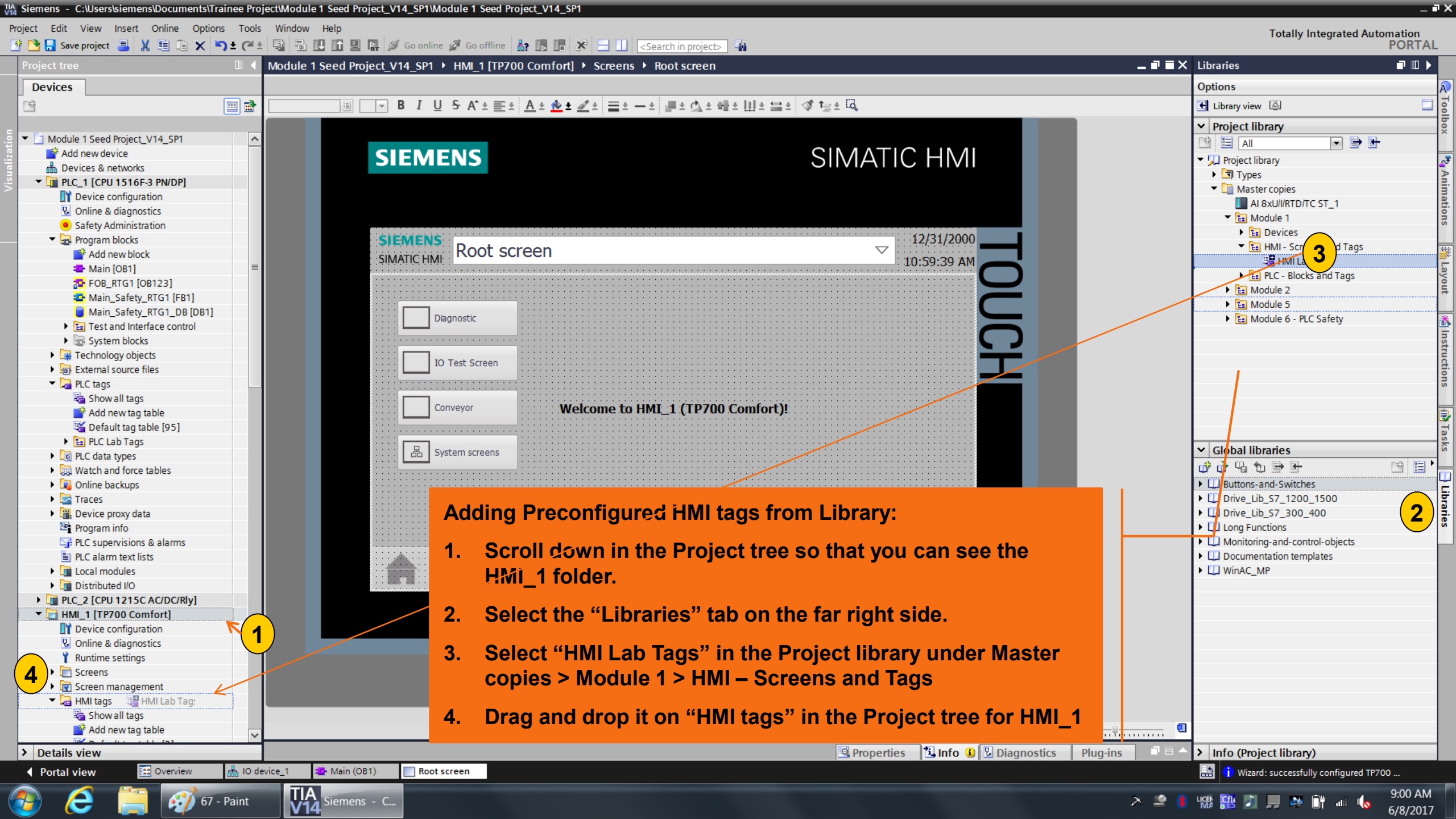
Use the HMI Device Wizard to create screen navigation for later labs:

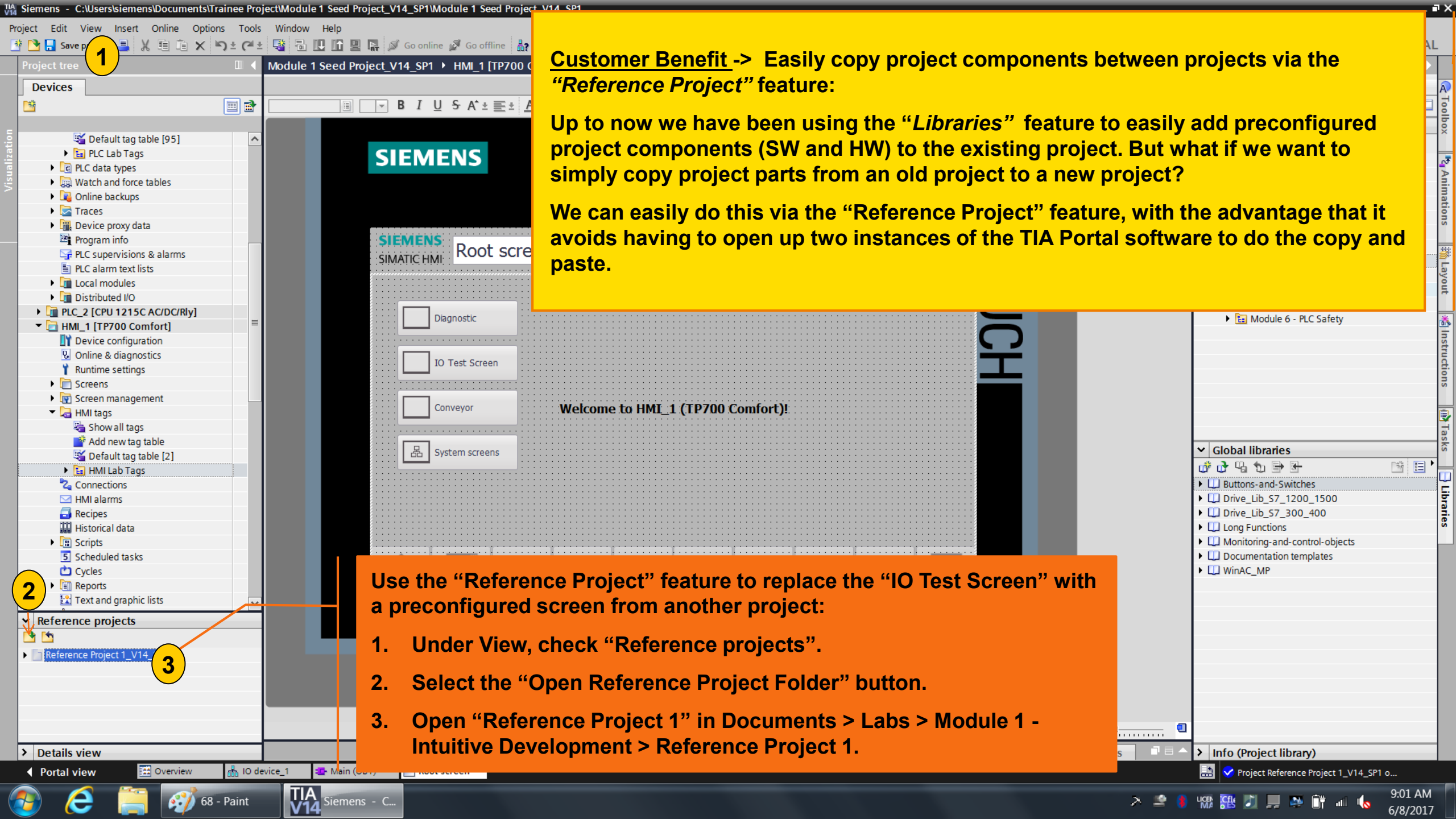
1. **If already set up properly, skip to Step 3. Add 3 Screens by clicking on "+" in the "Root screen" box.**
2. **Rename the screens as shown (Diagnostic, IO Test Screen, and Conveyor).**
3. **Click "Next >>".**

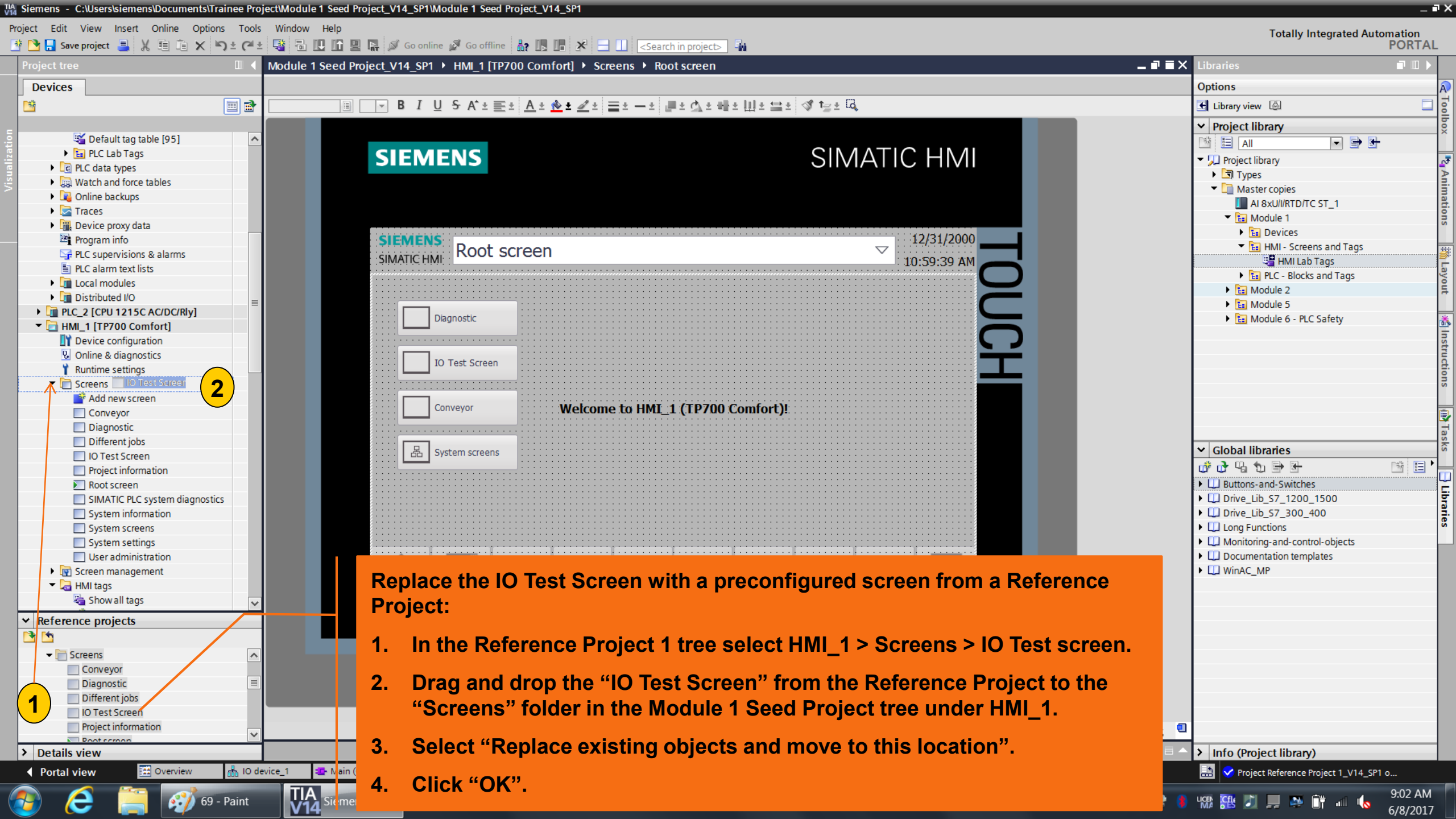

Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP] ▸ Program blocks ▸ Main [OB1]
Block interface
Instructions
Options
Favorites
Basic instructions
Name
Description
General
Bit logic operations
Timer operations
Counter operations
Comparator operations
Math functions
Move operations
Conversion operations
CONVERT
Convert value
ROUND
Round numerical value
CEIL
Generate next higher in.
FLOOR
Generate next lower int..
TRUNC
Truncate numerical val..
SCALE_X
Scale
NORM_X
Normalize
Legacy
SCALE
Scale
UNSCALE
Unscale
Program control operati...
Word logic operations
Shift and rotate
Legacy
Extended instructions
Technology
Communication
Optional packages
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
Device configuration
Online & diagnostics
Safety Administration
Program blocks
Add new block
Main [OB1]
FOB_RTG1 [OB123]
Main_Safety_RTG1 [FB1]
Main_Safety_RTG1_DB [DB1]
Test and Interface control
System blocks
Technology objects
External source files
PLC tags
Show all tags
Add new tag table
Default tag table [95]
PLC Lab Tags
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Distributed I/O
PLC_2 [CPU 1215C AC/DC/Rly]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Block title: "Main Program Swe
Comment
Network 1:
Comment
EN
%IW6
"POT1_Upper_1500"
IN
1500.0
HI_L
0.0
LO_I
false
BIPO
Network 2:
Comment
EN
%IW14
"POT2_Lower_1500"
IN
1500.0
HI_L
0.0
LO_I
false
BIPOLAR
HMI Device Wizard: TP700 Comfort
System screens
Select the system screens.
PLC connections
Screen layout
Alarms
Screens
System screens
Buttons
Root screen
System screens
1
2
Select all
3
SIMATIC PLC
Watch table
System diagnostics view
Project information
System settings
User administration
System information
Operating modes
Language switching
Control Panel
Stop Runtime
Save settings
<< Back
Next >>
Finish
Cancel
Let the HMI Device Wizard create system screens:
1. Check the System Screen.
2. Make sure “Select all” is checked.
3. Click “Next >>”.
100%
Properties
Info
Diagnostics
Plug-ins
Connection to PLC_1 terminated.
8:59 AM
6/8/2017

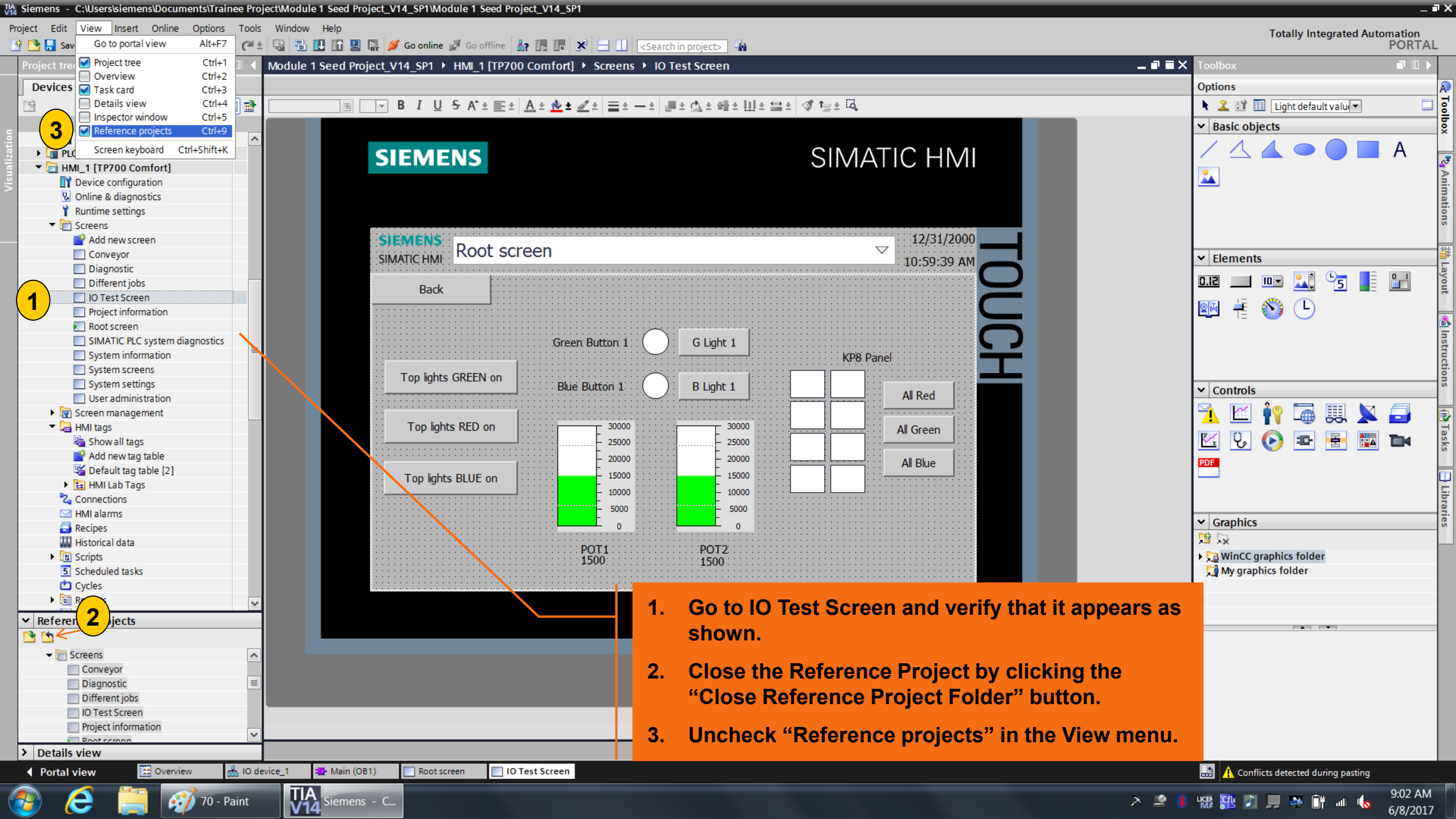

Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
Device configuration
Online & diagnostics
Safety Administration
Program blocks
Add new block
Main [OB1]
FOB_RTG1 [OB123]
Main_Safety_RTG1 [FB1]
Main_Safety_RTG1_DB [DB1]
Test and Interface control
System blocks
Technology objects
External source files
PLC tags
Show all tags
Add new tag table
Default tag table [95]
PLC Lab Tags
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Distributed I/O
PLC_2 [CPU 1215C AC/DC/Rly]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP] ▸ Program blocks ▸ Main [OB1]
Block interface
Block title: "Main Program Swe
Comment
Network 1:
Network 2:
Network 3:
%IW6
"POT1_Upper_1500"
%IW14
"POT2_Lower_1500"
1500.0
0.0
false
BIPOLAR
HMI Device Wizard: TP700 Comfort
Buttons
Add buttons with drag-and-drop or by clicking on available system buttons.
PLC connections
Screen layout
Alarms
Screens
System screens
Buttons
System buttons
Log on
Language
Preview
Button area
Left
Bottom
Right
Reset all
Save settings
<< Back
Next >>
Finish
Cancel
1
Instructions
Options
Favorites
Basic instructions
Name
Description
General
Bit logic operations
Timer operations
Counter operations
Comparator operations
Math functions
Move operations
Conversion operations
CONVERT
Convert value
ROUND
Round numerical value
CEIL
Generate next higher in.
FLOOR
Generate next lower int.
TRUNC
Truncate numerical val.
SCALE_X
Scale
NORM_X
Normalize
Legacy
SCALE
Scale
UNSCALE
Unscale
Program control operati...
Word logic operations
Shift and rotate
Legacy
Step through the HMI Device Wizard:
1. Accept defaults as shown. Click “Finish”.
Properties
Portal view
Overview
IO device_1
Main (OB1)
Connection to PLC_1 terminated.
65 - Paint
Siemens - C...
8:59 AM
6/8/2017

