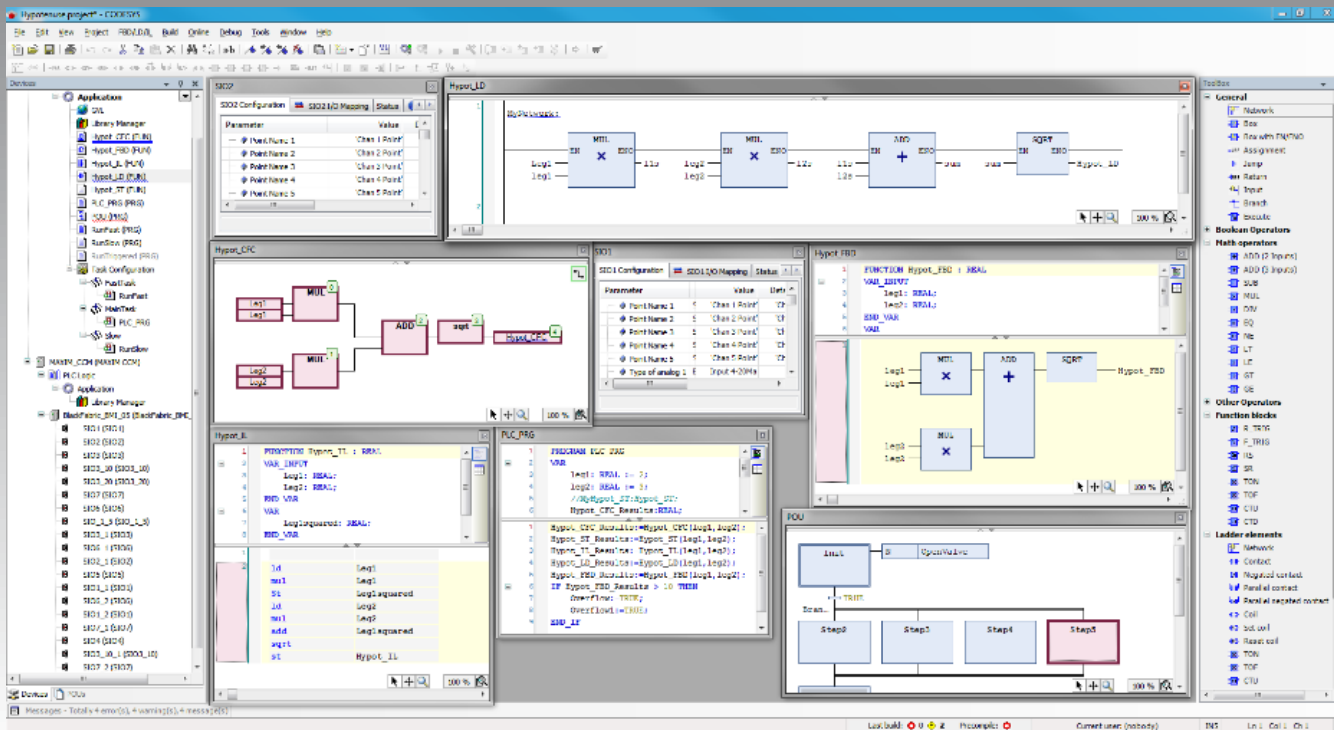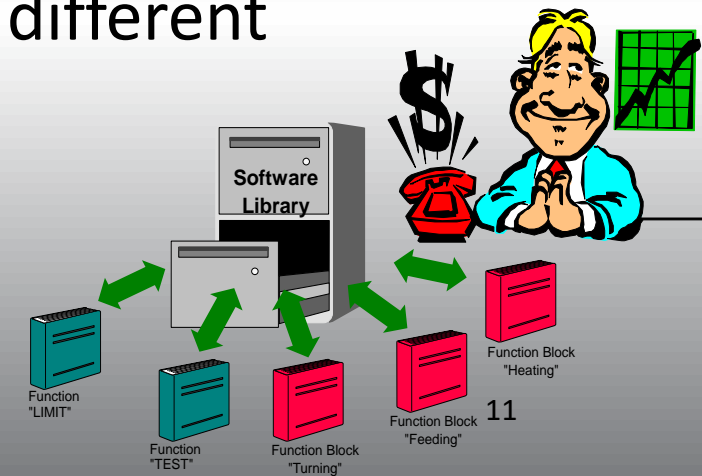# Introduction to the IDE

Bedrock IDE

- Developed from the ground up
- Modern software standards
- Easy to learn and use
- Supports IEC-61131 languages

- Zero cost to developers; download and begin coding today!
- Full-featured PLC runs on a PC
  - Develop/Simulate control code and HMI screens
  - Run fieldbus devices directly from a PC

Rev 10

Benefits of IEC 61131

- Reduced need of human resources (for training, debugging, maintenance and consultancy)

- Reduced application investment and supplier dependency thanks to software re-usability

- Better general understanding, less errors

- Programming techniques usable in more environments (general industrial control)

- Seamless combination of different components from different locations, companies, countries or projects

- Increased connectivity (investment protection)

Software Library

Function "LIMIT"

Function "TEST"

Function Block "Turning"

Function Block "Feeding"

Function Block "Heating"

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Rev 10

CODESYS Store

Components and Versioning

- Version handling
  - It is possible to have simultaneous installations of several versions of IDE components and to be working with the desired combination of versions.
  - This also pertains to the device-specific use of different compiler versions.
  - Individual functions can be added without having to update the whole version.

