

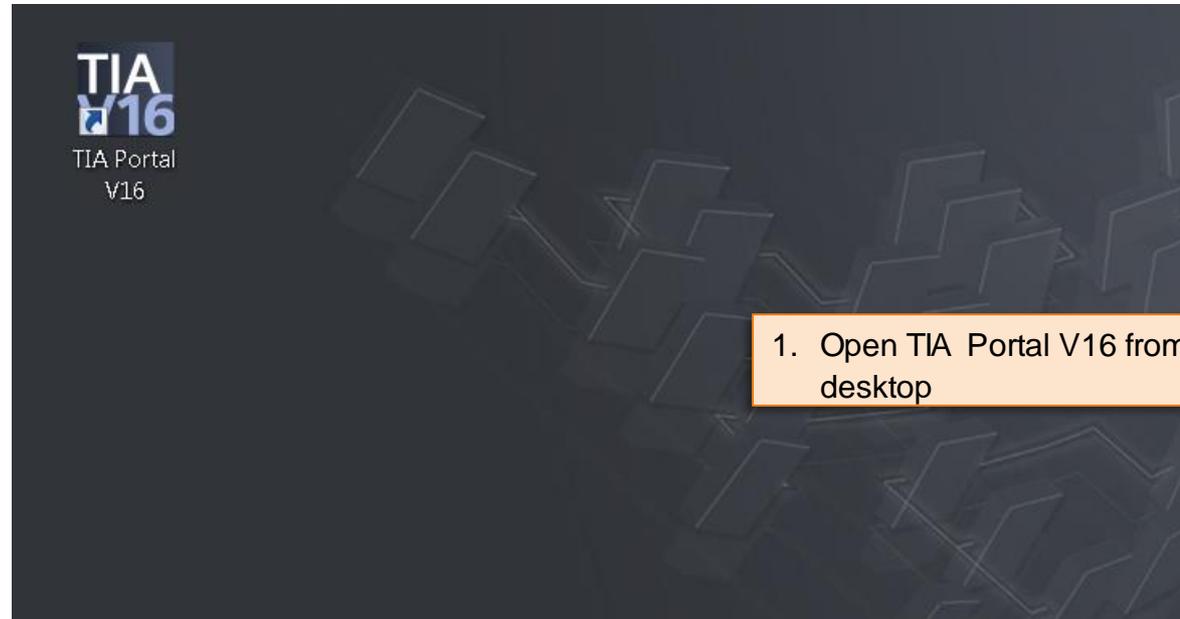


# S7-1200: Basic Controller with Advanced Functions

Introduction to TIA Portal

# Introduction to TIA Portal

# Introduction to TIA Portal



1. Open TIA Portal V16 from the desktop



# Introduction to TIA Portal

## Navigating the 'Portal view'

Siemens Totally Integrated Automation PORTAL

Start

- Devices & networks
- PLC programming
- Motion & technology
- Visualization
- Online & Diagnostics

Open existing project

- Create new project
- Migrate project
- Close project

1

Recently used

Project	Path	Last change
S7-1200 Tabletop Demo V16 KTP700 V3.ap16	C:\Users\siemens\Desktop\S7-1200 Workshop Files\Module 1 - Intro to TIA Portal\S7-1200 Tabletop Demo V16 KTP700 V: 1/30/2020 9:55:45 PM	

2

Activate basic integrity check

Browse Remove

Open

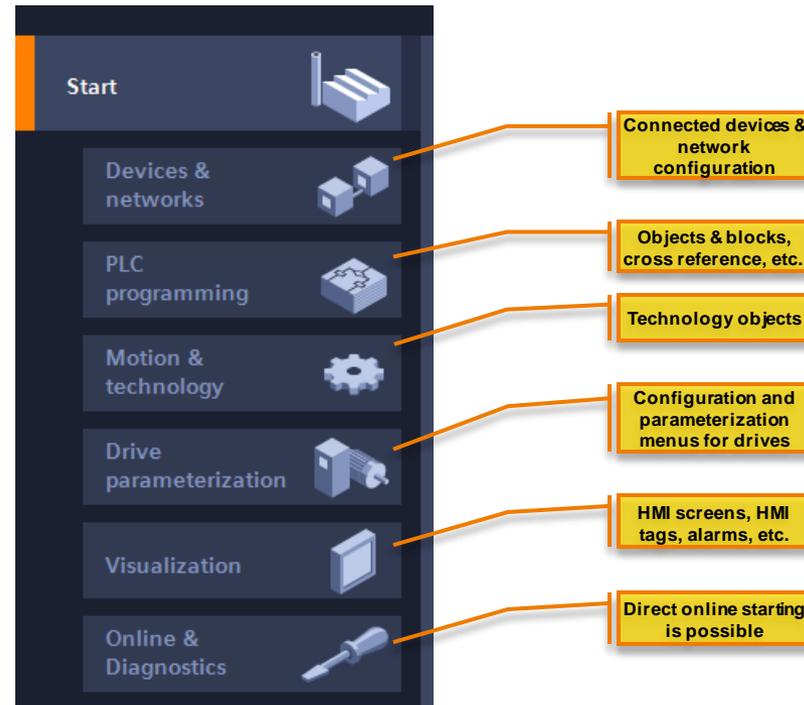
Project view

1. Open the project called 'S7-1200 Tabletop Demo KTP700 V3.ap16' by double clicking on it on the "recent projects" list.  
  