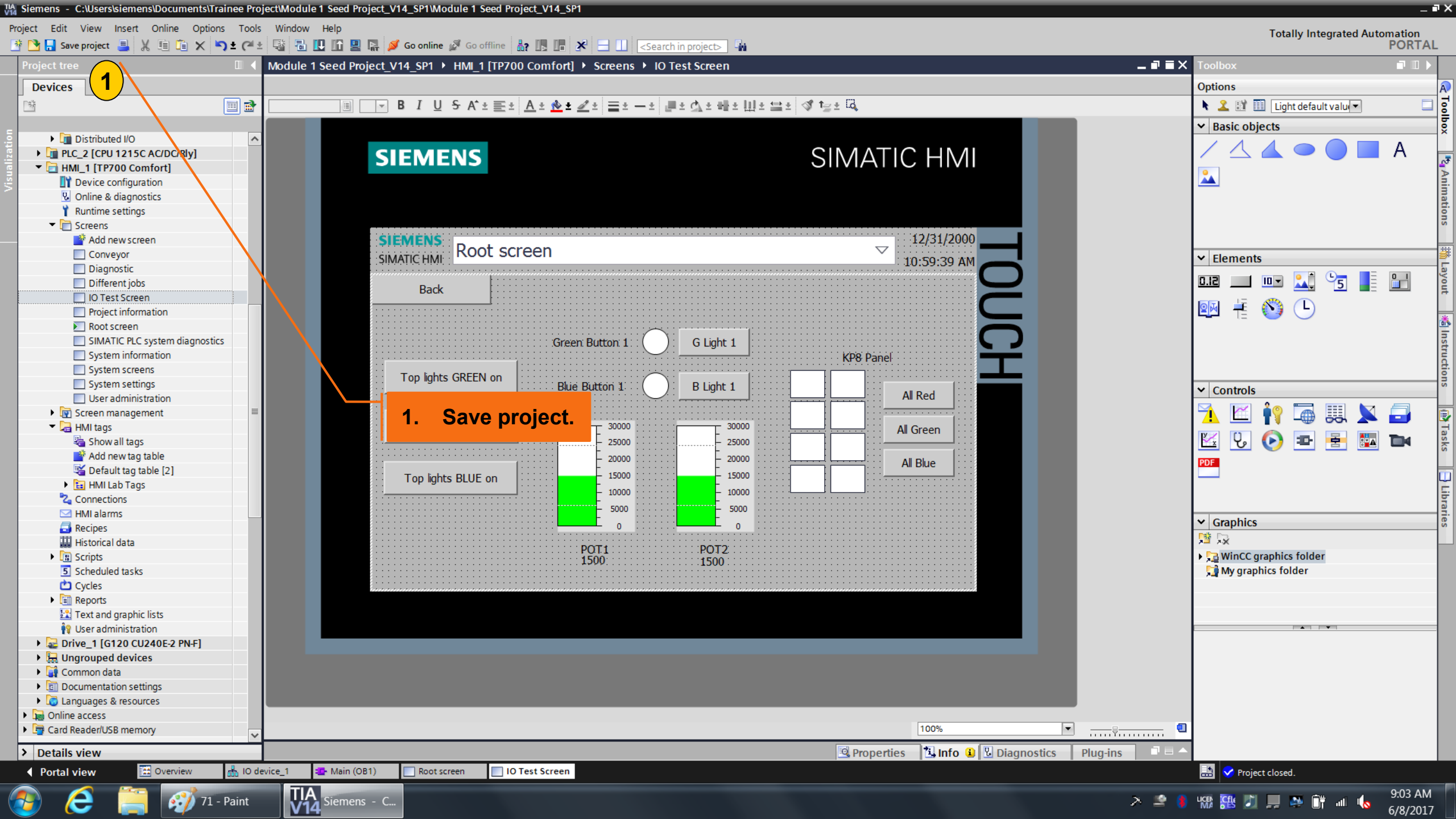

Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project
Go online
Go offline
<Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
Device configuration
Online & diagnostics
Safety Administration
Program blocks
Add new block
Main [OB1]
FOB_RTG1 [OB123]
Main_Safety_RTG1 [FB1]
Main_Safety_RTG1_DB [DB1]
Test and Interface control
System blocks
Technology objects
External source files
PLC tags
Show all tags
Add new tag table
Default tag table [95]
PLC Lab Tags
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Distributed I/O
PLC_2 [CPU 1215C AC/DC/Rly]
HMI_1 [TP700 Comfort]
Device configuration
Online & diagnostics
Runtime settings
Screens
Screen management
HMI tags
Connections
HMI alarms
Details view
Module 1 Seed Project_V14_SP1 ▸ HMI_1 [TP700 Comfort] ▸ Screens ▸ Root screen
SIEMENS
SIMATIC HMI
SIEMENS
SIMATIC HMI
Root screen
12/31/2000
10:59:39 AM
TOUCH
Diagnostic
IO Test Screen
Conveyor
System screens
Welcome to HMI_1 (TP700 Comfort)!
100%
Toolbox
Options
Basic objects
Elements
Controls
Graphics
WinCC graphics folder
My graphics folder
1
1. TP700 Comfort appears as shown.
Properties
Info
Diagnostics
Plug-ins
Portal view
Overview
IO device_1
Main (OB1)
Wizard: successfully configured TP700 ...
66 - Paint
Siemens - C...
9:00 AM
6/8/2017


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project tree
Devices
Module 1 Seed Project_V14_SP1 ▸ HMI_1 [TP700 Comfort] ▸ Screens ▸ Root screen
Libraries
SIEMENS
SIMATIC HMI
Root screen
12/31/2000
10:59:39 AM
TOUCH
Diagnostic
IO Test Screen
Conveyor
System screens
Welcome to HMI_1 (TP700 Comfort)!
Adding Preconfigured HMI tags from Library:
1. Scroll down in the Project tree so that you can see the HMI_1 folder.
2. Select the "Libraries" tab on the far right side.
3. Select "HMI Lab Tags" in the Project library under Master copies > Module 1 > HMI – Screens and Tags
4. Drag and drop it on "HMI tags" in the Project tree for HMI_1
1
2
3
4


Customer Benefit -> Easily copy project components between projects via the "Reference Project" feature:
Up to now we have been using the "Libraries" feature to easily add preconfigured project components (SW and HW) to the existing project. But what if we want to simply copy project parts from an old project to a new project?
We can easily do this via the "Reference Project" feature, with the advantage that it avoids having to open up two instances of the TIA Portal software to do the copy and paste.
Use the "Reference Project" feature to replace the "IO Test Screen" with a preconfigured screen from another project:
1. Under View, check "Reference projects".
2. Select the "Open Reference Project Folder" button.
3. Open "Reference Project 1" in Documents > Labs > Module 1 - Intuitive Development > Reference Project 1.
1
2
3
Project tree
Devices
Reference projects
Reference Project 1_V14
Details view
Portal view
Overview
IO device_1
Module 1 Seed Project_V14_SP1 ▸ HMI_1 [TP700
SIEMENS
SIMATIC HMI
Root scre
Diagnostic
IO Test Screen
Conveyor
System screens
Welcome to HMI_1 (TP700 Comfort)!
Global libraries
Buttons-and-Switches
Drive_Lib_S7_1200_1500
Drive_Lib_S7_300_400
Long Functions
Monitoring-and-control-objects
Documentation templates
WinAC_MP
Info (Project library)
Project Reference Project 1_V14_SP1 o...
9:01 AM
6/8/2017


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project tree
Devices
Module 1 Seed Project_V14_SP1 ▸ HMI_1 [TP700 Comfort] ▸ Screens ▸ Root screen
Libraries
SIEMENS
SIMATIC HMI
Root screen
12/31/2000
10:59:39 AM
TOUCH
Diagnostic
IO Test Screen
Conveyor
System screens
Welcome to HMI_1 (TP700 Comfort)!
Reference projects
1
2
Replace the IO Test Screen with a preconfigured screen from a Reference Project:
1. In the Reference Project 1 tree select HMI_1 > Screens > IO Test screen.
2. Drag and drop the "IO Test Screen" from the Reference Project to the "Screens" folder in the Module 1 Seed Project tree under HMI_1.
3. Select "Replace existing objects and move to this location".
4. Click "OK".


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Go to portal view Alt+F7
Project tree Ctrl+1
Overview Ctrl+2
Task card Ctrl+3
Details view Ctrl+4
Inspector window Ctrl+5
Reference projects Ctrl+9
Screen keyboard Ctrl+Shift+K
Totally Integrated Automation PORTAL
Module 1 Seed Project_V14_SP1 ▸ HMI_1 [TP700 Comfort] ▸ Screens ▸ IO Test Screen
Devices
HMI_1 [TP700 Comfort]
Device configuration
Online & diagnostics
Runtime settings
Screens
Add new screen
Conveyor
Diagnostic
Different jobs
IO Test Screen
Project information
Root screen
SIMATIC PLC system diagnostics
System information
System screens
System settings
User administration
Screen management
HMI tags
Show all tags
Add new tag table
Default tag table [2]
HMI Lab Tags
Connections
HMI alarms
Recipes
Historical data
Scripts
Scheduled tasks
Cycles
Screens
Conveyor
Diagnostic
Different jobs
IO Test Screen
Project information
Details view
SIEMENS
SIMATIC HMI
TOUCH
Root screen
12/31/2000
10:59:39 AM
Back
Green Button 1
G Light 1
Top lights GREEN on
Blue Button 1
B Light 1
Top lights RED on
Top lights BLUE on
KP8 Panel
All Red
All Green
All Blue
30000
25000
20000
15000
10000
5000
0
POT1
1500
POT2
1500
Toolbox
Options
Basic objects
Elements
Controls
Graphics
WinCC graphics folder
My graphics folder
1. Go to IO Test Screen and verify that it appears as shown.
2. Close the Reference Project by clicking the “Close Reference Project Folder” button.
3. Uncheck “Reference projects” in the View menu.
Portal view
Overview
IO device_1
Main (OB1)
Root screen
IO Test Screen
Conflicts detected during pasting
70 - Paint
Siemens - C...
9:02 AM
6/8/2017


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project
Go online
Go offline
<Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
1
Module 1 Seed Project_V14_SP1 ▸ HMI_1 [TP700 Comfort] ▸ Screens ▸ IO Test Screen
Toolbox
Options
Basic objects
Elements
Controls
Graphics
Distributed I/O
PLC_2 [CPU 1215C AC/DC/Rly]
HMI_1 [TP700 Comfort]
Device configuration
Online & diagnostics
Runtime settings
Screens
Add new screen
Conveyor
Diagnostic
Different jobs
IO Test Screen
Project information
Root screen
SIMATIC PLC system diagnostics
System information
System screens
System settings
User administration
Screen management
HMI tags
Show all tags
Add new tag table
Default tag table [2]
HMI Lab Tags
Connections
HMI alarms
Recipes
Historical data
Scripts
Scheduled tasks
Cycles
Reports
Text and graphic lists
User administration
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
SIEMENS
SIMATIC HMI
Root screen
12/31/2000
10:59:39 AM
TOUCH
Back
Green Button 1
G Light 1
Blue Button 1
B Light 1
KP8 Panel
Top lights GREEN on
Top lights BLUE on
All Red
All Green
All Blue
1. Save project.
30000
25000
20000
15000
10000
5000
0
POT1
1500
POT2
1500
100%
Properties
Info
Diagnostics
Plug-ins
Portal view
Overview
IO device_1
Main (OB1)
Root screen
IO Test Screen
Project closed.
71 - Paint
Siemens - C...
9:03 AM
6/8/2017

SIEMENS
Ingenuity for life

Download and Test Hardware

Tasks to load software and test its functionality

Task 5

SIEMENS
Ingenuity for life

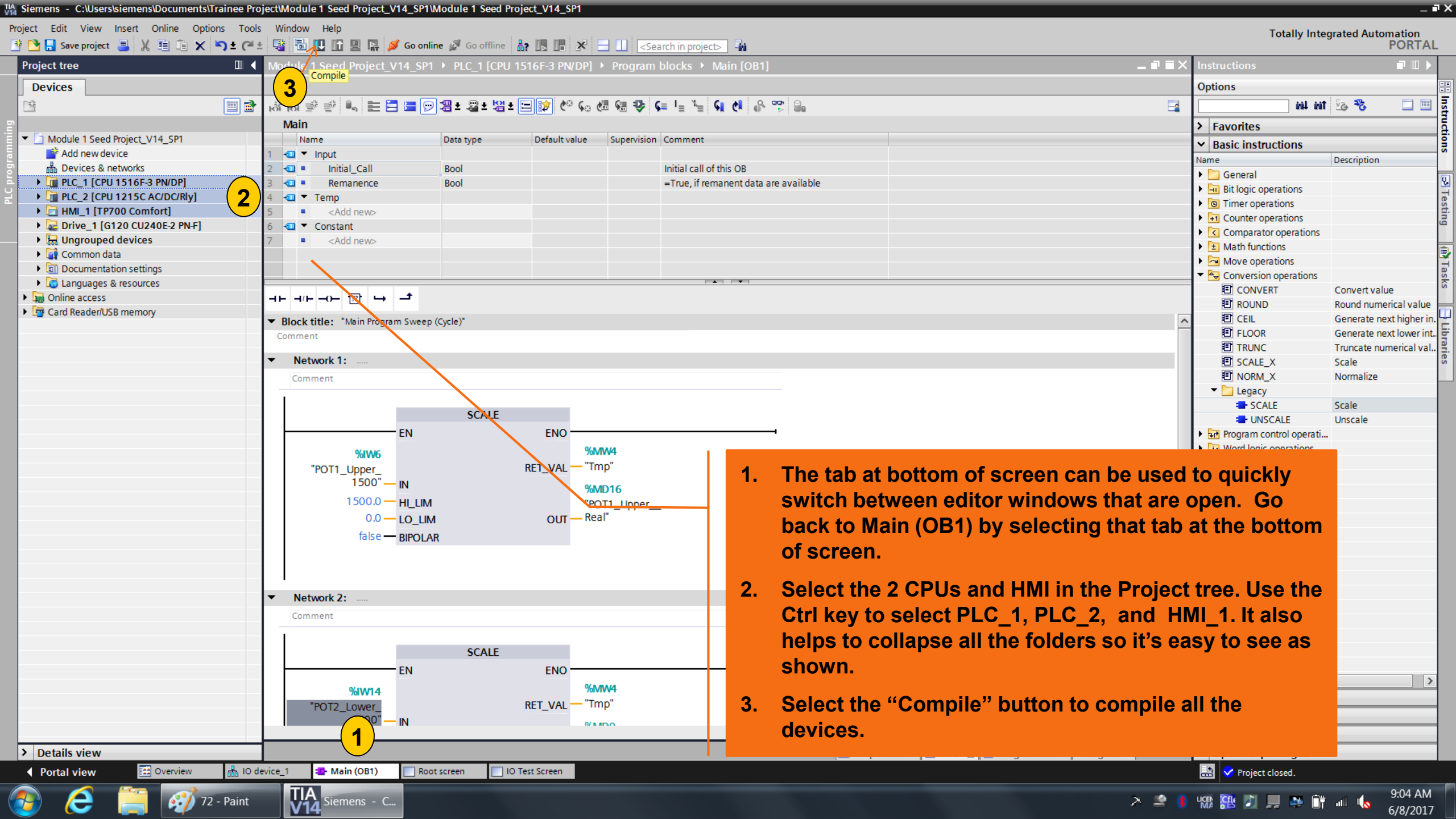
Objective:

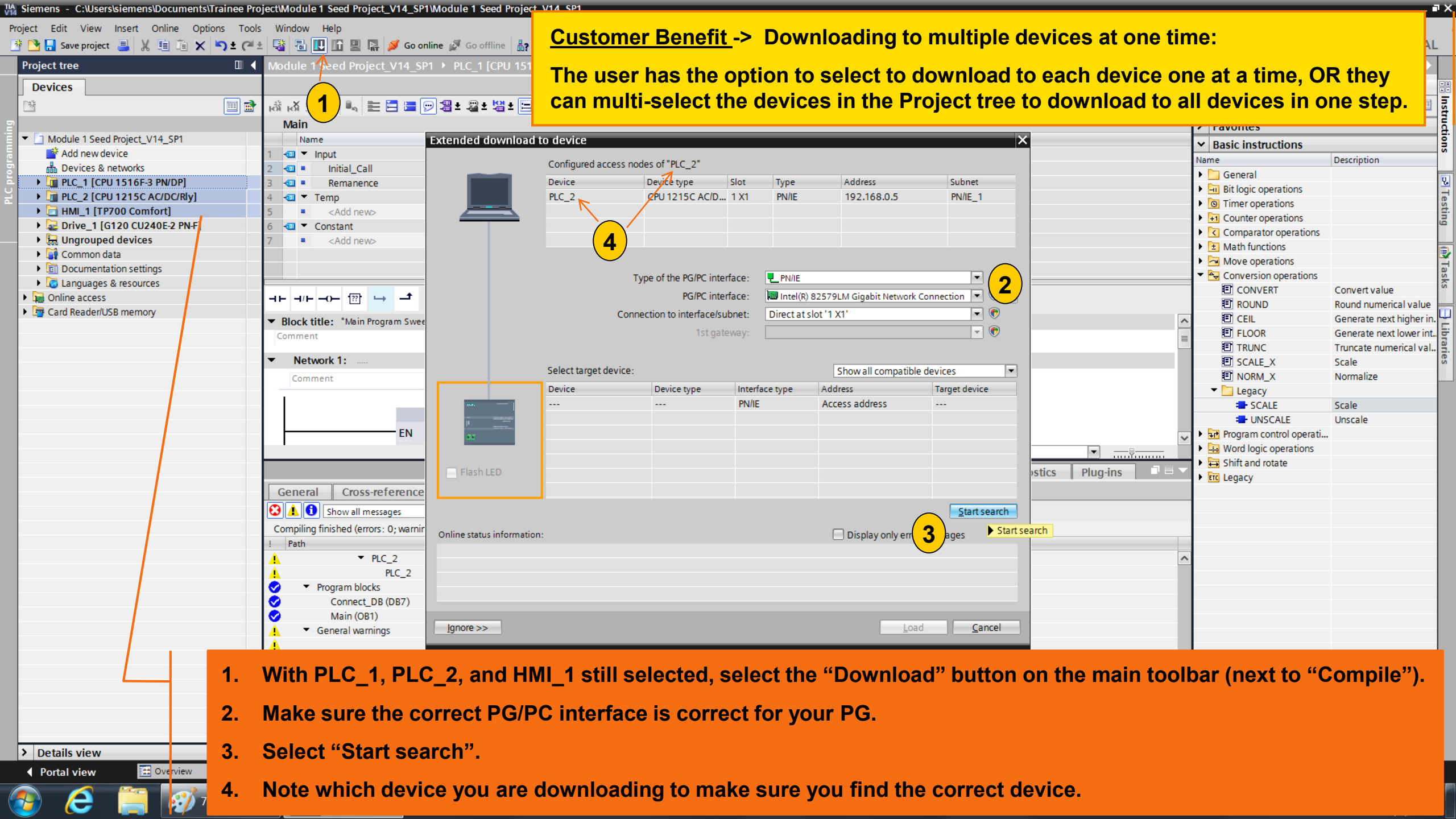
Download the CPU and HMI projects.

