



Smart design and innovative engineering software for enhanced productivity

EcoStruxure Control Expert



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EcoStruxure plant: Innovation at every level

EcoStruxure™ Control Expert* is an open, user-friendly platform that makes it easy to configure Modicon PACs so you can modify your applications and regularly adapt them to fit your dynamic customer needs. Capitalize on your software investments based on standards and reduce your engineering and commissioning time with EcoStruxure Control Expert.

EcoStruxure is our open, interoperable, secure, and IoT-enabled platform delivering enhanced value through safety, reliability, efficiency, sustainability, and connectivity. Today, EcoStruxure connects over 1 billion digital devices in more than 480,000 installations, Schneider Electric further expands the EcoStruxure platform and consolidates our position among the trusted industrial vendors. “Edge Control” layer is in the heart of our full solution EcoStruxure ecosystem with thousands of Modicon PAC/PLC systems optimizing your investments and protecting your people and your installations in the environment of the most critical industrial processes globally.

Our EcoStruxure approach facilitates the integration of our different components typically when Modicon PLC are interfering with other layers “Apps, analytics” and “Connected products”.

* Formerly known as “Unity Pro”



EcoStruxure plant: Innovation at every level

EcoStruxure™ Plant



*The Schneider Electric industrial software business and AVEVA have merged to trade as **AVEVA Group plc**, a UK listed company. The Schneider Electric and Life is On trademarks are owned by Schneider Electric and are being licensed to AVEVA by Schneider Electric.