If the project does not appear in the list, press Browse and navigate to the "\Desktop\S7-1200 Event\S7-1200 Tabletop Demo V16 KTP700 V3.ap16"
2. Click the "Open" Button.



# Introduction to TIA Portal

## Navigating the 'Portal view'

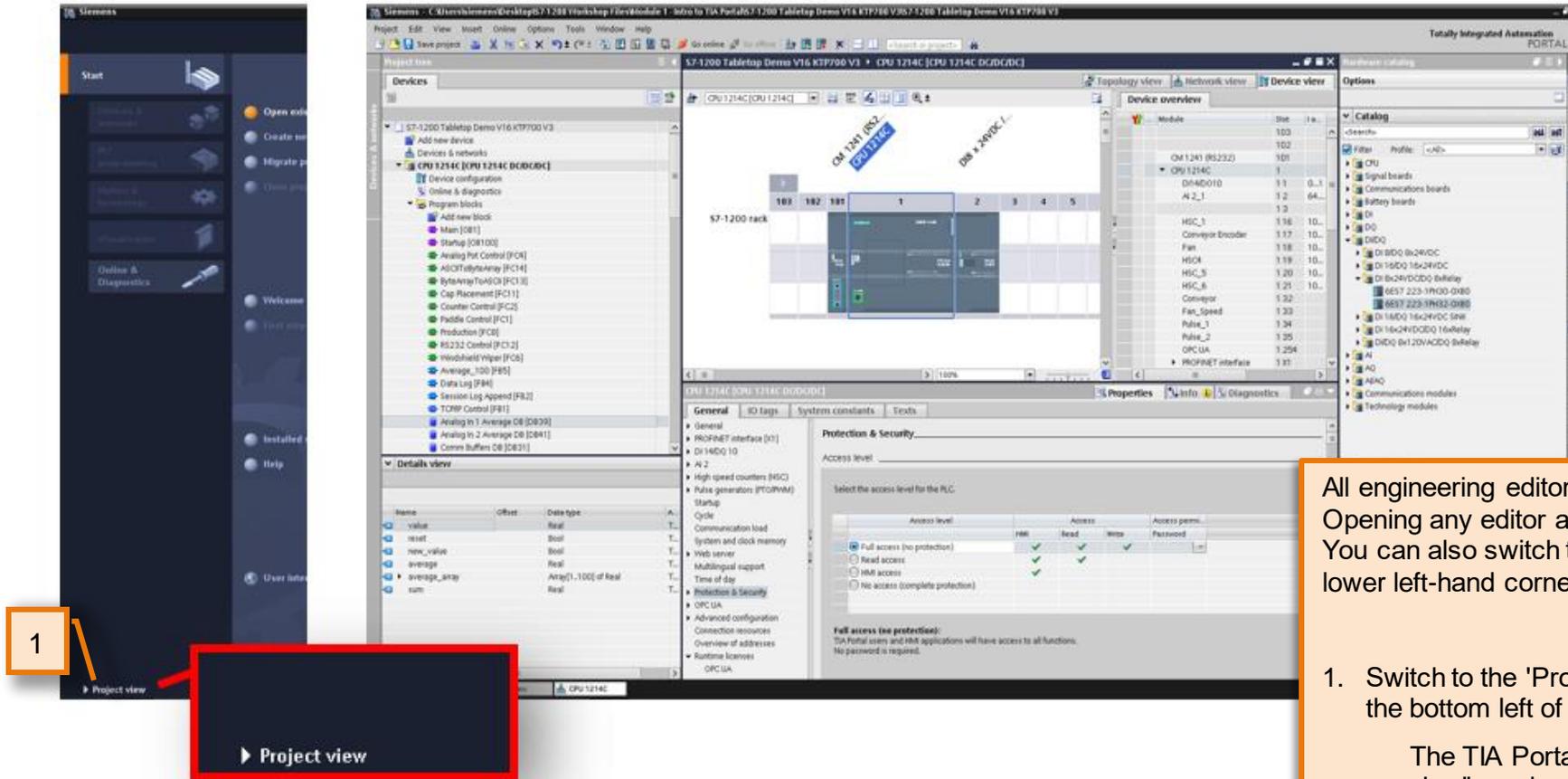


Click through the various "Portal" options in the start menu on the left and explore the different components that exist in the program.