Overview:

1. Compile the S7-1500 CPU, S7-1200 CPU, and TP700.
2. Download to the S7-1500 CPU, S7-1200 CPU, and TP700 in **one step**.
3. Test the CPU logic.
4. Use the HMI to test the demo hardware.

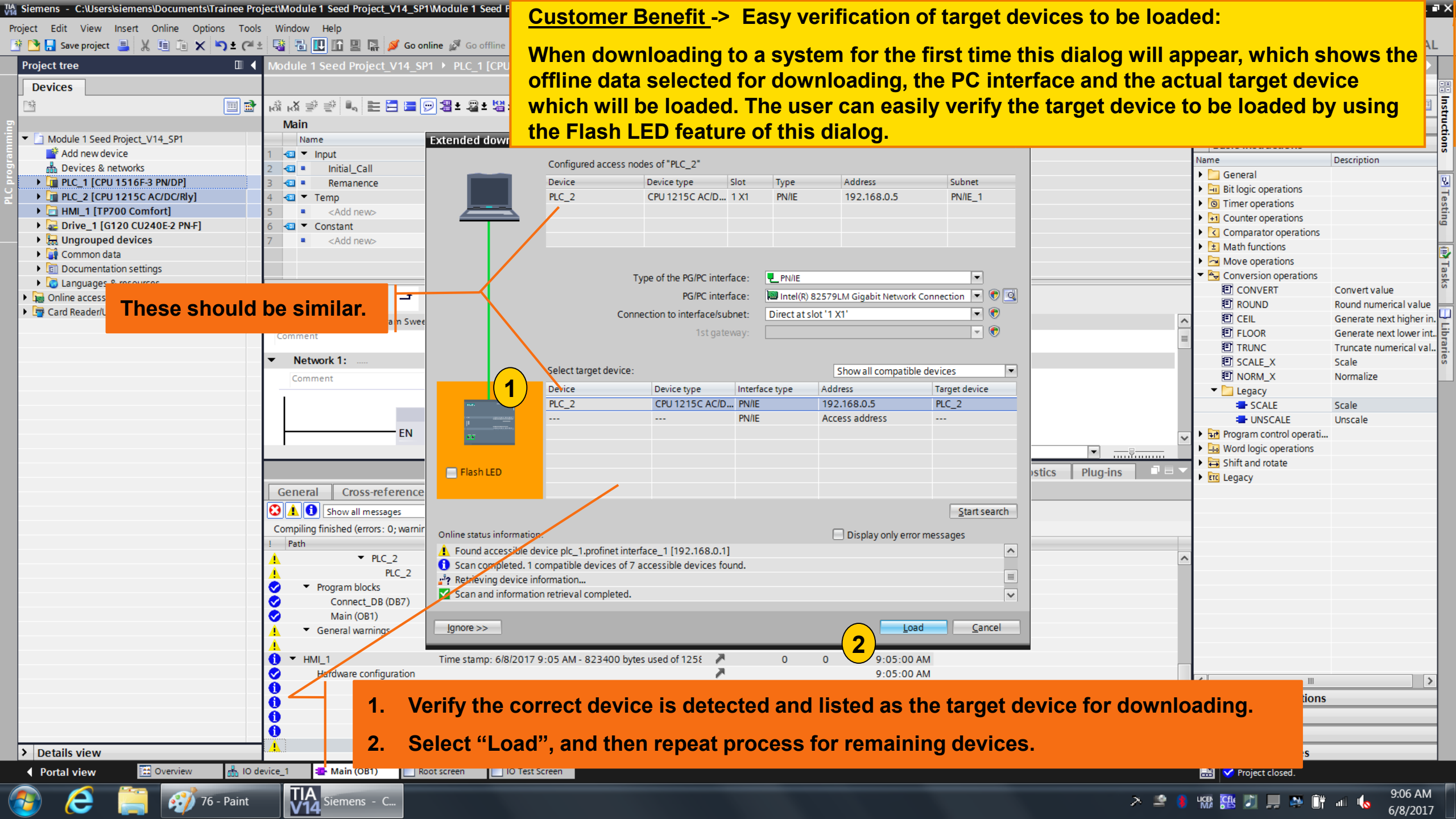
(The G120 Drive will be tested in Module 2.)

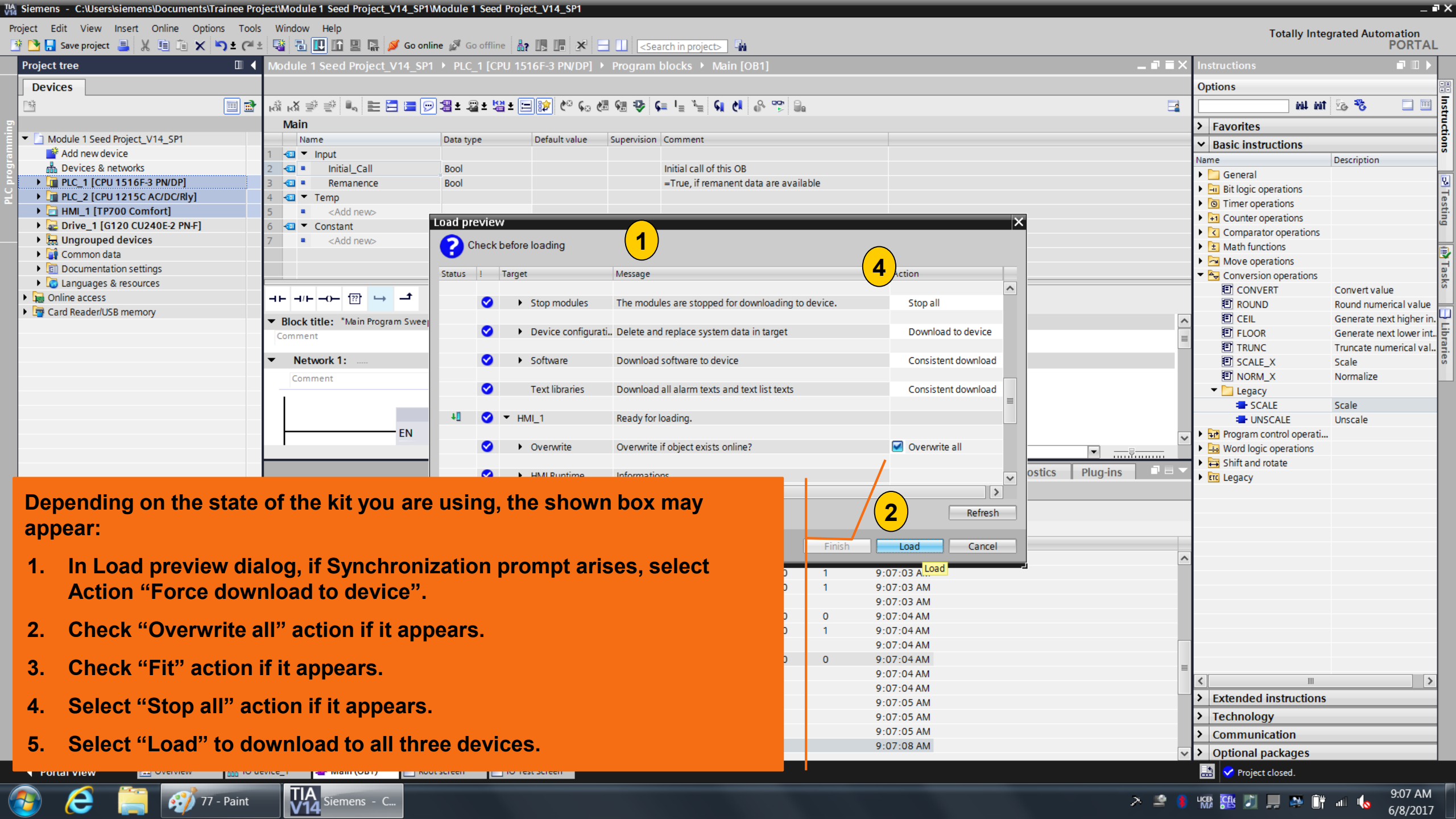

Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project
Go online
Go offline
<Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
PLC_2 [CPU 1215C AC/DC/Rly]
HMI_1 [TP700 Comfort]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP] ▸ Program blocks ▸ Main [OB1]
Compile
Main
Name Data type Default value Supervision Comment
Input
Initial_Call Bool Initial call of this OB
Remanence Bool =True, if remanent data are available
Temp
<Add new>
Constant
<Add new>
Block title: "Main Program Sweep (Cycle)"
Comment
Network 1:
Comment
SCALE
EN ENO
%IW6
"POT1_Upper_ 1500"
IN
1500.0 HI_LIM
0.0 LO_LIM
false BIPOLAR
RET_VAL
OUT
%MW4
"Tmp"
%MD16
"POT1_Upper_ Real"
Network 2:
Comment
SCALE
EN ENO
%IW14
"POT2_Lower_
IN
RET_VAL
%MW4
"Tmp"
1
2
3
Instructions
Options
Favorites
Basic instructions
Name Description
General
Bit logic operations
Timer operations
Counter operations
Comparator operations
Math functions
Move operations
Conversion operations
CONVERT Convert value
ROUND Round numerical value
CEIL Generate next higher in.
FLOOR Generate next lower int..
TRUNC Truncate numerical val..
SCALE_X Scale
NORM_X Normalize
Legacy
SCALE Scale
UNSCALE Unscale
Program control operati...
Instructions
Testing
Tasks
Libraries
PLC programming
1. The tab at bottom of screen can be used to quickly switch between editor windows that are open. Go back to Main (OB1) by selecting that tab at the bottom of screen.
2. Select the 2 CPUs and HMI in the Project tree. Use the Ctrl key to select PLC_1, PLC_2, and HMI_1. It also helps to collapse all the folders so it's easy to see as shown.
3. Select the "Compile" button to compile all the devices.
Portal view
Overview
IO device_1
Main (OB1)
Root screen
IO Test Screen
Project closed.
72 - Paint
Siemens - C...
9:04 AM
6/8/2017

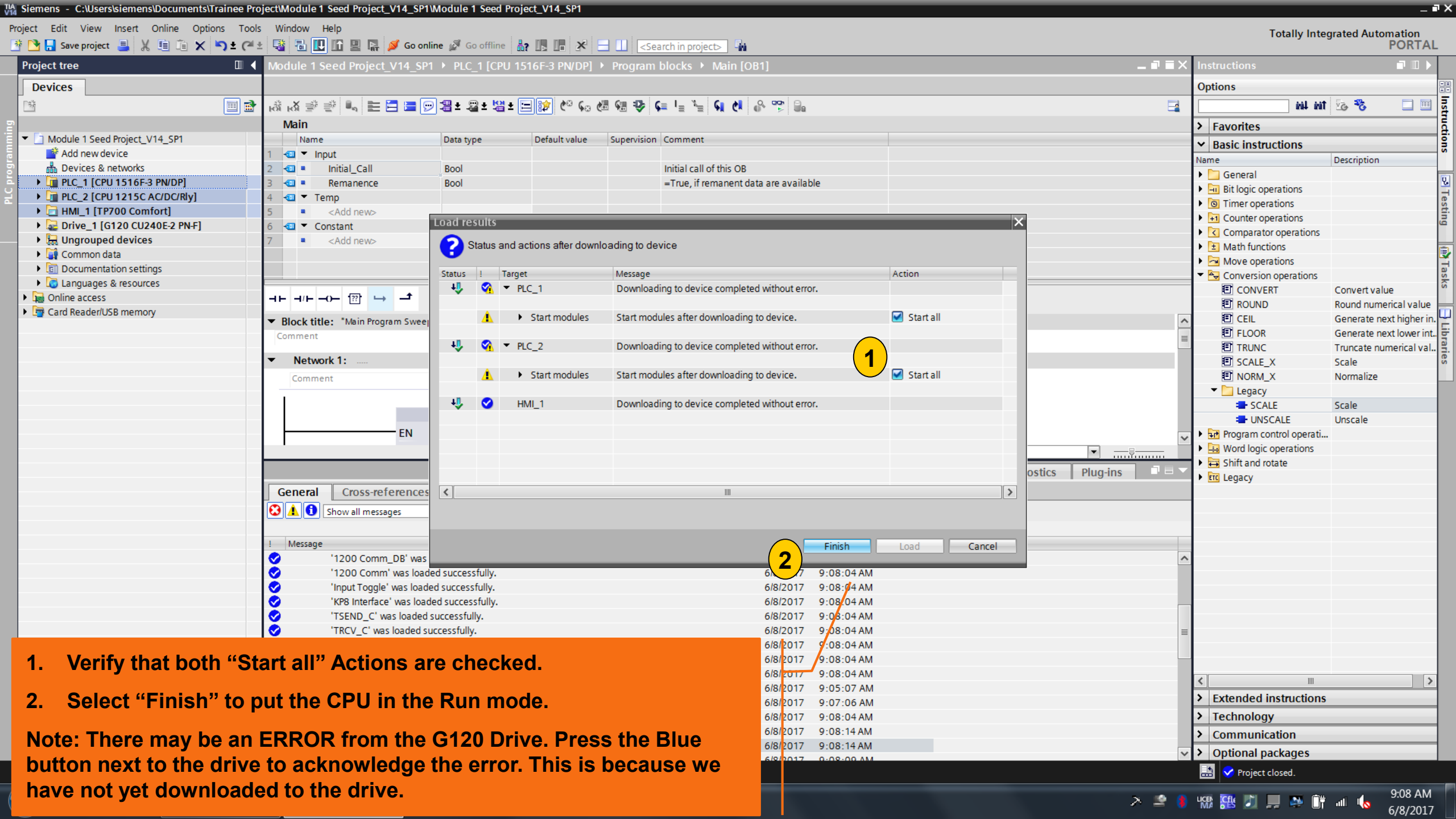

Customer Benefit -> Downloading to multiple devices at one time:
The user has the option to select to download to each device one at a time, OR they can multi-select the devices in the Project tree to download to all devices in one step.
Extended download to device
Configured access nodes of "PLC_2"
Device
Device type
Slot
Type
Address
Subnet
PLC_2
CPU 1215C AC/D...
1 X1
PNIE
192.168.0.5
PN/IE_1
Type of the PG/PC interface:
PN/IE
PG/PC interface:
Intel(R) 82579LM Gigabit Network Connection
Connection to interface/subnet:
Direct at slot '1 X1'
1st gateway:
Select target device:
Show all compatible devices
Device
Device type
Interface type
Address
Target device
PN/IE
Access address
Flash LED
Start search
Online status information:
Ignore >>
Load
Cancel
1
2
3
4
1. With PLC_1, PLC_2, and HMI_1 still selected, select the "Download" button on the main toolbar (next to "Compile").
2. Make sure the correct PG/PC interface is correct for your PG.
3. Select "Start search".
4. Note which device you are downloading to make sure you find the correct device.