- Component-based structure
  - The functionality available in the user interface (editors, menus etc.) depends on the currently used components (plug-ins) defined in a profile.
  - There are essential system components (Online Manager and the Runtime System) and optional components.
  - In addition to the default 3S plug-ins, customer specific plug-ins can be created by means of the Automation Platform tool-kit.
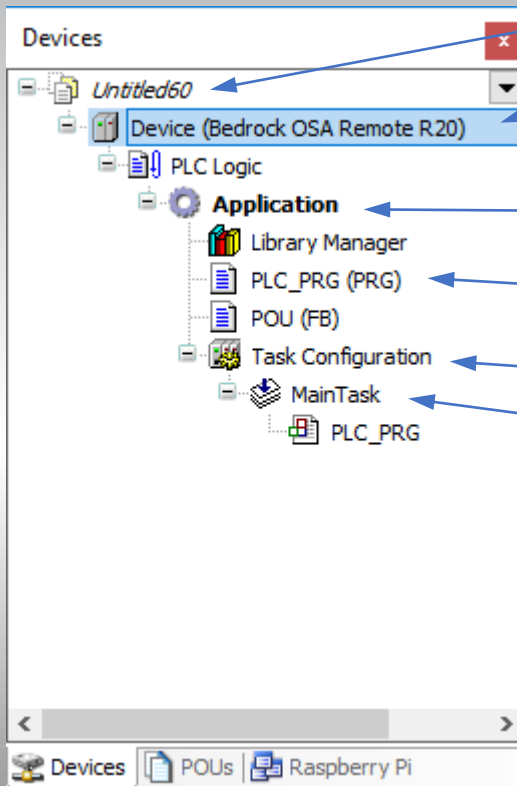
Caveat

- The Bedrock IDE is a powerful development tool with roots in widely used software tools such as Eclipse and MSDS.

- It uses a different programming paradigm than the traditional PLC programming tools that have evolved from the 1970s.

- Similar to the Bedrock Hardware, the goal of the Bedrock Software is to bring 21st century technology into the industrial control market which seems otherwise stuck in the 20th century.

- While the software is designed to make it as easy to transition from one century to the next, there is definitely a learning curve involved for Engineers transitioning from the older paradigm.

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Device Tree

- The PLC configuration is defined by the topological arrangement of the devices in the device tree.

SCC/SCS Device Tree

OSA Remote Device Tree

Project Name
(The same as the File name)

Hardware Device
(Multiple Devices Allowed, program your entire plant)

Application Name
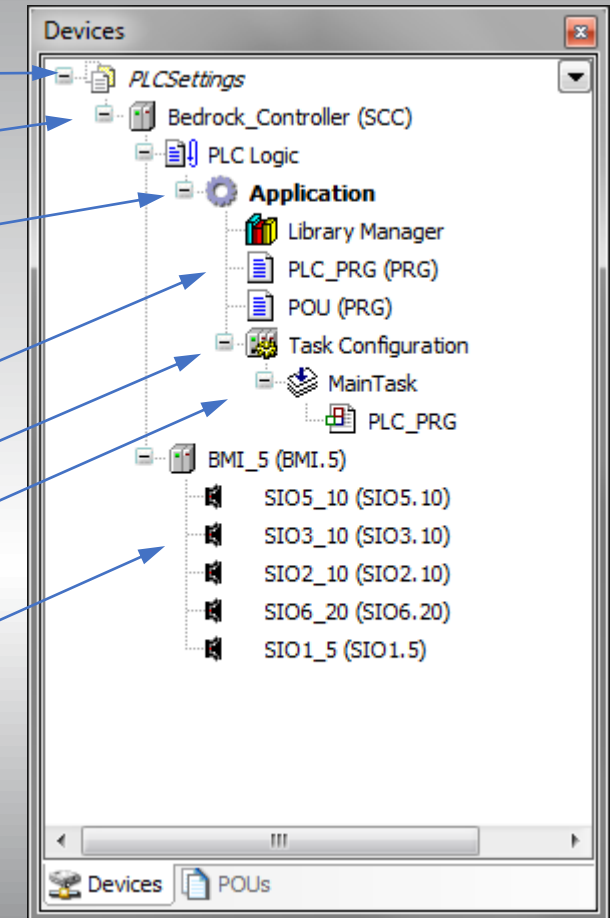(Multiple Applications Allowed)