# Introduction to TIA Portal

## Accessing the 'Project view'



All engineering editors can be launched from the “Portal view”. Opening any editor automatically switches to the “Project view”. You can also switch to the “Project view” using the link in the lower left-hand corner of the “Portal view”.

1. Switch to the 'Project view' by clicking the “Project view” link at the bottom left of the portal view.

The TIA Portal project should now open in the “Project view” as shown above



# Introduction to TIA Portal

## Navigating the 'Project view'



The screenshot shows the Siemens TIA Portal interface with several key components highlighted by yellow callout boxes:

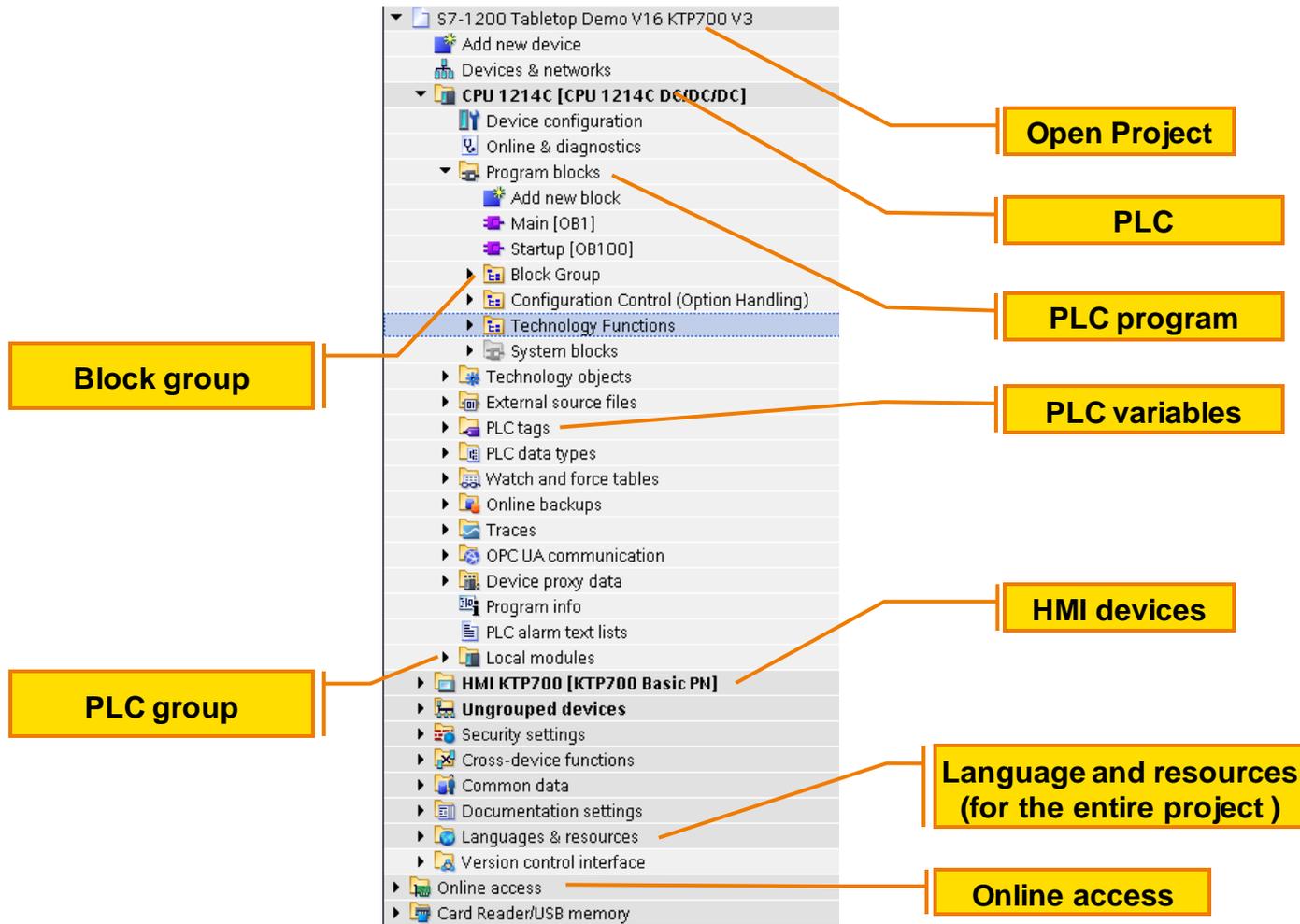
- Project tree:** Located on the left, it shows a hierarchical view of the project structure, including devices and program blocks.
- Working area:** The central workspace where the automation system is configured, showing a rack of modules like CPU 1214C and DI8 x 24VDC.
- Task cards window:** Located on the right, it displays a catalog of hardware components and their properties.
- Details window:** Located at the bottom left, it provides a detailed view of the selected object's properties.
- Inspector window:** Located at the bottom center, it shows the 'Protection & Security' settings for the selected device.