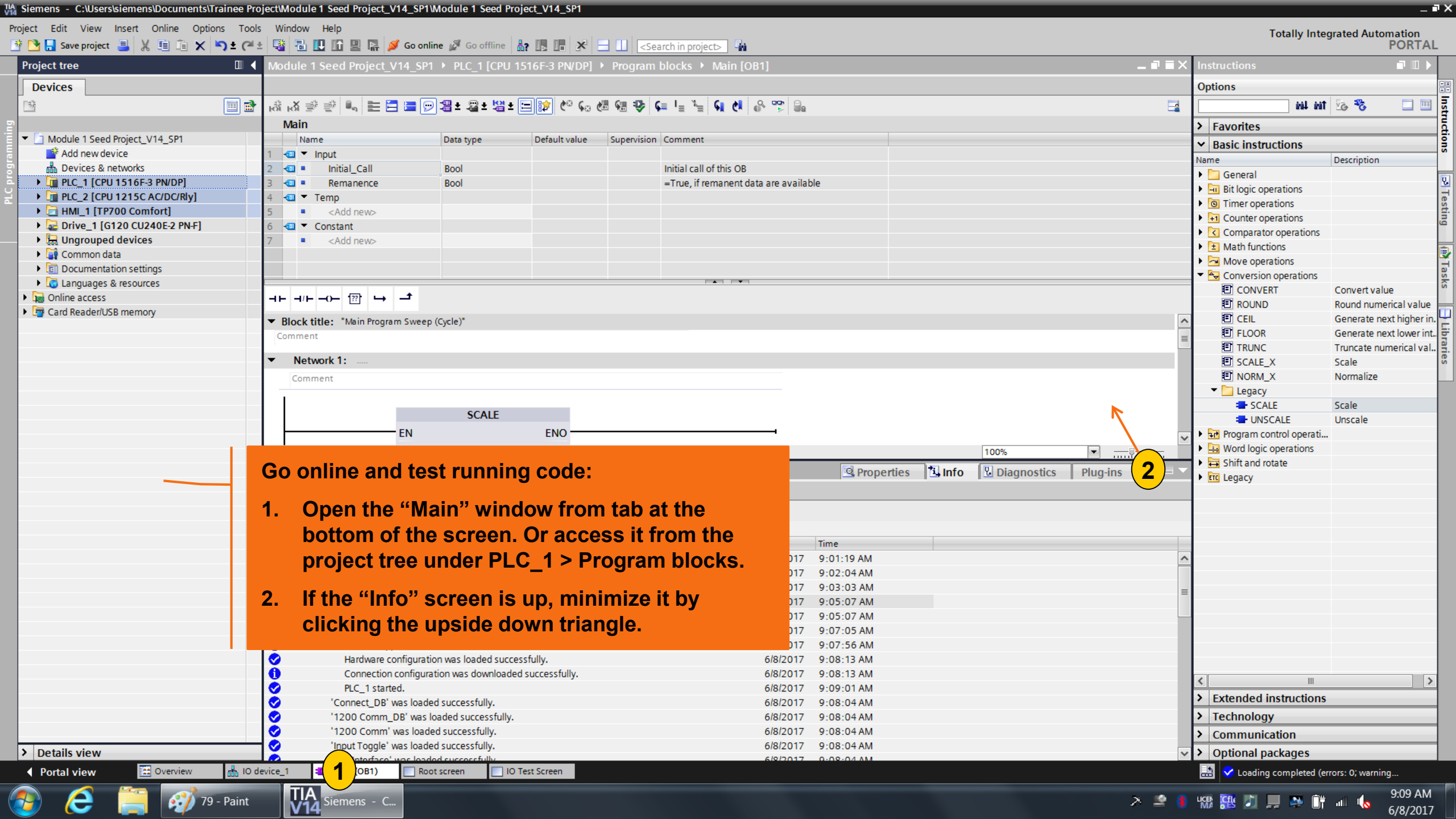
Customer Benefit -> **Easy verification of target devices to be loaded:**

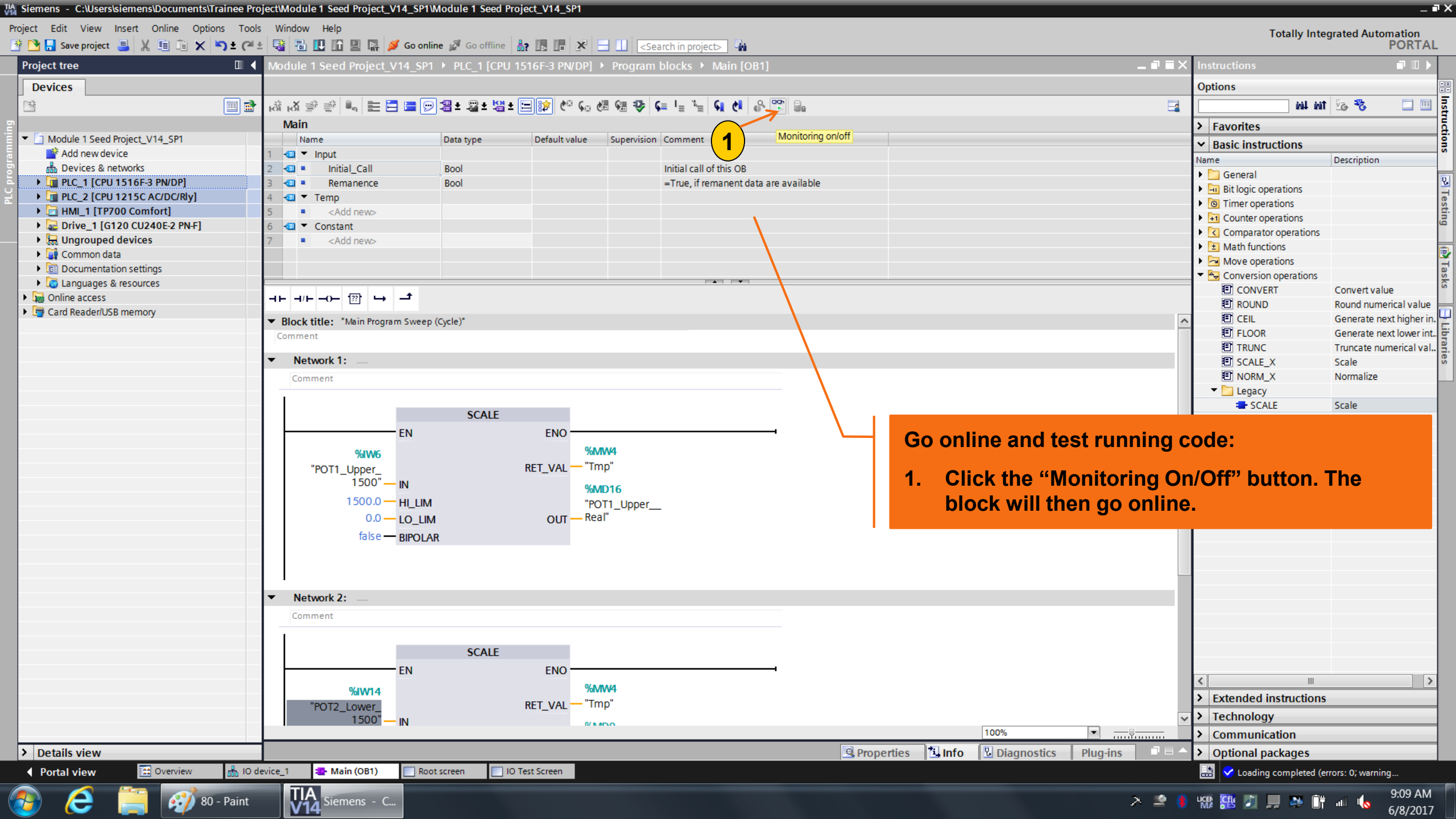
When downloading to a system for the first time this dialog will appear, which shows the offline data selected for downloading, the PC interface and the actual target device which will be loaded. The user can easily verify the target device to be loaded by using the Flash LED feature of this dialog.

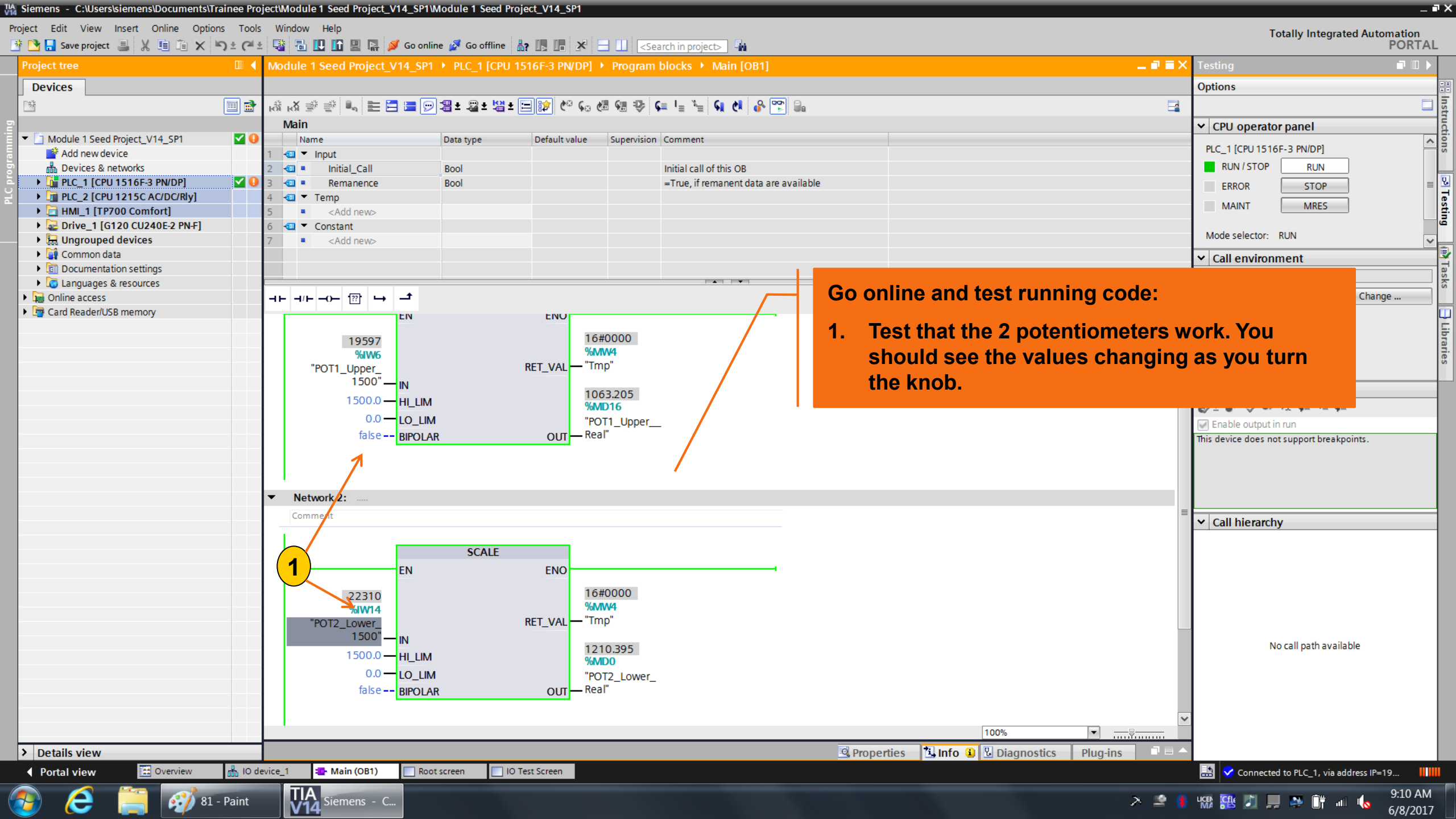



Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
PLC_2 [CPU 1215C AC/DC/Rly]
HMI_1 [TP700 Comfort]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP] ▸ Program blocks ▸ Main [OB1]
Main
Name | Data type | Default value | Supervision | Comment
Input
Initial_Call | Bool | Initial call of this OB
Remanence | Bool | =True, if remanent data are available
Temp
Constant
Block title: "Main Program Sweep
Network 1:
Load preview
Check before loading
1
4
Status | ! | Target | Message | Action
Stop modules | The modules are stopped for downloading to device. | Stop all
Device configurati.. | Delete and replace system data in target | Download to device
Software | Download software to device | Consistent download
Text libraries | Download all alarm texts and text list texts | Consistent download
HMI_1 | Ready for loading.
Overwrite | Overwrite if object exists online? | Overwrite all
Refresh
2
Finish
Load
Cancel
Load
Instructions
Options
Favorites
Basic instructions
Name | Description
General
Bit logic operations
Timer operations
Counter operations
Comparator operations
Math functions
Move operations
Conversion operations
CONVERT | Convert value
ROUND | Round numerical value
CEIL | Generate next higher in.
FLOOR | Generate next lower int..
TRUNC | Truncate numerical val..
SCALE_X | Scale
NORM_X | Normalize
Legacy
SCALE | Scale
UNSCALE | Unscale
Program control operati...
Word logic operations
Shift and rotate
Legacy
Extended instructions
Technology
Communication
Optional packages
Plug-ins
Project closed.
Depending on the state of the kit you are using, the shown box may appear:
1. In Load preview dialog, if Synchronization prompt arises, select Action “Force download to device”.
2. Check “Overwrite all” action if it appears.
3. Check “Fit” action if it appears.
4. Select “Stop all” action if it appears.
5. Select “Load” to download to all three devices.
9:07 AM
6/8/2017


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
PLC_2 [CPU 1215C AC/DC/Rly]
HMI_1 [TP700 Comfort]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP] ▸ Program blocks ▸ Main [OB1]
Main
Name | Data type | Default value | Supervision | Comment
Input
Initial_Call | Bool | Initial call of this OB
Remanence | Bool | =True, if remanent data are available
Temp
Constant
Block title: "Main Program Sweep
Network 1:
EN
Load results
Status and actions after downloading to device
Status | Target | Message | Action
PLC_1 | Downloading to device completed without error.
Start modules | Start modules after downloading to device. | Start all
PLC_2 | Downloading to device completed without error.
Start modules | Start modules after downloading to device. | Start all
HMI_1 | Downloading to device completed without error.
1
Finish
Load
Cancel
2
General
Cross-references
Show all messages
'1200 Comm_DB' was
'1200 Comm' was loaded successfully. 6/8/2017 9:08:04 AM
'Input Toggle' was loaded successfully. 6/8/2017 9:08:04 AM
'KP8 Interface' was loaded successfully. 6/8/2017 9:08:04 AM
'TSEND_C' was loaded successfully. 6/8/2017 9:08:04 AM
'TRCV_C' was loaded successfully. 6/8/2017 9:08:04 AM
6/8/2017 9:08:04 AM
6/8/2017 9:08:04 AM
6/8/2017 9:08:04 AM
6/8/2017 9:08:04 AM
6/8/2017 9:05:07 AM
6/8/2017 9:07:06 AM
6/8/2017 9:08:04 AM
6/8/2017 9:08:14 AM
6/8/2017 9:08:14 AM
Plug-ins
Instructions
Options
Favorites
Basic instructions
Name | Description
General
Bit logic operations
Timer operations
Counter operations
Comparator operations
Math functions
Move operations
Conversion operations
CONVERT | Convert value
ROUND | Round numerical value
CEIL | Generate next higher in.
FLOOR | Generate next lower int.
TRUNC | Truncate numerical val.
SCALE_X | Scale
NORM_X | Normalize
Legacy
SCALE | Scale
UNSCALE | Unscale
Program control operati...
Word logic operations
Shift and rotate
Legacy
Extended instructions
Technology
Communication
Optional packages
Project closed.
1. Verify that both “Start all” Actions are checked.
2. Select “Finish” to put the CPU in the Run mode.
Note: There may be an ERROR from the G120 Drive. Press the Blue button next to the drive to acknowledge the error. This is because we have not yet downloaded to the drive.
9:08 AM
6/8/2017

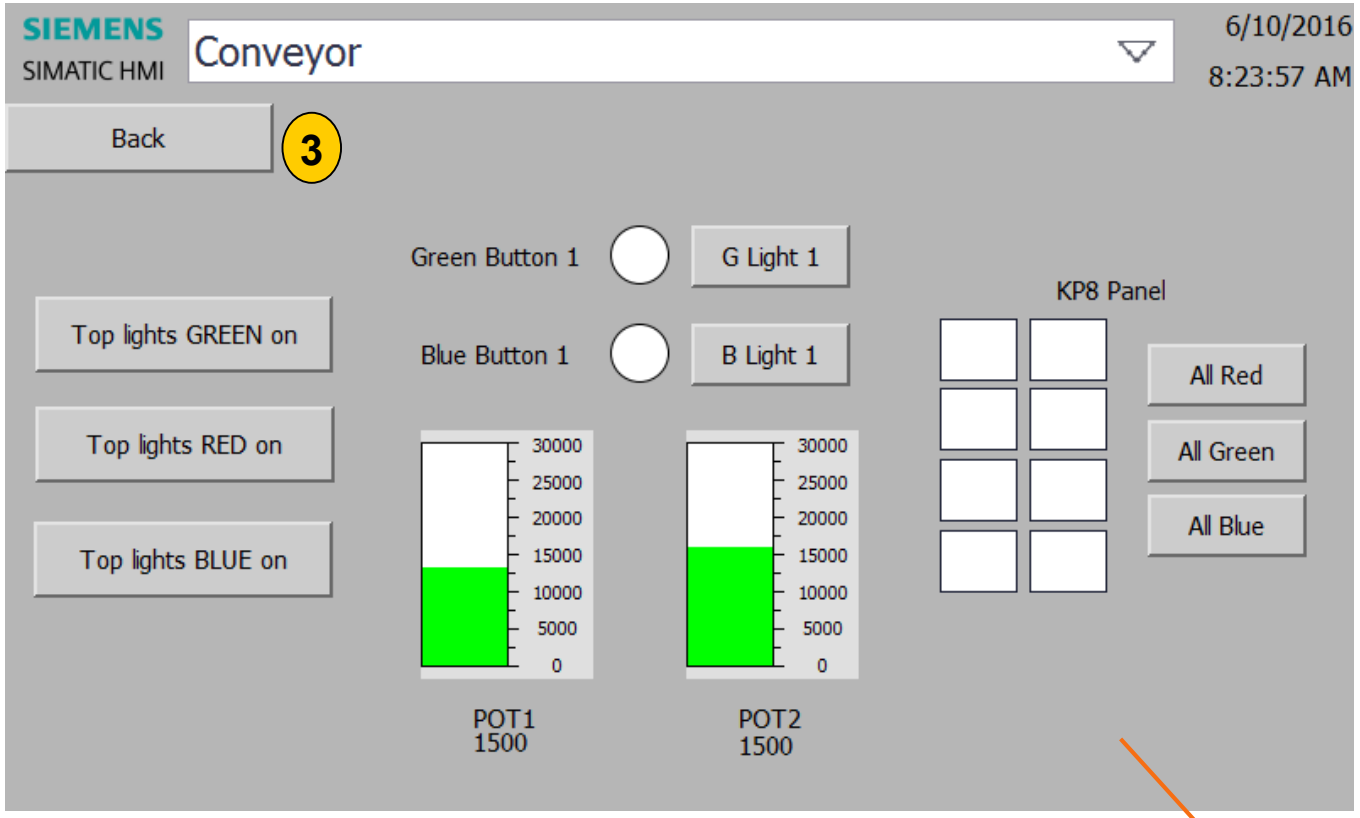

Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
PLC_2 [CPU 1215C AC/DC/Rly]
HMI_1 [TP700 Comfort]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP] ▸ Program blocks ▸ Main [OB1]
Main
Name | Data type | Default value | Supervision | Comment
Input
Initial_Call | Bool | Initial call of this OB
Remanence | Bool | =True, if remanent data are available
Temp
Constant
Block title: "Main Program Sweep (Cycle)"
Comment
Network 1:
Comment
SCALE
EN
ENO
Instructions
Options
Favorites
Basic instructions
Name | Description
General
Bit logic operations
Timer operations
Counter operations
Comparator operations
Math functions
Move operations
Conversion operations
CONVERT | Convert value
ROUND | Round numerical value
CEIL | Generate next higher in.
FLOOR | Generate next lower int.
TRUNC | Truncate numerical val.
SCALE_X | Scale
NORM_X | Normalize
Legacy
SCALE | Scale
UNSCALE | Unscale
Program control operati...
Word logic operations
Shift and rotate
Legacy
Extended instructions
Technology
Communication
Optional packages
Properties
Info
Diagnostics
Plug-ins
Time
Hardware configuration was loaded successfully. 6/8/2017 9:08:13 AM
Connection configuration was downloaded successfully. 6/8/2017 9:08:13 AM
PLC_1 started. 6/8/2017 9:09:01 AM
'Connect_DB' was loaded successfully. 6/8/2017 9:08:04 AM
'1200 Comm_DB' was loaded successfully. 6/8/2017 9:08:04 AM
'1200 Comm' was loaded successfully. 6/8/2017 9:08:04 AM
'Input Toggle' was loaded successfully. 6/8/2017 9:08:04 AM
Go online and test running code:
1. Open the "Main" window from tab at the bottom of the screen. Or access it from the project tree under PLC_1 > Program blocks.
2. If the "Info" screen is up, minimize it by clicking the upside down triangle.
1
2
Portal view
Overview
IO device_1
Root screen
IO Test Screen
Loading completed (errors: 0; warning...
79 - Paint
Siemens - C...
9:09 AM
6/8/2017