Programs and Functions

Other Programming Objects

Program Call/Schedule

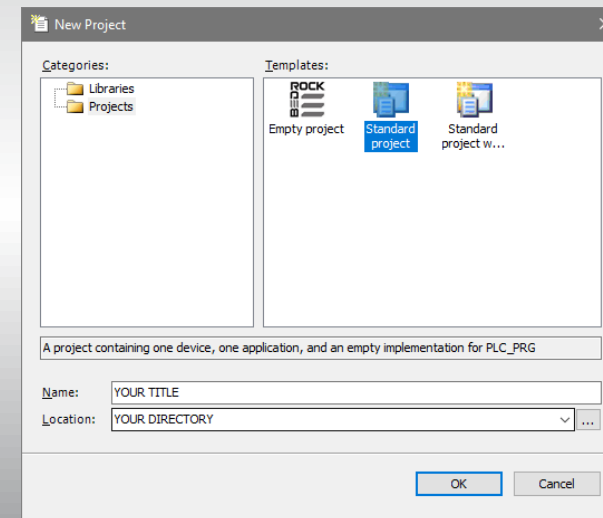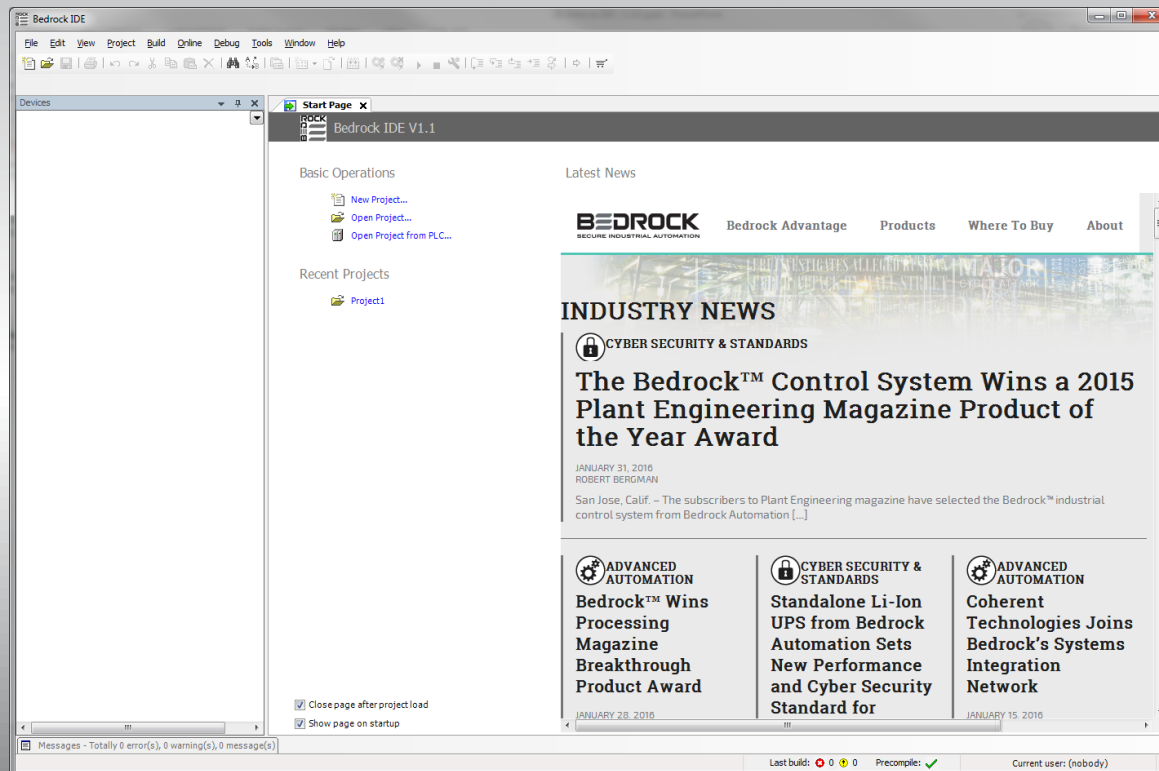**Hardware Configuration and I/O Mapping**
Note: Hardware Configuration and I/O Mapping for the OSA Remote is located within the device

Starting a New Project

- Open the Bedrock IDE
- From the start page you can start a new project, open a recent project or open a project from a file.
- When starting a new project it is best to use a standard project.

Simulator/Gateway

- Starting the simulator and gateway
  - The simulator and gateway will appear in the system tray when the Bedrock IDE is opened.
    - In the system tray right-click the Codesys logo and make sure the gateway is running (should already be running).
    - In the system tray right-click the PLC icon and select "Start PLC" <u>without a license the PLC will only stay running for two hours</u>.