- The Project view provides the user with scalable access to the individual editors within the software, and is the true “engineering” view of the software. The Project view includes the following components:
- The **Project Tree** is a hierarchical view of the automation system project.
  - The **Details window** will show the “pieces” that make up a larger automation object. An example would be by selecting the Tag table in the Project Tree, the individual tags can be seen in the Details window.
  - The **working area** is the main area of the screen where objects that are to be edited are selected.
  - The **Inspector window** is a multi-purpose window with three main tabs – Properties, Info, and Diagnostics.
  - The **Task Cards window** holds the various hardware components, instructions, libraries, and other configuration objects and also provides access to online operations when connected to the automation system.



# Introduction to TIA Portal

## Navigating the 'Project view' Project tree



The Project Tree window provides a hierarchical representation of an automation system project, with each component being represented by a “branch” of the tree.

Within the Project Tree, you can add the equivalent of organizational “subfolders” to better group and manage related project items.

STEP7 itself will create the default program structure of the tree, which will include different types of block group folders, and the user can add folders as desired.



# Introduction to TIA Portal

## Navigating the 'Project view' task cards

The screenshot displays four task cards in the TIA Portal Project view:

- Hardware catalog:** Shows a tree view of PLC hardware components, including SIMATIC S7-1200, SIMATIC S7-300, and various CPU models (CPU 312, CPU 312C, CPU 313C, etc.).
- Online tools:** Displays the CPU operator panel for an S7-CPU (CPU 315-2 PN/DP), including RUN, STOP, and FORCE buttons, and a cycle time graph showing a current value of 10 ms.
- Tasks:** Shows the 'Find and replace' options, including search criteria like 'Whole words only', 'Match case', and 'Find in substructures'.
- Libraries:** Displays the Project library and Global libraries, including a 'PRO1\_Lib' with sub-items like 'Types', 'Master copies', and 'Faulty\_Program'.

A vertical navigation bar on the right side of the task cards is highlighted with an orange border. It contains four icons: Hardware catalog, Online tools, Tasks, and Libraries. A yellow callout box with the text 'Opening / closing task cards' has an arrow pointing to the 'Tasks' icon in this bar.

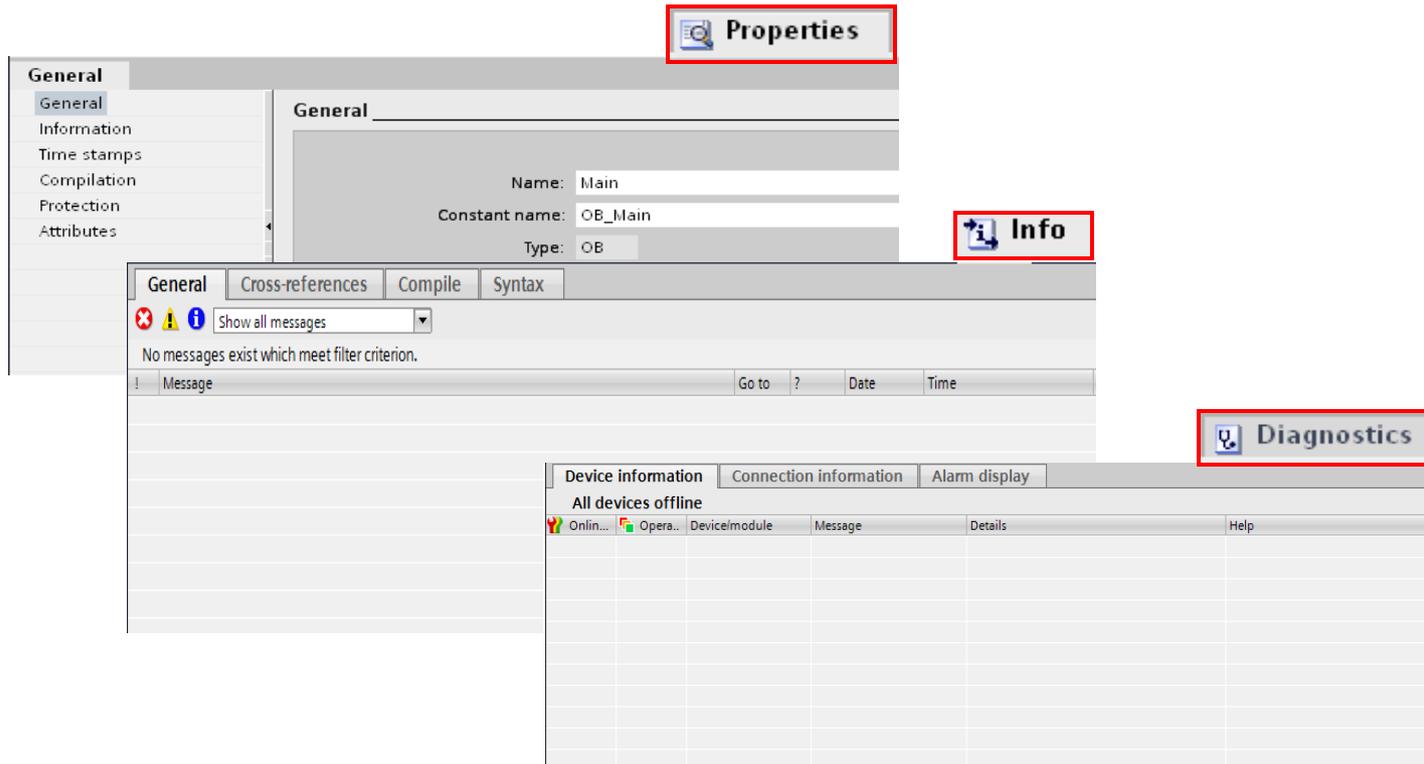
TIA Portal is known to be context-sensitive. Therefore the content of the Task cards vary depending upon what is in focus and what the operating mode of the software is (online or offline).