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project
Go online
Go offline
<Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
PLC_2 [CPU 1215C AC/DC/Rly]
HMI_1 [TP700 Comfort]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP] ▸ Program blocks ▸ Main [OB1]
Main
Name Data type Default value Supervision Comment
1 Input
2 Initial_Call Bool Initial call of this OB
3 Remanence Bool =True, if remanent data are available
4 Temp
5 <Add new>
6 Constant
7 <Add new>
1
Monitoring on/off
Block title: "Main Program Sweep (Cycle)"
Comment
Network 1:
Comment
SCALE
EN
ENO
%IW6
"POT1_Upper_ 1500"
IN
1500.0
HI_LIM
0.0
LO_LIM
false
BIPOLAR
RET_VAL
%MW4
"Tmp"
OUT
%MD16
"POT1_Upper__ Real"
Network 2:
Comment
SCALE
EN
ENO
%IW14
"POT2_Lower_ 1500"
IN
RET_VAL
%MW4
"Tmp"
Go online and test running code:
1. Click the "Monitoring On/Off" button. The block will then go online.
Instructions
Options
Favorites
Basic instructions
Name Description
General
Bit logic operations
Timer operations
Counter operations
Comparator operations
Math functions
Move operations
Conversion operations
CONVERT Convert value
ROUND Round numerical value
CEIL Generate next higher in.
FLOOR Generate next lower int..
TRUNC Truncate numerical val..
SCALE_X Scale
NORM_X Normalize
Legacy
SCALE Scale
Extended instructions
Technology
Communication
Optional packages
Instructions
Testing
Tasks
Libraries
PLC programming
Details view
100%
Properties
Info
Diagnostics
Plug-ins
Portal view
Overview
IO device_1
Main (OB1)
Root screen
IO Test Screen
Loading completed (errors: 0; warning...
80 - Paint
Siemens - C...
9:09 AM
6/8/2017

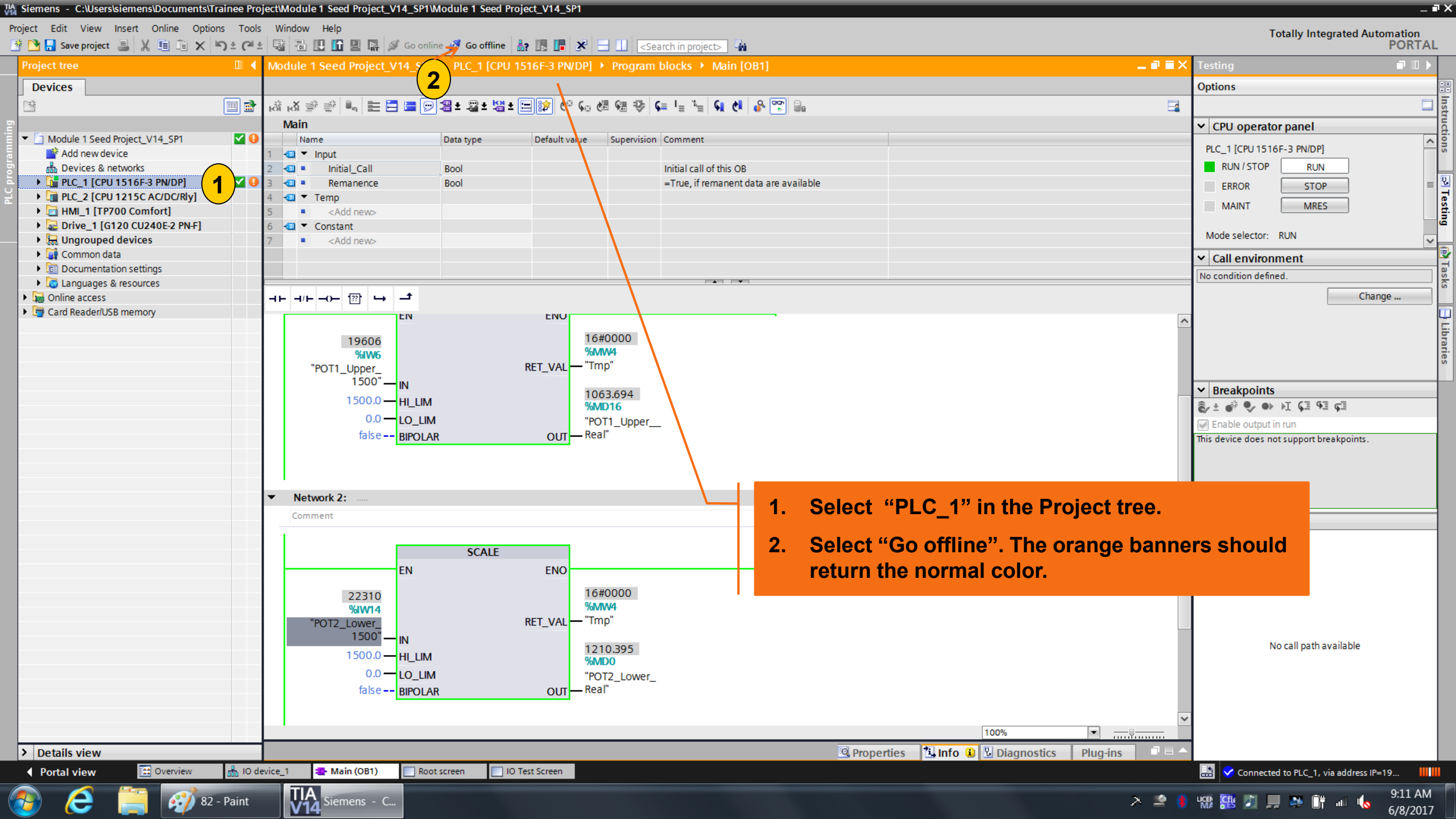

Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project Go online Go offline
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
PLC_2 [CPU 1215C AC/DC/Rly]
HMI_1 [TP700 Comfort]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP] ▸ Program blocks ▸ Main [OB1]
Main
Name Data type Default value Supervision Comment
Input
Initial_Call Bool Initial call of this OB
Remanence Bool =True, if remanent data are available
Temp
Constant
<Add new>
19597
%IW6
"POT1_Upper_ 1500"
1500.0
0.0
false
EN ENO
IN HI_LIM LO_LIM BIPOLAR
RET_VAL OUT
16#0000
%MW4
"Tmp"
1063.205
%MD16
"POT1_Upper__ Real"
Network 2:
Comment
SCALE
22310
%IW14
"POT2_Lower_ 1500"
1210.395
%MD0
"POT2_Lower_ Real"
1
Go online and test running code:
1. Test that the 2 potentiometers work. You should see the values changing as you turn the knob.
Testing
Options
CPU operator panel
PLC_1 [CPU 1516F-3 PN/DP]
RUN / STOP RUN
ERROR STOP
MAINT MRES
Mode selector: RUN
Call environment
Change ...
Enable output in run
This device does not support breakpoints.
Call hierarchy
No call path available
Properties Info Diagnostics Plug-ins
Details view
Portal view Overview IO device_1 Main (OB1) Root screen IO Test Screen
Connected to PLC_1, via address IP=19...
81 - Paint
Siemens - C...
9:10 AM
6/8/2017

HMI and KP8 Panel View

SIEMENS
Ingenuity for life



1. On the HMI panel, go to the IO Test Screen by touching the “IO Test Screen” button.
2. Test the buttons, potentiometer, and lights.
3. Press Back button to return to the Home screen.


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project
Go online
Go offline
<Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
PLC_2 [CPU 1215C AC/DC/Rly]
HMI_1 [TP700 Comfort]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
1
2
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP] ▸ Program blocks ▸ Main [OB1]
Main
Name Data type Default value Supervision Comment
1 Input
2 Initial_Call Bool Initial call of this OB
3 Remanence Bool =True, if remanent data are available
4 Temp
5 <Add new>
6 Constant
7 <Add new>
19606
%IW6
"POT1_Upper_ 1500"
IN
1500.0
HI_LIM
0.0
LO_LIM
false
BIPOLAR
EN
ENO
RET_VAL
16#0000
%MW4
"Tmp"
1063.694
%MD16
"POT1_Upper__ Real"
OUT
Network 2:
Comment
SCALE
22310
%IW14
"POT2_Lower_ 1500"
1210.395
%MD0
"POT2_Lower_ Real"
1. Select "PLC_1" in the Project tree.
2. Select "Go offline". The orange banners should return the normal color.
Testing
Options
CPU operator panel
PLC_1 [CPU 1516F-3 PN/DP]
RUN / STOP
RUN
ERROR
STOP
MAINT
MRES
Mode selector: RUN
Call environment
No condition defined.
Change ...
Breakpoints
Enable output in run
This device does not support breakpoints.
No call path available
Instructions
Testing
Tasks
Libraries
PLC programming
100%
Properties
Info
Diagnostics
Plug-ins
Details view
Portal view
Overview
IO device_1
Main (OB1)
Root screen
IO Test Screen
Connected to PLC_1, via address IP=19...
82 - Paint
Siemens - C...
9:11 AM
6/8/2017

SIEMENS
Ingenuity for life

Establish PLC Communications

Tasks to set up communication line from PLC to PLC

Task 6

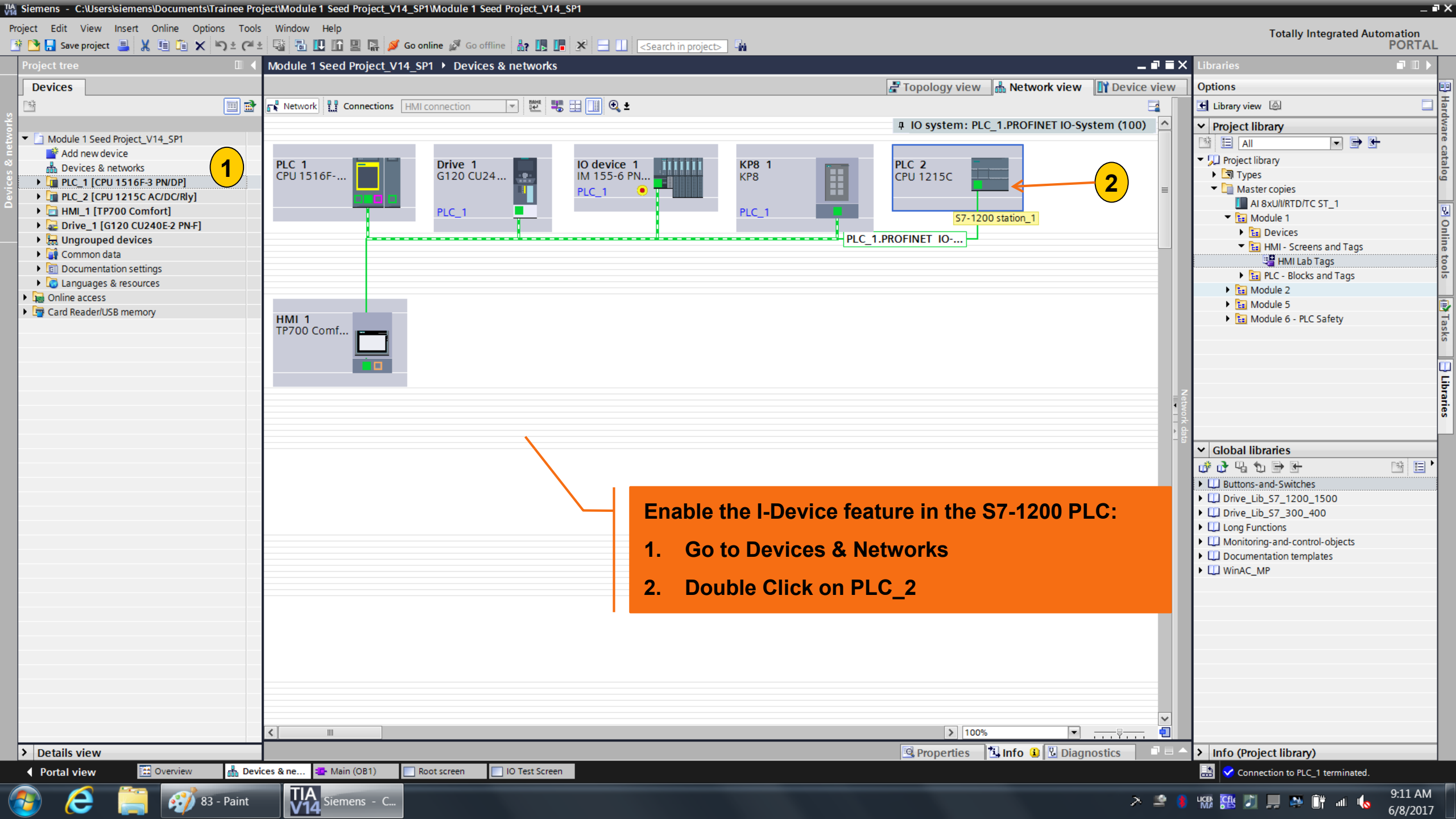
SIEMENS
Ingenuity for life

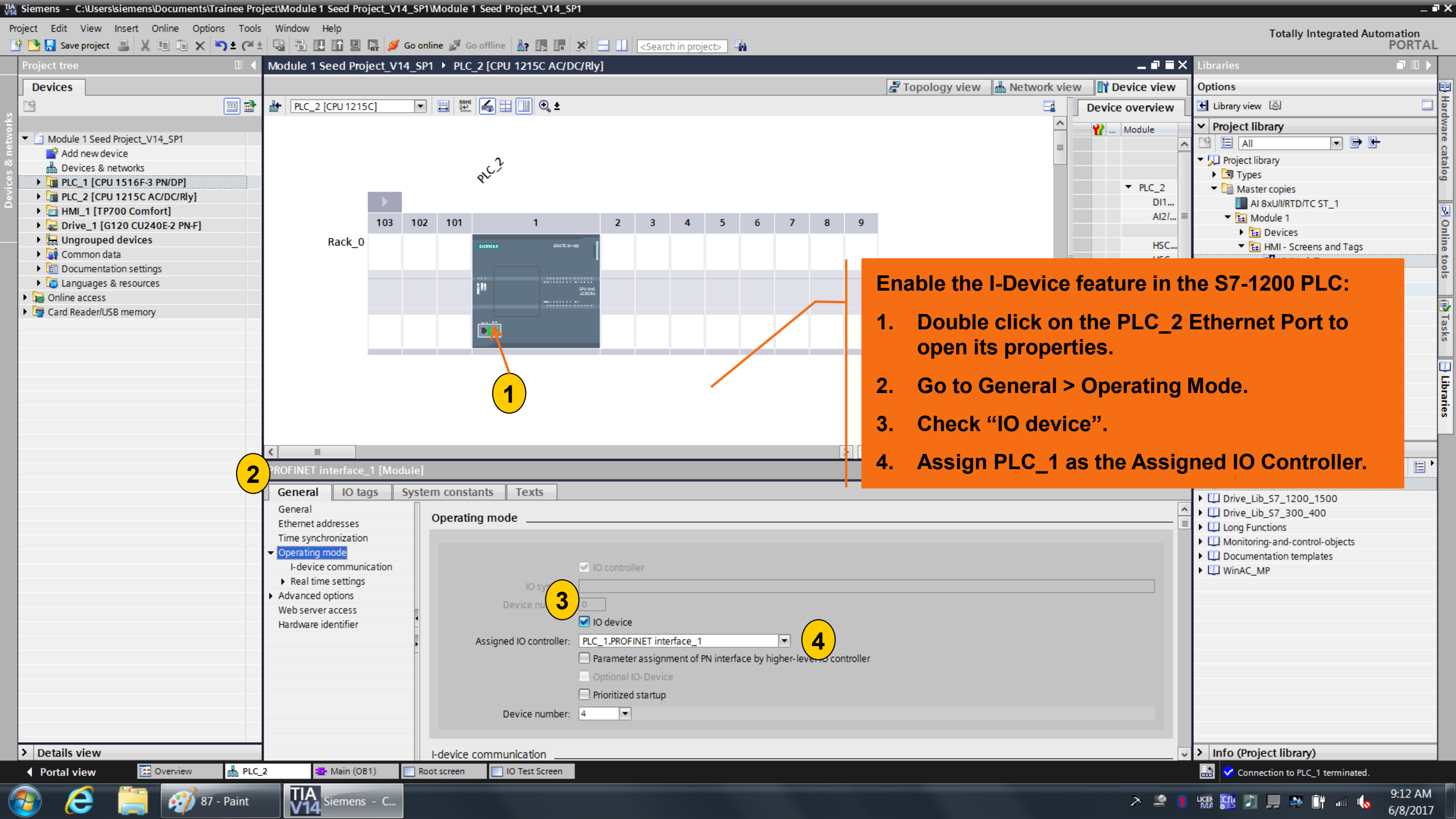
Objective:

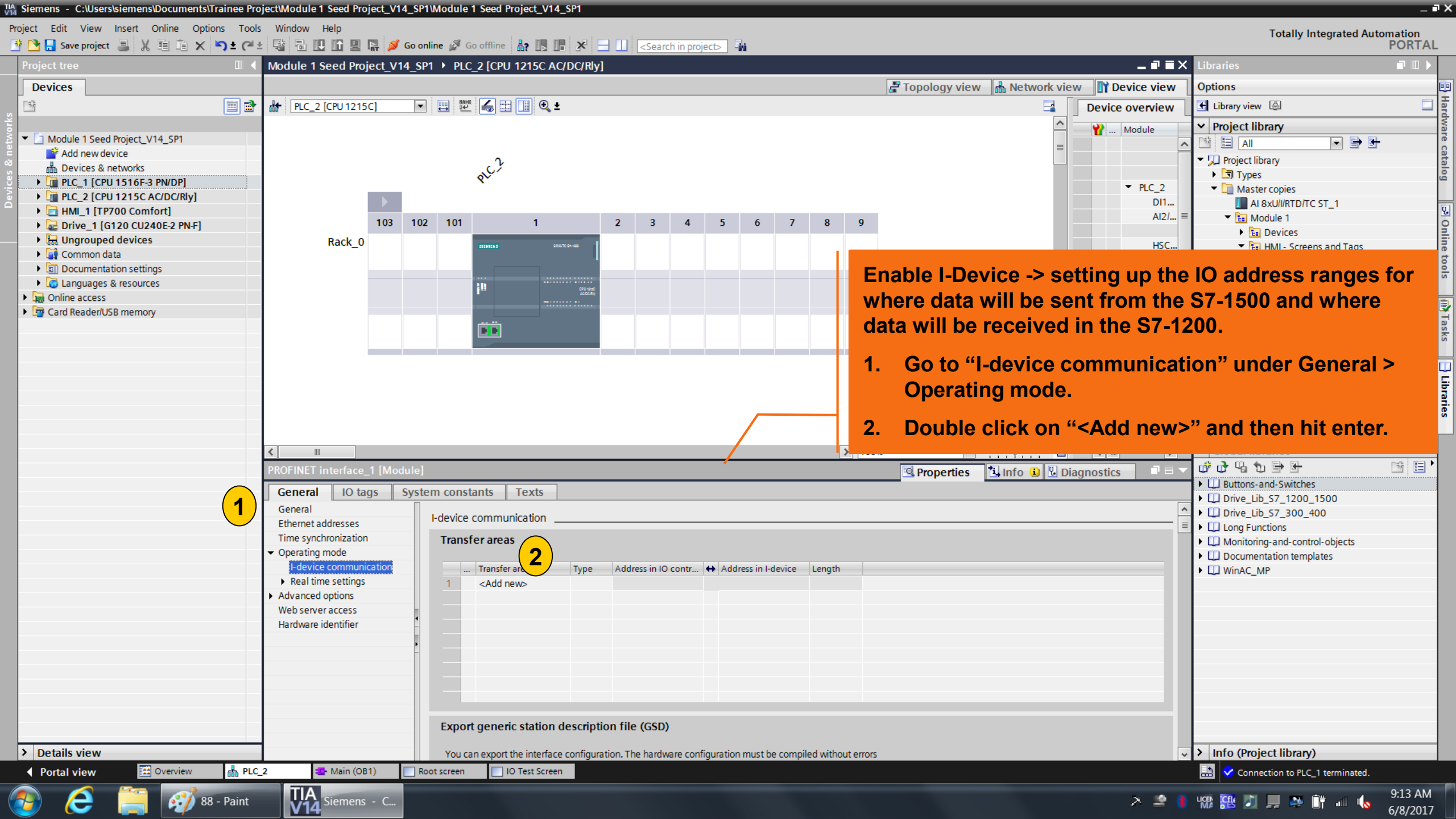
Configure and test PLC to PLC communications between the S7-1500 and S7-1200 via I-Device.

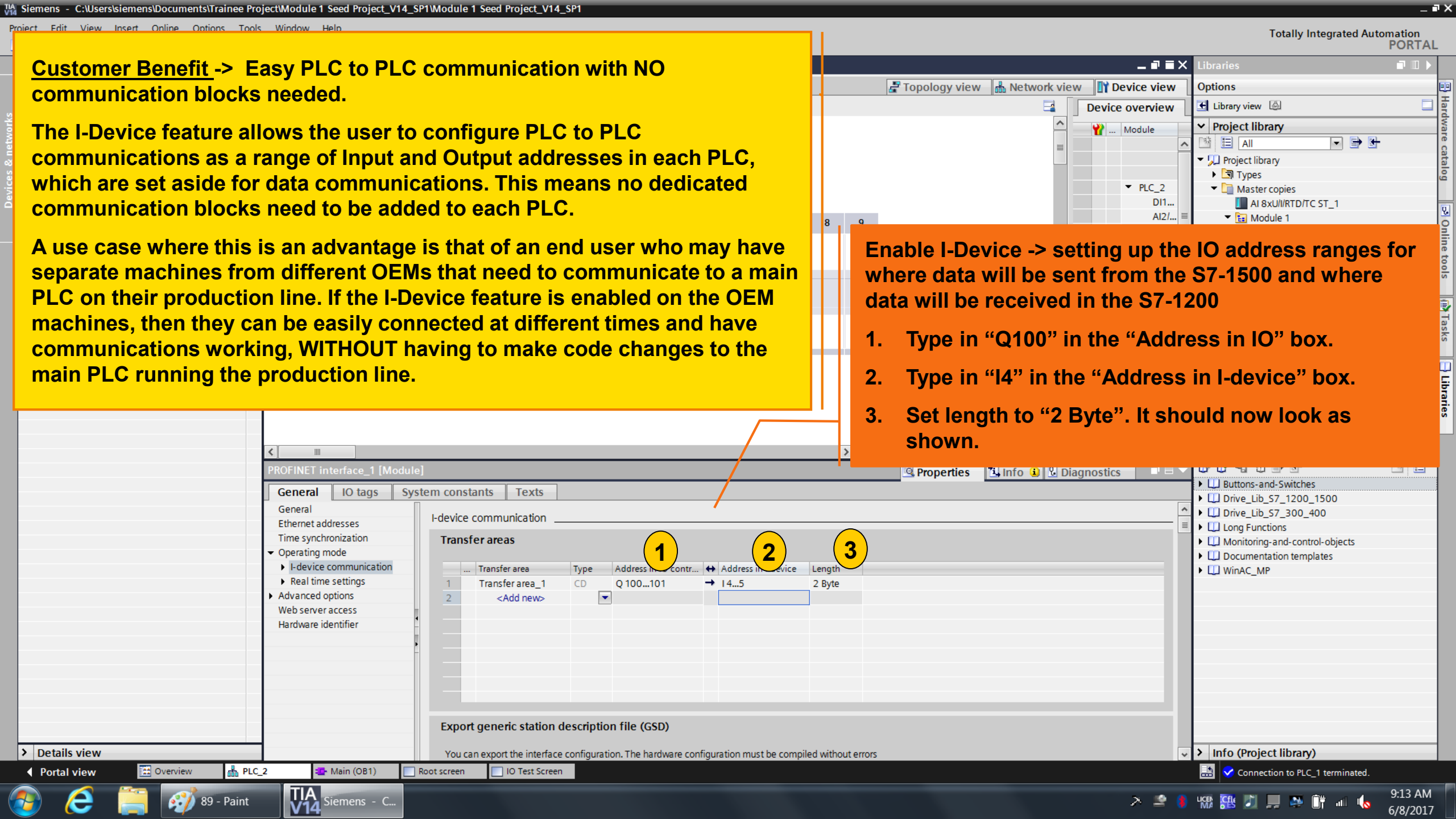
Overview:

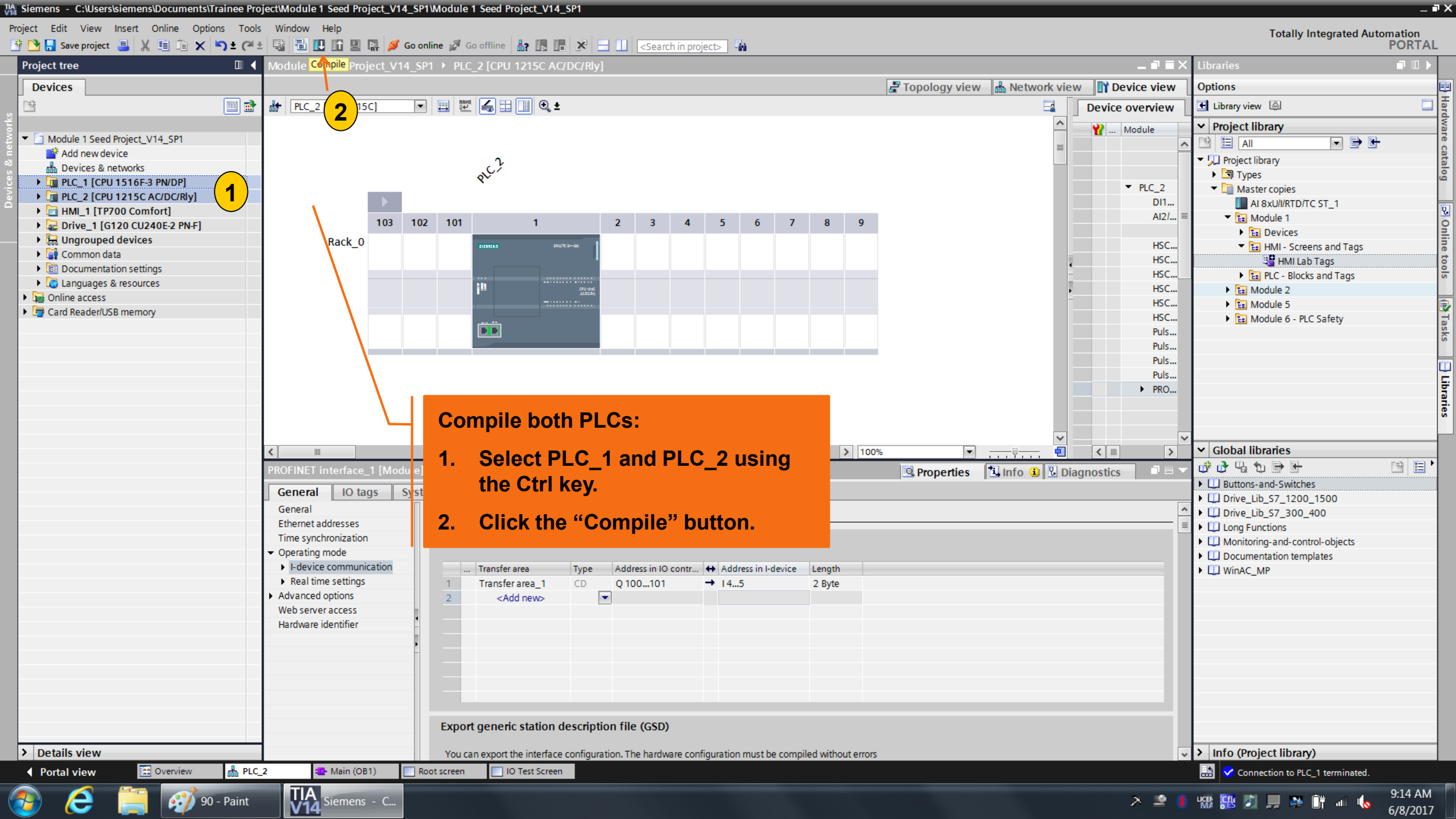
1. The I-Device feature allows for easy PLC to PLC communications **WITHOUT having to write dedicated communication blocks in each PLC for the communications to work**.
2. This feature essentially configures a range of input and output addresses in each PLC that are set aside to handle the data being sent between the PLCs.
3. In this module we will configure an S7-1200 CPU to be an I-Device communicating with S7-1500 CPU, and then view the data communication in a Watch Table.

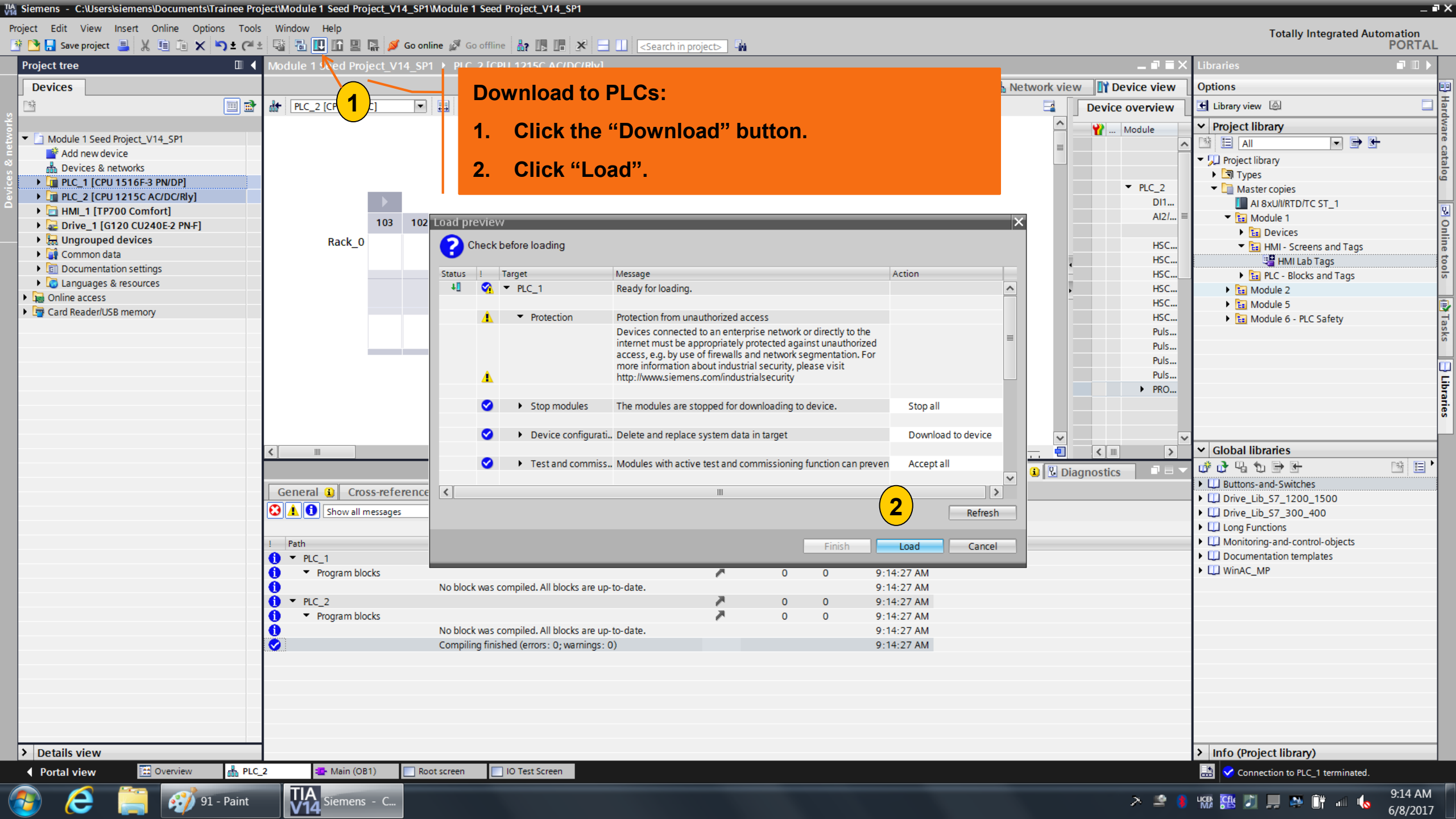

Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project Go online Go offline <Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
PLC_2 [CPU 1215C AC/DC/Rly]
HMI_1 [TP700 Comfort]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
1
Module 1 Seed Project_V14_SP1 ▸ Devices & networks
Topology view
Network view
Device view
Network
Connections
HMI connection
IO system: PLC_1.PROFINET IO-System (100)
PLC 1
CPU 1516F-...
Drive 1
G120 CU24...
PLC_1
IO device 1
IM 155-6 PN...
PLC_1
KP8 1
KP8
PLC_1
PLC 2
CPU 1215C
S7-1200 station_1
2
PLC_1.PROFINET IO-...
HMI 1
TP700 Comf...
Enable the I-Device feature in the S7-1200 PLC:
1. Go to Devices & Networks
2. Double Click on PLC_2
100%
Libraries
Options
Library view
Project library
All
Project library
Types
Master copies
AI 8xU/I/RTD/TC ST_1
Module 1
Devices
HMI - Screens and Tags
HMI Lab Tags
PLC - Blocks and Tags
Module 2
Module 5
Module 6 - PLC Safety
Global libraries
Buttons-and-Switches
Drive_Lib_S7_1200_1500
Drive_Lib_S7_300_400
Long Functions
Monitoring-and-control-objects
Documentation templates
WinAC_MP
Details view
Properties
Info
Diagnostics
Info (Project library)
Portal view
Overview
Devices & ne...
Main (OB1)
Root screen
IO Test Screen
Connection to PLC_1 terminated.
83 - Paint
Siemens - C...
9:11 AM
6/8/2017

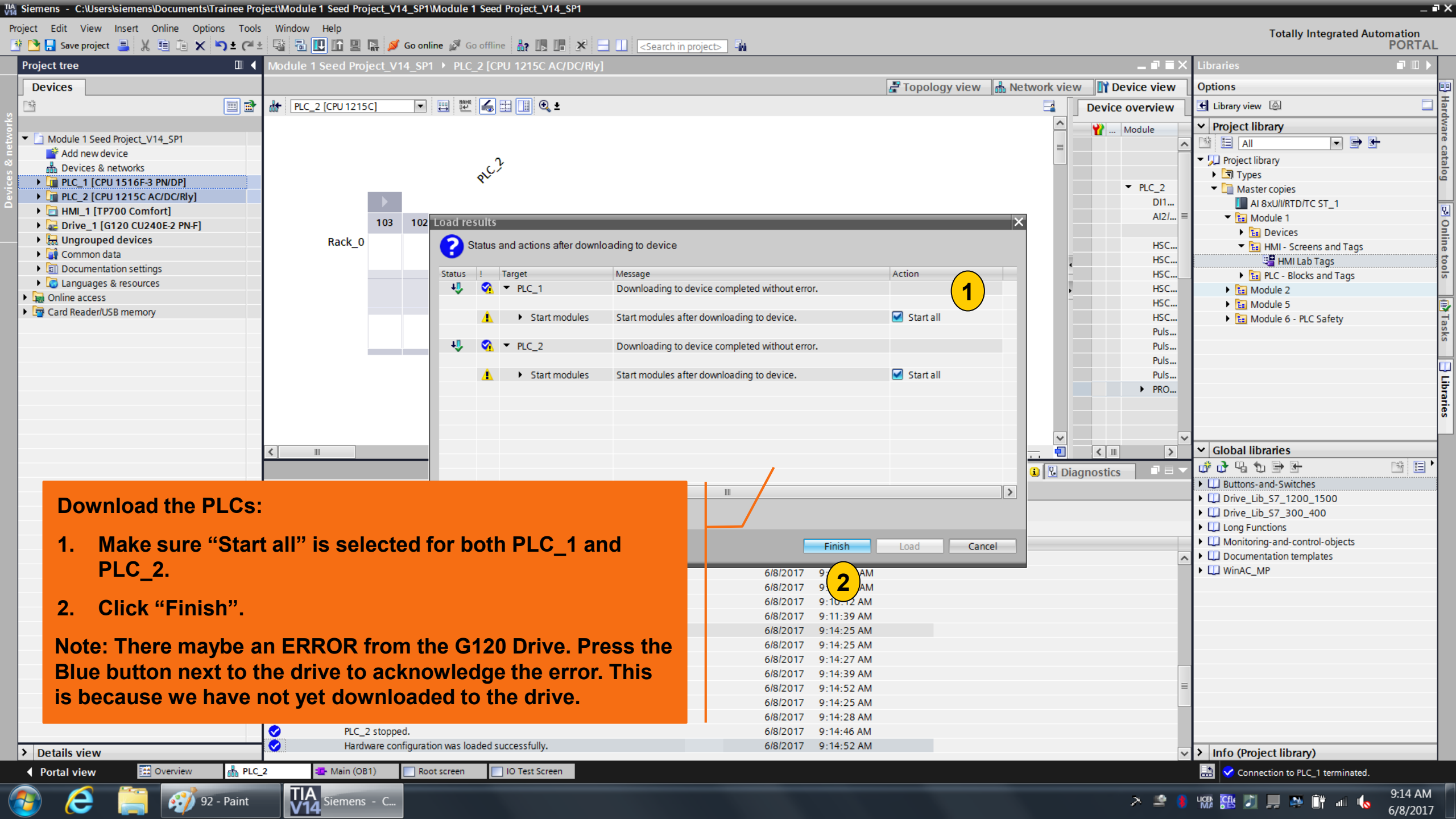

Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project Go online Go offline <Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
PLC_2 [CPU 1215C AC/DC/Rly]
HMI_1 [TP700 Comfort]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14_SP1 ▸ PLC_2 [CPU 1215C AC/DC/Rly]
Topology view Network view Device view
PLC_2 [CPU 1215C]
Device overview
Module
PLC_2
DI1...
AI2/...
HSC...
PLC_2
Rack_0
103 102 101 1 2 3 4 5 6 7 8 9
1
2
PROFINET interface_1 [Module]
General IO tags System constants Texts
General
Ethernet addresses
Time synchronization
Operating mode
I-device communication
Real time settings
Advanced options
Web server access
Hardware identifier
Operating mode
IO controller
IO device
3
4
Assigned IO controller: PLC_1.PROFINET interface_1
Parameter assignment of PN interface by higher-level IO controller
Optional IO-Device
Prioritized startup
Device number: 4
I-device communication
Enable the I-Device feature in the S7-1200 PLC:
1. Double click on the PLC_2 Ethernet Port to open its properties.
2. Go to General > Operating Mode.
3. Check “IO device”.
4. Assign PLC_1 as the Assigned IO Controller.
Libraries
Options
Library view
Project library
All
Project library
Types
Master copies
AI 8xU/I/RTD/TC ST_1
Module 1
Devices
HMI - Screens and Tags
Drive_Lib_S7_1200_1500
Drive_Lib_S7_300_400
Long Functions
Monitoring-and-control-objects
Documentation templates
WinAC_MP
Info (Project library)
Portal view Overview PLC_2 Main (OB1) Root screen IO Test Screen
Connection to PLC_1 terminated.
87 - Paint
Siemens - C...
9:12 AM
6/8/2017