Regardless of what the object in focus is, the necessary components needed for configuring the selected object are always found via the task cards. This includes the Hardware catalog for PLC hardware configuration, online tools to start and stop a device while online, and access to the Global and Project libraries.



# Introduction to TIA Portal

## Navigating the 'Project view' inspector window



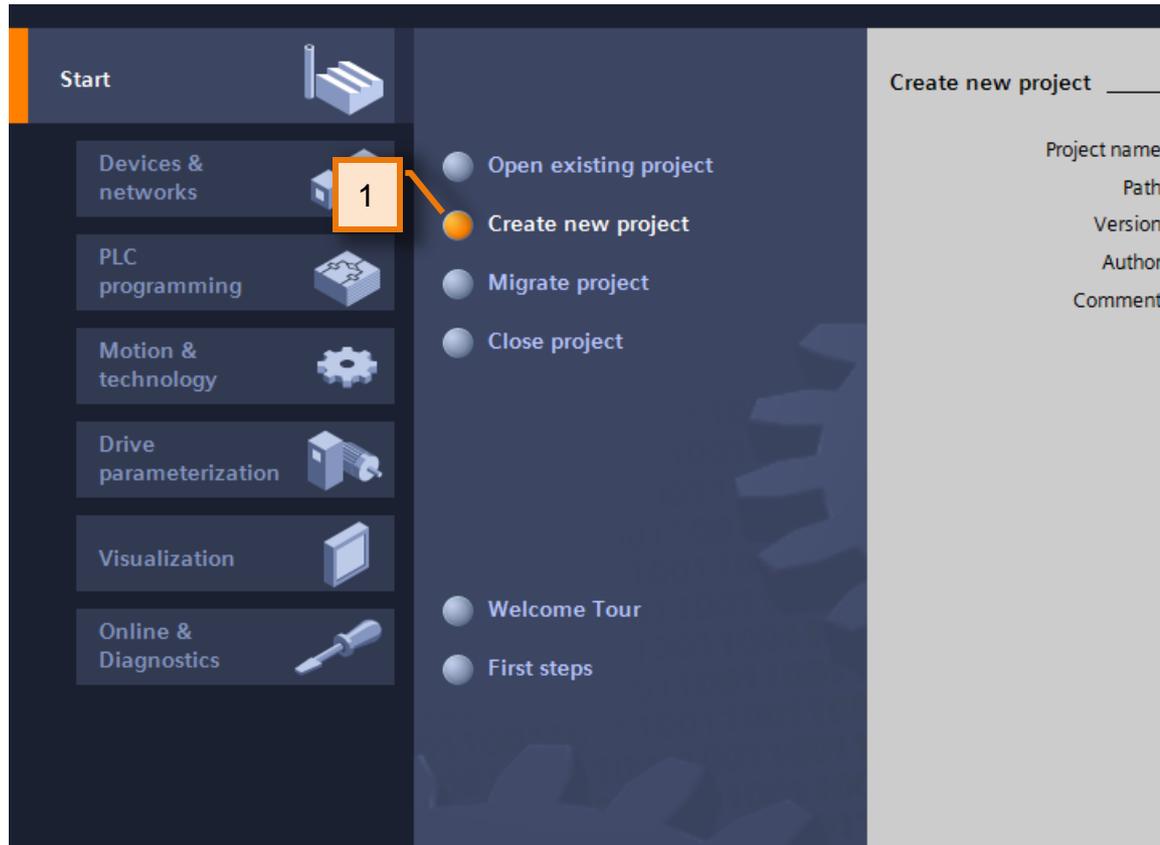
The Inspector window provides access to three different functions which are accessed via the tabs within the window:

- The **Properties** pane. This view gives the user access to viewing and changing the properties of the object selected (also known as “in focus”) in the work area. The subheading within the Properties pane varies depending upon the object in focus.
- The **Info** pane. This pane has four additional tabs within the pane.
  - **General** – this view provides the user with general information about operations performed in the software, e.g., opening or closing a project.
  - **Cross-references** – this pane provides the user with a global project-wide cross reference for the object in focus in the work area.
  - **Compile** – this tab logs all operations and events associated with compiling an object. Each subsequent compile erases and rebuilds the logger information.
- The **Diagnostics** pane. This pane provides three sub functions also accessed by tabs:
  - Device Information** – display of the status of the connected device, including general diagnostic information.
  - Connection Information** – provides detailed connection information for a specified connection while online
  - Alarm Display** – display of CPU messages generated by diagnostics functions in the CPU



# Introduction to TIA Portal

## Getting Started from the 'Portal view'



Now that we understand the different navigation options of TIA Portal, let's start to create our project.

1. Go to the 'Portal View' and Select 'Create new project'



# Introduction to TIA Portal

## Getting Started from the 'Portal view'

Create new project

1

Project name: Demo1

Path: C:\Users\siemens\Documents\Automation

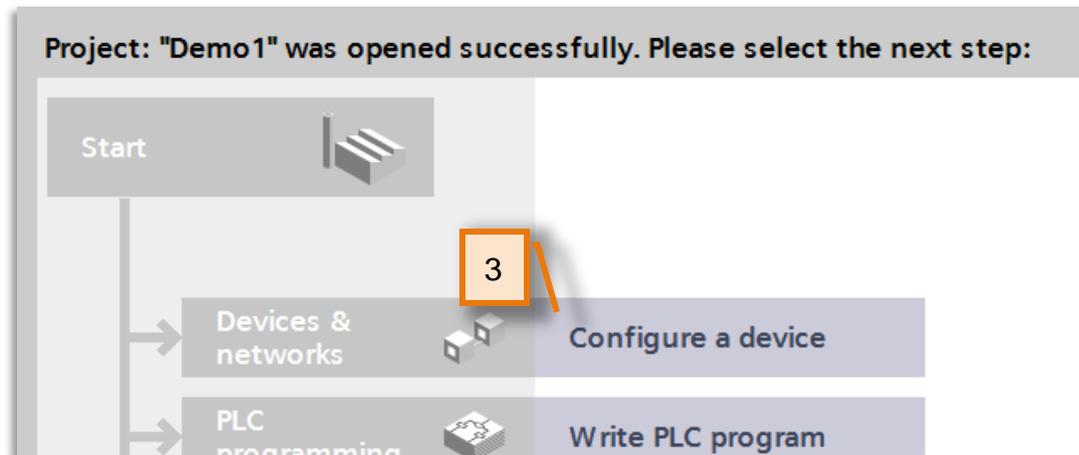
Version: V16

Author: siemens

Comment:

2

Create

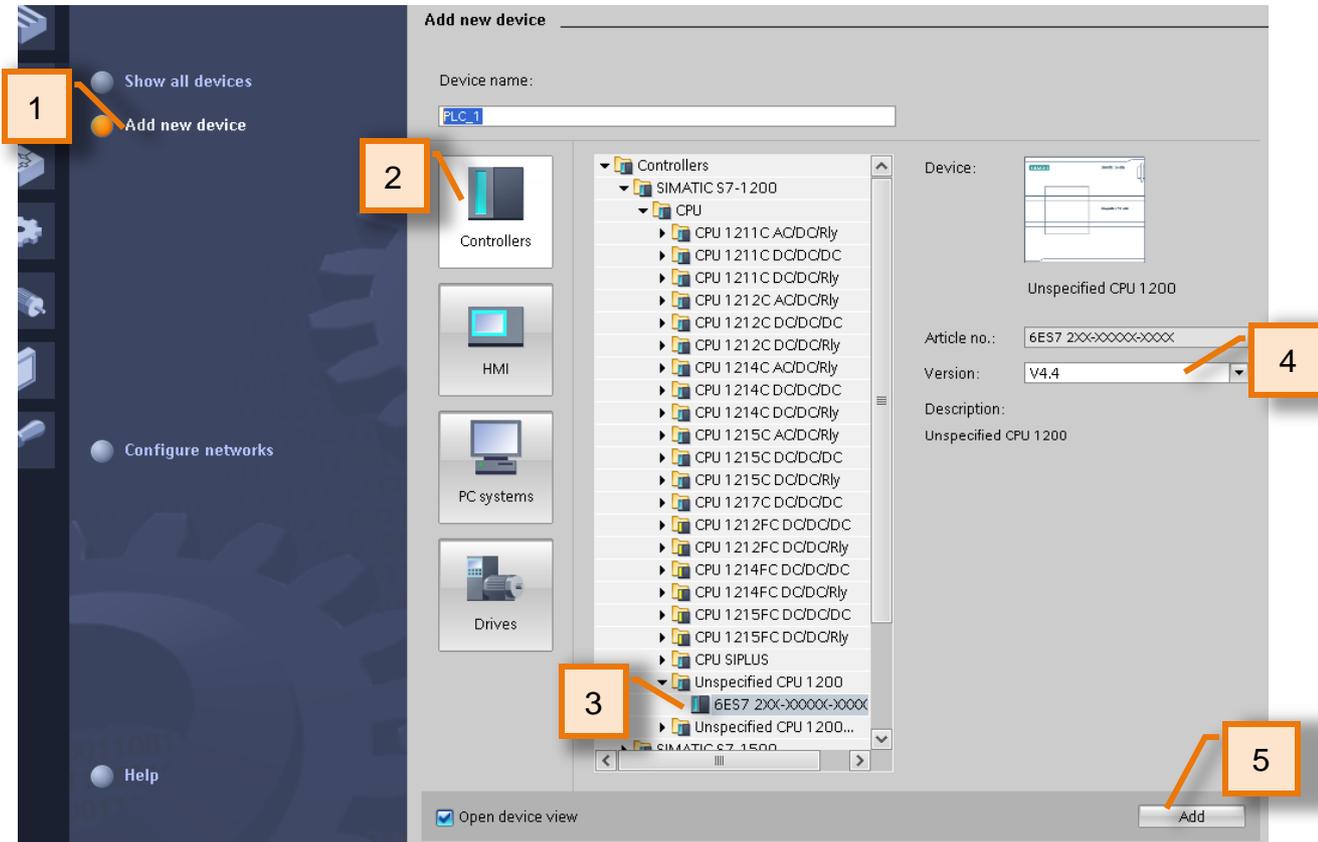


1. Name the project 'Demo1'  
Take note or change the project directory if you wish to save a copy for later.
2. click on the 'Create' button.  
Notice the 'First steps' indicator appears and is highlighted on the left.
3. Click 'Configure a device'.



# Introduction to TIA Portal

## Getting Started – adding an unspecified CPU



We will now add an unspecified CPU to allow the software to detect the hardware configuration automatically

1. Click 'Add new device'
2. Select the 'Controllers' icon
3. Expand the tree as shown: *Controllers > SIMATIC S7-1200 > CPU > Unspecified CPU 1200 > '6ES7 2XX-XXXX-XXXX'*
4. Select CPU firmware version V4.4
5. After your selections are made Click 'Add'