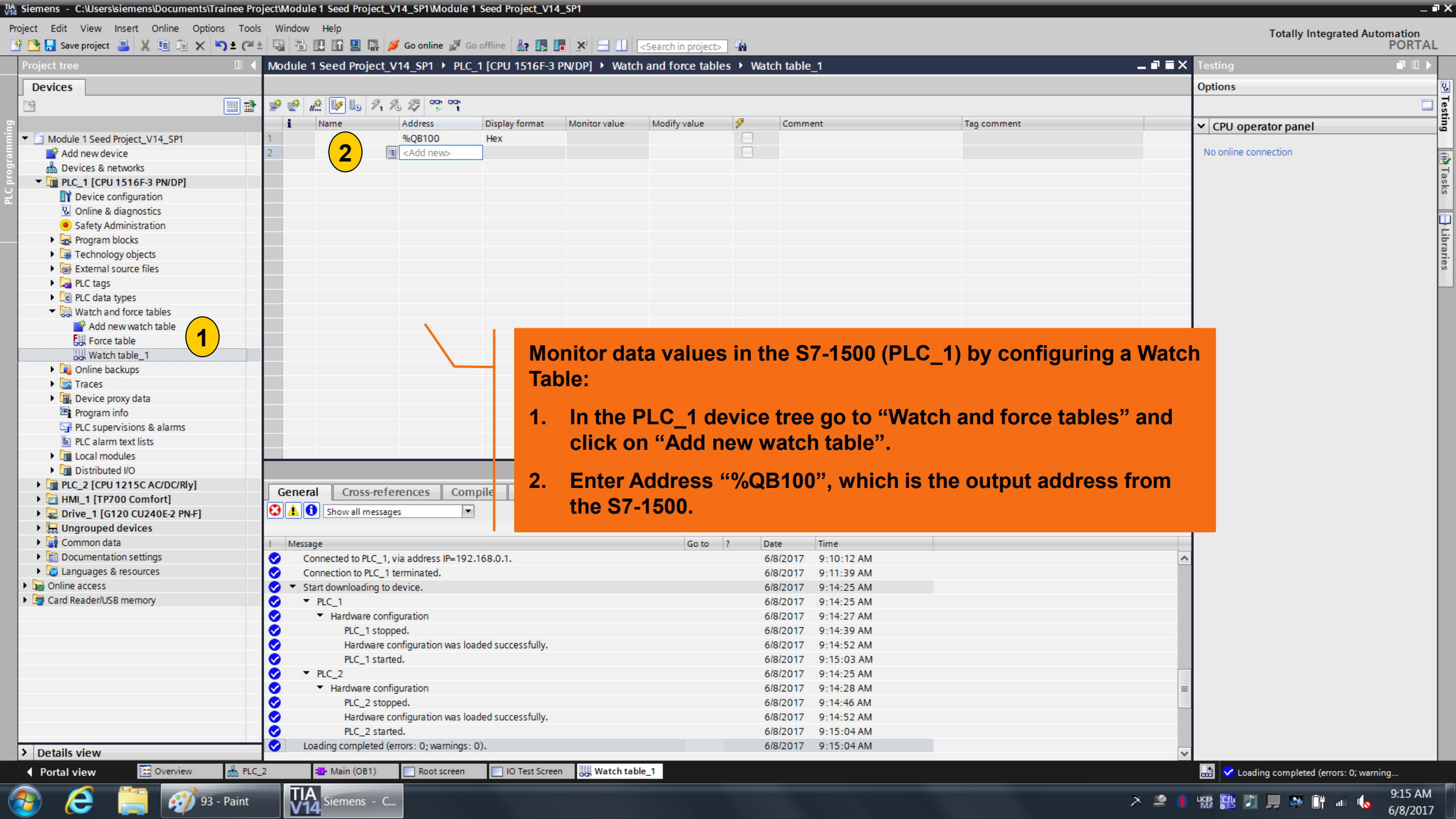

Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project Go online Go offline <Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
PLC_2 [CPU 1215C AC/DC/Rly]
HMI_1 [TP700 Comfort]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14_SP1 ▸ PLC_2 [CPU 1215C AC/DC/Rly]
Topology view Network view Device view
PLC_2 [CPU 1215C]
Device overview
Module
PLC_2
DI1...
AI2/...
HSC...
PLC_2
Rack_0
103 102 101 1 2 3 4 5 6 7 8 9
Enable I-Device -> setting up the IO address ranges for where data will be sent from the S7-1500 and where data will be received in the S7-1200.
1. Go to “I-device communication” under General > Operating mode.
2. Double click on “<Add new>” and then hit enter.
PROFINET interface_1 [Module]
Properties Info Diagnostics
General IO tags System constants Texts
1
General
Ethernet addresses
Time synchronization
Operating mode
I-device communication
Real time settings
Advanced options
Web server access
Hardware identifier
I-device communication
Transfer areas
2
... Transfer are Type Address in IO contr... Address in I-device Length
1 <Add new>
Export generic station description file (GSD)
You can export the interface configuration. The hardware configuration must be compiled without errors
Libraries
Options
Library view
Project library
All
Project library
Types
Master copies
AI 8xU/I/RTD/TC ST_1
Module 1
Devices
HMI - Screens and Tags
Buttons-and-Switches
Drive_Lib_S7_1200_1500
Drive_Lib_S7_300_400
Long Functions
Monitoring-and-control-objects
Documentation templates
WinAC_MP
Info (Project library)
Portal view Overview PLC_2 Main (OB1) Root screen IO Test Screen
Connection to PLC_1 terminated.
88 - Paint
Siemens - C...
9:13 AM
6/8/2017

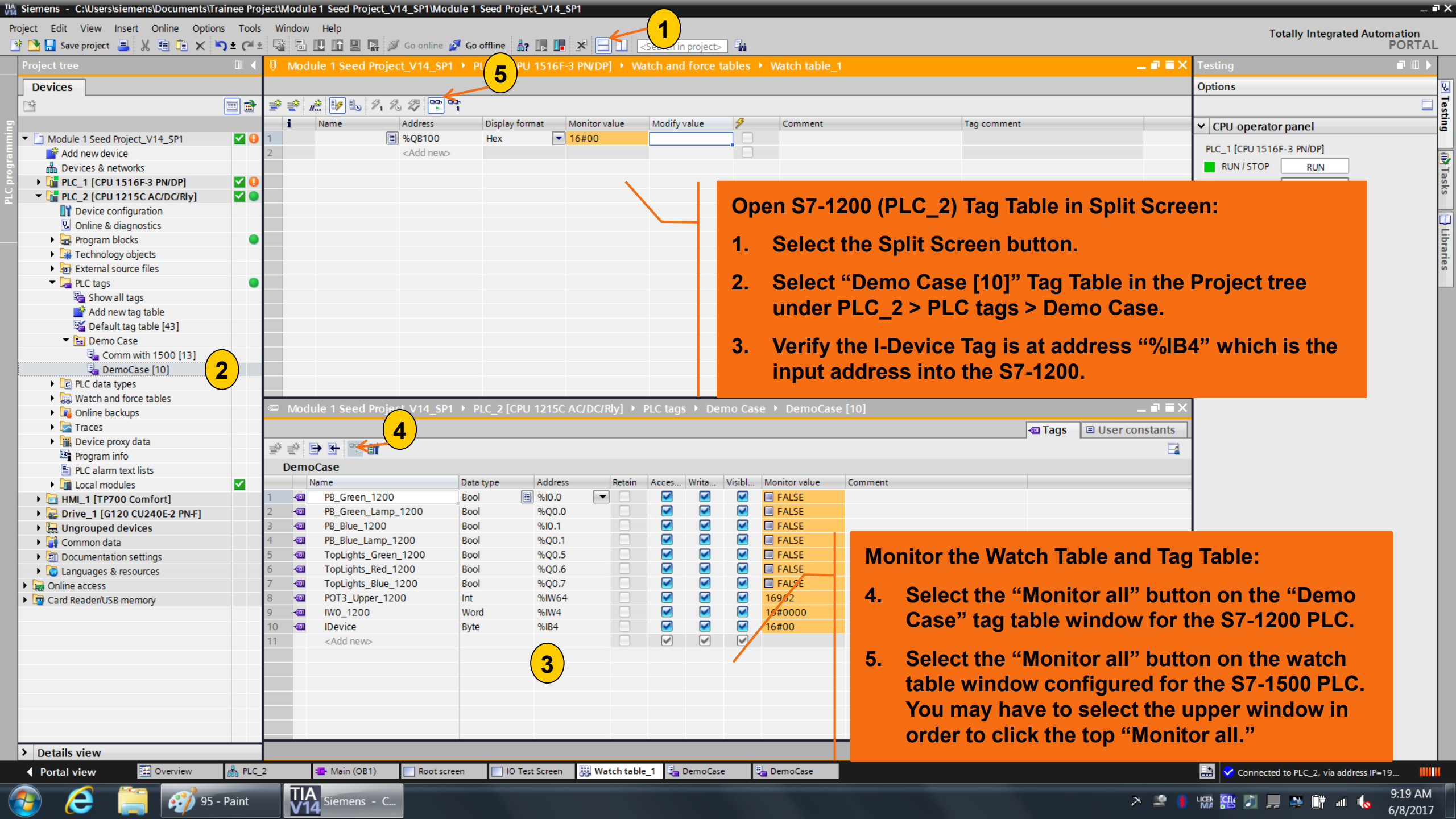

Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Totally Integrated Automation PORTAL
Customer Benefit -> Easy PLC to PLC communication with NO communication blocks needed.
The I-Device feature allows the user to configure PLC to PLC communications as a range of Input and Output addresses in each PLC, which are set aside for data communications. This means no dedicated communication blocks need to be added to each PLC.
A use case where this is an advantage is that of an end user who may have separate machines from different OEMs that need to communicate to a main PLC on their production line. If the I-Device feature is enabled on the OEM machines, then they can be easily connected at different times and have communications working, WITHOUT having to make code changes to the main PLC running the production line.
Enable I-Device -> setting up the IO address ranges for where data will be sent from the S7-1500 and where data will be received in the S7-1200
1. Type in "Q100" in the "Address in IO" box.
2. Type in "I4" in the "Address in I-device" box.
3. Set length to "2 Byte". It should now look as shown.
PROFINET interface_1 [Module]
General
IO tags
System constants
Texts
I-device communication
Transfer areas
Transfer area_1
Q 100...101
I 4...5
2 Byte
Export generic station description file (GSD)
You can export the interface configuration. The hardware configuration must be compiled without errors
Topology view
Network view
Device view
Device overview
PLC_2
Libraries
Project library
Master copies
Module 1
Buttons-and-Switches
Drive_Lib_S7_1200_1500
Drive_Lib_S7_300_400
Long Functions
Monitoring-and-control-objects
Documentation templates
WinAC_MP
Portal view
Overview
PLC_2
Main (OB1)
Root screen
IO Test Screen
Connection to PLC_1 terminated.
9:13 AM
6/8/2017

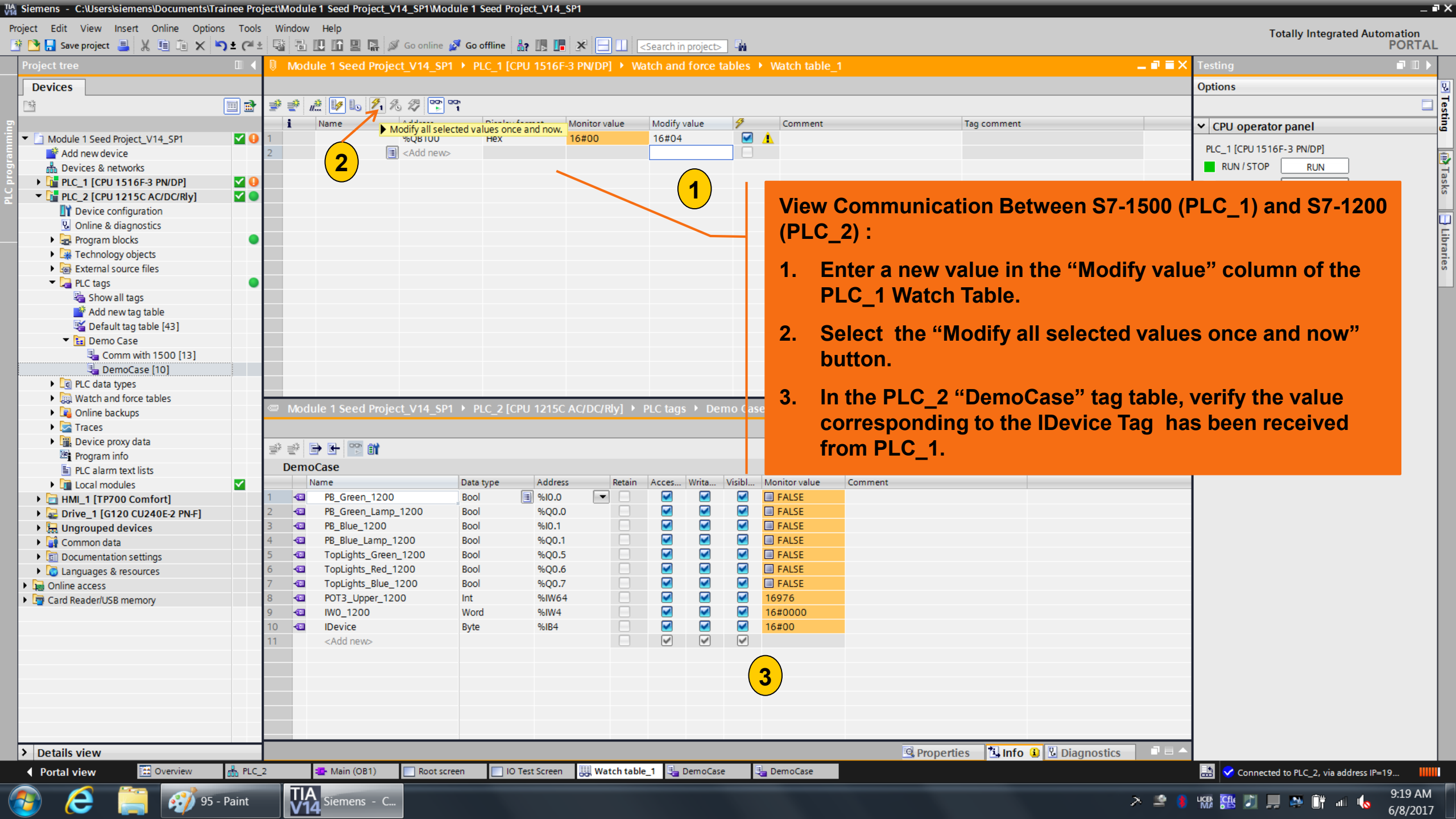

Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project
Go online
Go offline
<Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
PLC_2 [CPU 1215C AC/DC/Rly]
HMI_1 [TP700 Comfort]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
1
Module Compile Project_V14_SP1 ▸ PLC_2 [CPU 1215C AC/DC/Rly]
2
Topology view
Network view
Device view
Device overview
PLC_2
Rack_0
103 102 101 1 2 3 4 5 6 7 8 9
Compile both PLCs:
1. Select PLC_1 and PLC_2 using the Ctrl key.
2. Click the “Compile” button.
PROFINET interface_1 [Module]
General
IO tags
General
Ethernet addresses
Time synchronization
Operating mode
I-device communication
Real time settings
Advanced options
Web server access
Hardware identifier
Properties
Info
Diagnostics
Transfer area Type Address in IO contr... Address in I-device Length
1 Transfer area_1 CD Q 100...101 I 4...5 2 Byte
2 <Add new>
Export generic station description file (GSD)
You can export the interface configuration. The hardware configuration must be compiled without errors
Libraries
Options
Library view
Project library
All
Project library
Types
Master copies
AI 8xU/I/RTD/TC ST_1
Module 1
Devices
HMI - Screens and Tags
HMI Lab Tags
PLC - Blocks and Tags
Module 2
Module 5
Module 6 - PLC Safety
Global libraries
Buttons-and-Switches
Drive_Lib_S7_1200_1500
Drive_Lib_S7_300_400
Long Functions
Monitoring-and-control-objects
Documentation templates
WinAC_MP
Info (Project library)
Details view
Portal view
Overview
PLC_2
Main (OB1)
Root screen
IO Test Screen
Connection to PLC_1 terminated.
90 - Paint
Siemens - C...
9:14 AM
6/8/2017

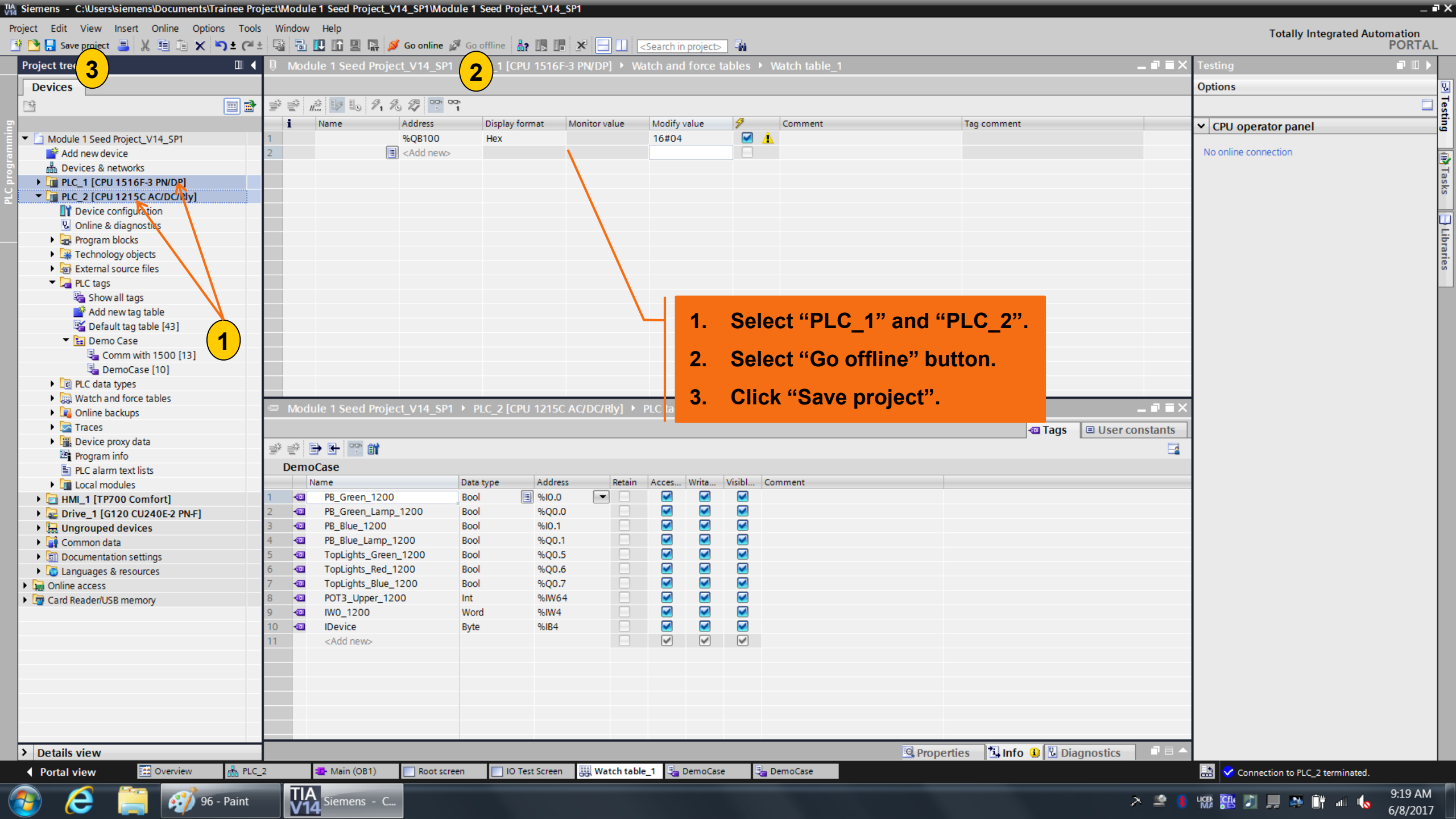

Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project
Go online
Go offline
<Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
PLC_2 [CPU 1215C AC/DC/Rly]
HMI_1 [TP700 Comfort]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
1
Download to PLCs:
1. Click the “Download” button.
2. Click “Load”.
Network view
Device view
Device overview
Module
PLC_2
Rack_0
103
102
Load preview
Check before loading
Status
!
Target
Message
Action
PLC_1
Ready for loading.
Protection
Protection from unauthorized access
Devices connected to an enterprise network or directly to the internet must be appropriately protected against unauthorized access, e.g. by use of firewalls and network segmentation. For more information about industrial security, please visit http://www.siemens.com/industrialsecurity
Stop modules
The modules are stopped for downloading to device.
Stop all
Device configurati..
Delete and replace system data in target
Download to device
Test and commiss..
Modules with active test and commissioning function can preven
Accept all
2
Refresh
Finish
Load
Cancel
General
Cross-reference
Diagnostics
Show all messages
Path
PLC_1
Program blocks
No block was compiled. All blocks are up-to-date.
PLC_2
Program blocks
No block was compiled. All blocks are up-to-date.
Compiling finished (errors: 0; warnings: 0)
9:14:27 AM
Libraries
Options
Library view
Project library
All
Project library
Types
Master copies
AI 8xU/I/RTD/TC ST_1
Module 1
Devices
HMI - Screens and Tags
HMI Lab Tags
PLC - Blocks and Tags
Module 2
Module 5
Module 6 - PLC Safety
Global libraries
Buttons-and-Switches
Drive_Lib_S7_1200_1500
Drive_Lib_S7_300_400
Long Functions
Monitoring-and-control-objects
Documentation templates
WinAC_MP
Info (Project library)
Portal view
Overview
PLC_2
Main (OB1)
Root screen
IO Test Screen
Connection to PLC_1 terminated.
91 - Paint
Siemens - C...
9:14 AM
6/8/2017


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
PLC_2 [CPU 1215C AC/DC/Rly]
HMI_1 [TP700 Comfort]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Module 1 Seed Project_V14_SP1 ▸ PLC_2 [CPU 1215C AC/DC/Rly]
Topology view
Network view
Device view
PLC_2 [CPU 1215C]
Device overview
PLC_2
Rack_0
103
102
Load results
Status and actions after downloading to device
Status
!
Target
Message
Action
PLC_1
Downloading to device completed without error.
Start modules
Start modules after downloading to device.
Start all
PLC_2
Downloading to device completed without error.
Start modules
Start modules after downloading to device.
Start all
1
Finish
Load
Cancel
2
Diagnostics
PLC_2 stopped.
Hardware configuration was loaded successfully.
Libraries
Options
Library view
Project library
Types
Master copies
AI 8xU/I/RTD/TC ST_1
Module 1
Devices
HMI - Screens and Tags
HMI Lab Tags
PLC - Blocks and Tags
Module 2
Module 5
Module 6 - PLC Safety
Global libraries
Buttons-and-Switches
Drive_Lib_S7_1200_1500
Drive_Lib_S7_300_400
Long Functions
Monitoring-and-control-objects
Documentation templates
WinAC_MP
Info (Project library)
Details view
Portal view
Overview
PLC_2
Main (OB1)
Root screen
IO Test Screen
Connection to PLC_1 terminated.
Totally Integrated Automation
PORTAL
Download the PLCs:
1. Make sure “Start all” is selected for both PLC_1 and PLC_2.
2. Click “Finish”.
Note: There maybe an ERROR from the G120 Drive. Press the Blue button next to the drive to acknowledge the error. This is because we have not yet downloaded to the drive.
92 - Paint
Siemens - C...
9:14 AM
6/8/2017


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project Go online Go offline <Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
Device configuration
Online & diagnostics
Safety Administration
Program blocks
Technology objects
External source files
PLC tags
PLC data types
Watch and force tables
Add new watch table
Force table
Watch table_1
Online backups
Traces
Device proxy data
Program info
PLC supervisions & alarms
PLC alarm text lists
Local modules
Distributed I/O
PLC_2 [CPU 1215C AC/DC/Rly]
HMI_1 [TP700 Comfort]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP] ▸ Watch and force tables ▸ Watch table_1
Name Address Display format Monitor value Modify value Comment Tag comment
1 %QB100 Hex
2 <Add new>
2
1
Monitor data values in the S7-1500 (PLC_1) by configuring a Watch Table:
1. In the PLC_1 device tree go to “Watch and force tables” and click on “Add new watch table”.
2. Enter Address “%QB100”, which is the output address from the S7-1500.
General Cross-references Compile
Show all messages
Message Go to ? Date Time
Connected to PLC_1, via address IP=192.168.0.1. 6/8/2017 9:10:12 AM
Connection to PLC_1 terminated. 6/8/2017 9:11:39 AM
Start downloading to device. 6/8/2017 9:14:25 AM
PLC_1 6/8/2017 9:14:25 AM
Hardware configuration 6/8/2017 9:14:27 AM
PLC_1 stopped. 6/8/2017 9:14:39 AM
Hardware configuration was loaded successfully. 6/8/2017 9:14:52 AM
PLC_1 started. 6/8/2017 9:15:03 AM
PLC_2 6/8/2017 9:14:25 AM
Hardware configuration 6/8/2017 9:14:28 AM
PLC_2 stopped. 6/8/2017 9:14:46 AM
Hardware configuration was loaded successfully. 6/8/2017 9:14:52 AM
PLC_2 started. 6/8/2017 9:15:04 AM
Loading completed (errors: 0; warnings: 0). 6/8/2017 9:15:04 AM
Testing
Options
CPU operator panel
No online connection
Testing Tasks Libraries
PLC programming
Portal view Overview PLC_2 Main (OB1) Root screen IO Test Screen Watch table_1
Loading completed (errors: 0; warning...
93 - Paint
Siemens - C...
9:15 AM 6/8/2017


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project
Go online
Go offline
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
PLC_2 [CPU 1215C AC/DC/Rly]
Device configuration
Online & diagnostics
Program blocks
Technology objects
External source files
PLC tags
Show all tags
Add new tag table
Default tag table [43]
Demo Case
Comm with 1500 [13]
DemoCase [10]
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC alarm text lists
Local modules
HMI_1 [TP700 Comfort]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP] ▸ Watch and force tables ▸ Watch table_1
Name Address Display format Monitor value Modify value Comment Tag comment
1 %QB100 Hex 16#00
2 <Add new>
Module 1 Seed Project_V14_SP1 ▸ PLC_2 [CPU 1215C AC/DC/Rly] ▸ PLC tags ▸ Demo Case ▸ DemoCase [10]
Tags
User constants
DemoCase
Name Data type Address Retain Acces... Writa... Visibl... Monitor value Comment
1 PB_Green_1200 Bool %I0.0 FALSE
2 PB_Green_Lamp_1200 Bool %Q0.0 FALSE
3 PB_Blue_1200 Bool %I0.1 FALSE
4 PB_Blue_Lamp_1200 Bool %Q0.1 FALSE
5 TopLights_Green_1200 Bool %Q0.5 FALSE
6 TopLights_Red_1200 Bool %Q0.6 FALSE
7 TopLights_Blue_1200 Bool %Q0.7 FALSE
8 POT3_Upper_1200 Int %IW64 16962
9 IW0_1200 Word %IW4 16#0000
10 IDevice Byte %IB4 16#00
11 <Add new>
Testing
Options
CPU operator panel
PLC_1 [CPU 1516F-3 PN/DP]
RUN / STOP
RUN
Open S7-1200 (PLC_2) Tag Table in Split Screen:
1. Select the Split Screen button.
2. Select "Demo Case [10]" Tag Table in the Project tree under PLC_2 > PLC tags > Demo Case.
3. Verify the I-Device Tag is at address "%IB4" which is the input address into the S7-1200.
Monitor the Watch Table and Tag Table:
4. Select the "Monitor all" button on the "Demo Case" tag table window for the S7-1200 PLC.
5. Select the "Monitor all" button on the watch table window configured for the S7-1500 PLC. You may have to select the upper window in order to click the top "Monitor all."
1
2
3
4
5
Portal view
Overview
PLC_2
Main (OB1)
Root screen
IO Test Screen
Watch table_1
DemoCase
DemoCase
Connected to PLC_2, via address IP=19...
95 - Paint
Siemens - C...
9:19 AM
6/8/2017


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project Go online Go offline
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
PLC_2 [CPU 1215C AC/DC/Rly]
Device configuration
Online & diagnostics
Program blocks
Technology objects
External source files
PLC tags
Show all tags
Add new tag table
Default tag table [43]
Demo Case
Comm with 1500 [13]
DemoCase [10]
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC alarm text lists
Local modules
HMI_1 [TP700 Comfort]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14_SP1 ▸ PLC_1 [CPU 1516F-3 PN/DP] ▸ Watch and force tables ▸ Watch table_1
Modify all selected values once and now.
Name Address Display format Monitor value Modify value Comment Tag comment
1 %QB100 Hex 16#00 16#04
2 <Add new>
2
1
View Communication Between S7-1500 (PLC_1) and S7-1200 (PLC_2) :
1. Enter a new value in the “Modify value” column of the PLC_1 Watch Table.
2. Select the “Modify all selected values once and now” button.
3. In the PLC_2 “DemoCase” tag table, verify the value corresponding to the IDevice Tag has been received from PLC_1.
Module 1 Seed Project_V14_SP1 ▸ PLC_2 [CPU 1215C AC/DC/Rly] ▸ PLC tags ▸ Demo Case
DemoCase
Name Data type Address Retain Acces... Writa... Visibl... Monitor value Comment
1 PB_Green_1200 Bool %I0.0 FALSE
2 PB_Green_Lamp_1200 Bool %Q0.0 FALSE
3 PB_Blue_1200 Bool %I0.1 FALSE
4 PB_Blue_Lamp_1200 Bool %Q0.1 FALSE
5 TopLights_Green_1200 Bool %Q0.5 FALSE
6 TopLights_Red_1200 Bool %Q0.6 FALSE
7 TopLights_Blue_1200 Bool %Q0.7 FALSE
8 POT3_Upper_1200 Int %IW64 16976
9 IW0_1200 Word %IW4 16#0000
10 IDevice Byte %IB4 16#00
11 <Add new>
3
Testing
Options
CPU operator panel
PLC_1 [CPU 1516F-3 PN/DP]
RUN / STOP RUN
Properties Info Diagnostics
Portal view Overview PLC_2 Main (OB1) Root screen IO Test Screen Watch table_1 DemoCase DemoCase
Connected to PLC_2, via address IP=19...
95 - Paint
Siemens - C...
9:19 AM
6/8/2017


Siemens - C:\Users\siemens\Documents\Trainee Project\Module 1 Seed Project_V14_SP1\Module 1 Seed Project_V14_SP1
Project Edit View Insert Online Options Tools Window Help
Save project
Go online
Go offline
<Search in project>
Totally Integrated Automation PORTAL
Project tree
Devices
Module 1 Seed Project_V14_SP1
Add new device
Devices & networks
PLC_1 [CPU 1516F-3 PN/DP]
PLC_2 [CPU 1215C AC/DC/Rly]
Device configuration
Online & diagnostics
Program blocks
Technology objects
External source files
PLC tags
Show all tags
Add new tag table
Default tag table [43]
Demo Case
Comm with 1500 [13]
DemoCase [10]
PLC data types
Watch and force tables
Online backups
Traces
Device proxy data
Program info
PLC alarm text lists
Local modules
HMI_1 [TP700 Comfort]
Drive_1 [G120 CU240E-2 PN-F]
Ungrouped devices
Common data
Documentation settings
Languages & resources
Online access
Card Reader/USB memory
Details view
Module 1 Seed Project_V14_SP1 ▸ 1 [CPU 1516F-3 PN/DP] ▸ Watch and force tables ▸ Watch table_1
Name Address Display format Monitor value Modify value Comment Tag comment
1 %QB100 Hex 16#04
2 <Add new>
Module 1 Seed Project_V14_SP1 ▸ PLC_2 [CPU 1215C AC/DC/Rly] ▸ PLC ta
Tags
User constants
DemoCase
Name Data type Address Retain Acces... Writa... Visibl... Comment
1 PB_Green_1200 Bool %I0.0
2 PB_Green_Lamp_1200 Bool %Q0.0
3 PB_Blue_1200 Bool %I0.1
4 PB_Blue_Lamp_1200 Bool %Q0.1
5 TopLights_Green_1200 Bool %Q0.5
6 TopLights_Red_1200 Bool %Q0.6
7 TopLights_Blue_1200 Bool %Q0.7
8 POT3_Upper_1200 Int %IW64
9 IW0_1200 Word %IW4
10 IDevice Byte %IB4
11 <Add new>
1. Select “PLC_1” and “PLC_2”.
2. Select “Go offline” button.
3. Click “Save project”.
Testing
Options
CPU operator panel
No online connection
Properties
Info
Diagnostics
Portal view
Overview
PLC_2
Main (OB1)
Root screen
IO Test Screen
Watch table_1
DemoCase
DemoCase
Connection to PLC_2 terminated.
96 - Paint
Siemens - C...
9:19 AM
6/8/2017

Siemens Industry Inc. IA FA and DT MC

SIEMENS
Ingenuity for life

DISCLAIMER/TERMS OF USE: THE INFORMATION PROVIDED HEREIN IS PROVIDED AS GENERAL EXAMPLES REGARDING THE USE OF THE APPLICABLE PRODUCTS IN GENERIC APPLICATIONS. THIS INFORMATION IS PROVIDED WITHOUT WARRANTY. IT IS YOUR RESPONSIBILITY TO ENSURE THAT YOU ARE USING ALL SIEMENS PRODUCTS PROPERLY IN YOUR SPECIFIC APPLICATION. ALTHOUGH THIS CONTENT STRIVES TO MAINTAIN ACCURATE AND RELEVANT INFORMATION, THERE IS NO OFFICIAL GUARANTEE THAT THE INFORMATION PROVIDED HEREIN IS ACCURATE. IF YOU USE THE INFORMATION PROVIDED HEREIN IN YOUR SPECIFIC APPLICATION, PLEASE DOUBLE CHECK ITS APPLICABILITY AND BE ADVISED THAT YOU ARE USING THIS INFORMATION AT YOUR OWN RISK. THE PURCHASER OF THE PRODUCT MUST CONFIRM THE SUITABILITY OF THE PRODUCT FOR THE INTENDED USE, AND ASSUME ALL RISK AND LIABILITY IN CONNECTION WITH THE USE.