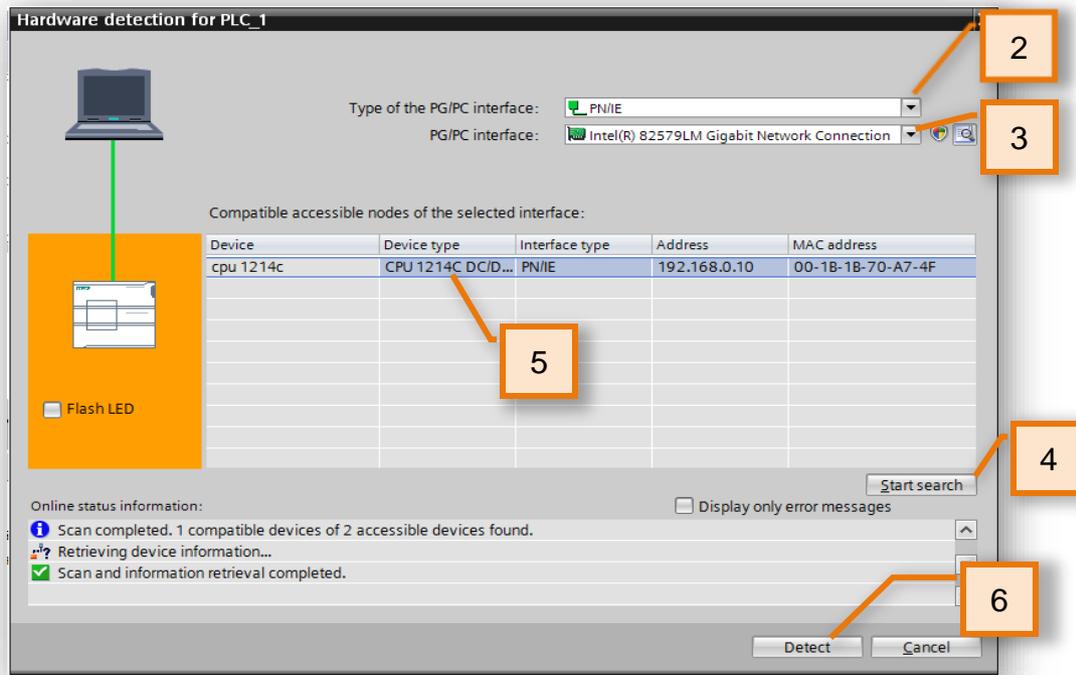
# Introduction to TIA Portal

## Using the 'Detect' feature to configure your PLC station

The device is not specified.

1

- Please use the [Hardware catalog](#) to specify the CPU,
- or [detect](#) the configuration of the connected device.



The Project View is automatically opened and we now see the Unspecified CPU in the work area.

Since we have an unspecified PLC, we can either add one from the Hardware catalog from the “Task card”, or we can connect to the local rack and detect the actual hardware.

To detect the attached hardware, perform the following:

1. In the “Work area” of the “Devices and networks” editor, click the “detect” hyperlink. The Hardware detection dialog will appear.
2. Since we are connecting using Ethernet, select “PN/IE” from the “Type of PG/PC interface.”
3. Select the proper Ethernet interface card of your PG from the “PG/PC interface” drop down. If you are unsure, consult your instructor.
4. Click the “Start search” button.
5. From the list that appears, select the **S7-1215C PLC**.
6. Click the “Detect” button.

**Note:** It does not matter to which IP-address or Subnet the host computer is connected to. Detection occurs *automatically* at MAC address level.



# Introduction to TIA Portal

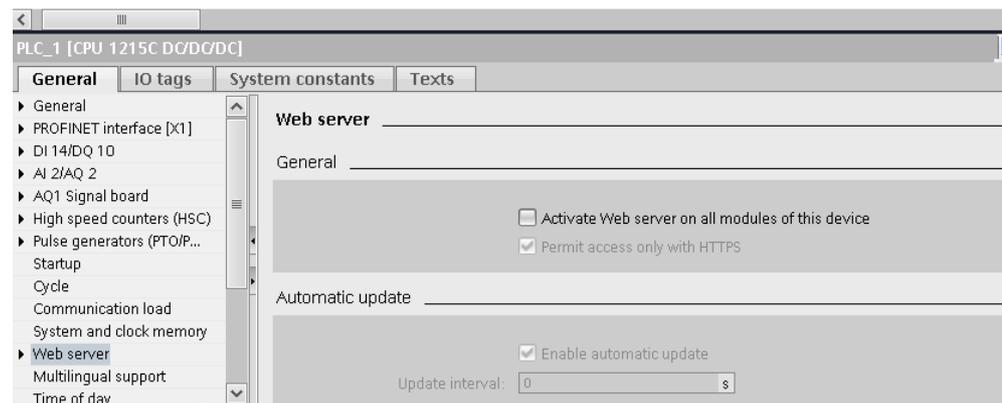
## Demonstrating Inspector Window adaptations



After a short delay, the S7-1200 and all local modules are added to the Project and are displayed in the work area of the “Devices and networks” editor.

Click on each area on the CPU rack and observe how the properties that appear in the inspector window below adapt to the properties of the item selected.

For example, clicking on the ethernet interface of the CPU displays properties of only that Ethernet interface. Clicking on the I/O module in slot 2 will cause the properties in the inspector window to adapt to that respective module and so on...



# End of 'Introduction to TIA Portal'



THE INFORMATION PROVIDED HEREIN IS PROVIDED AS A GENERAL REFERENCE REGARDING THE USE OF APPLICABLE PRODUCTS IN GENERIC APPLICATIONS. THIS INFORMATION IS PROVIDED WITHOUT WARRANTY. IT IS YOUR RESPONSIBILITY TO ENSURE THAT YOU ARE USING ALL MENTIONED PRODUCTS PROPERLY IN YOUR SPECIFIC APPLICATION. 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.

THIS GUIDE SHOULD NOT BE USED AS A SUBSTITUTE FOR OR IN LIEU OF A THOROUGH REVIEW AND UNDERSTANDING OF ALL WRITTEN INSTRUCTION AND OPERATION MANUALS AND GUIDELINES.

THE CONTENTS OF THIS GUIDE SHALL NOT BECOME PART OF OR MODIFY ANY PRIOR OR EXISTING AGREEMENT, COMMITMENT OR RELATIONSHIP. THE SALES CONTRACT CONTAINS THE ENTIRE OBLIGATION OF SIEMENS.

MODIFICATION AND OR DISTRIBUTION OF THIS CONTENT IS STRICTLY PROHIBITED.