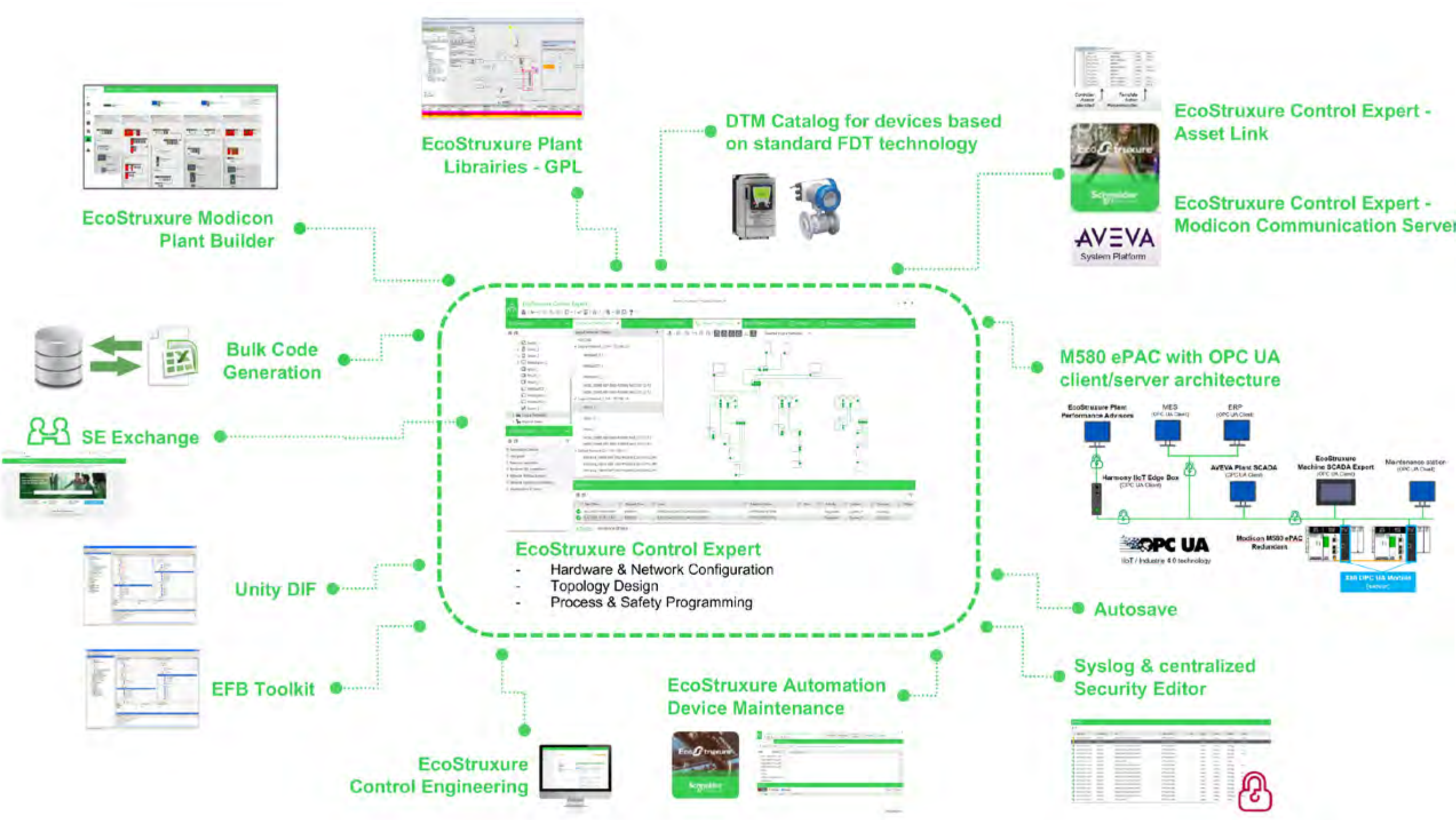


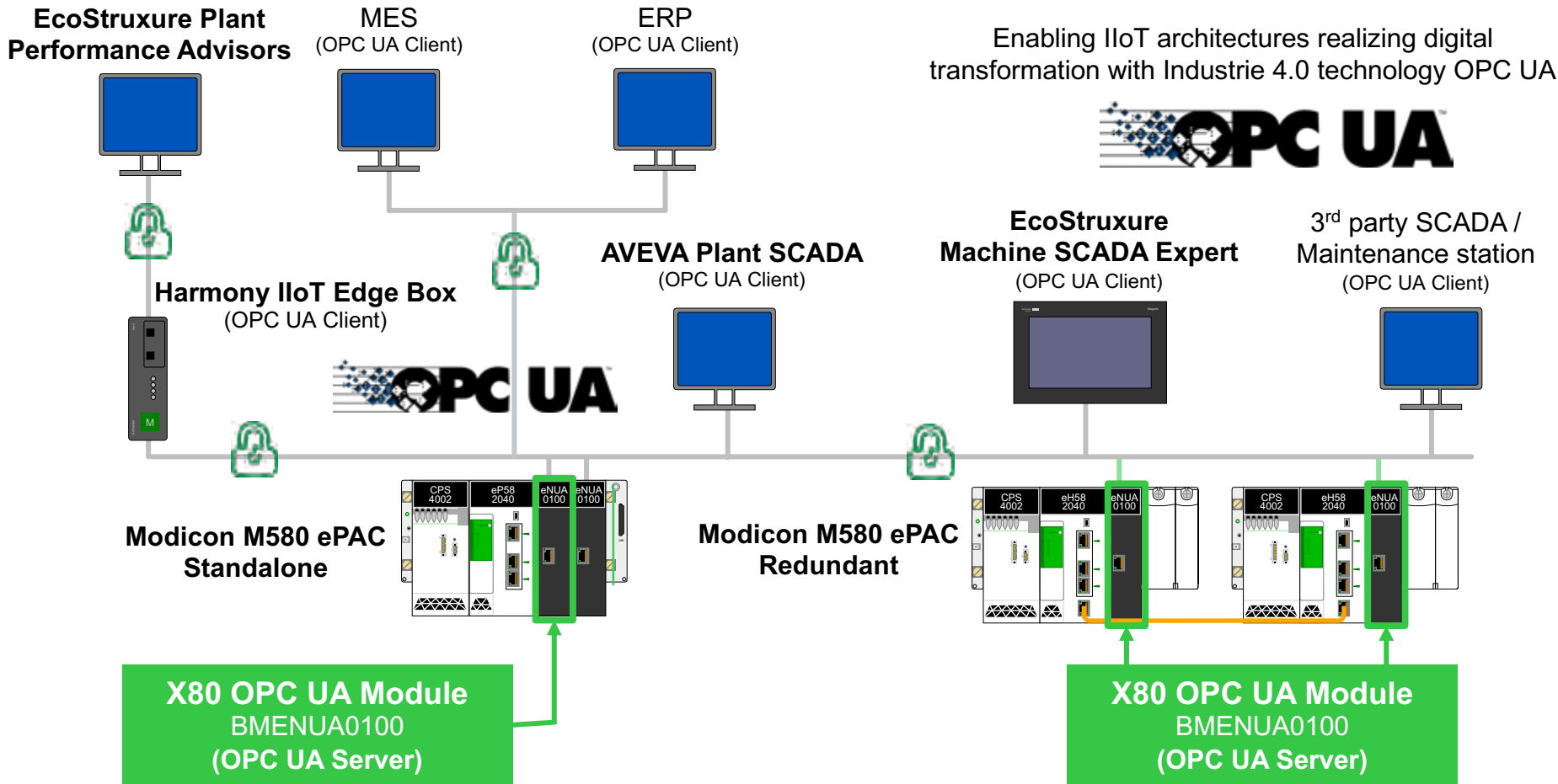
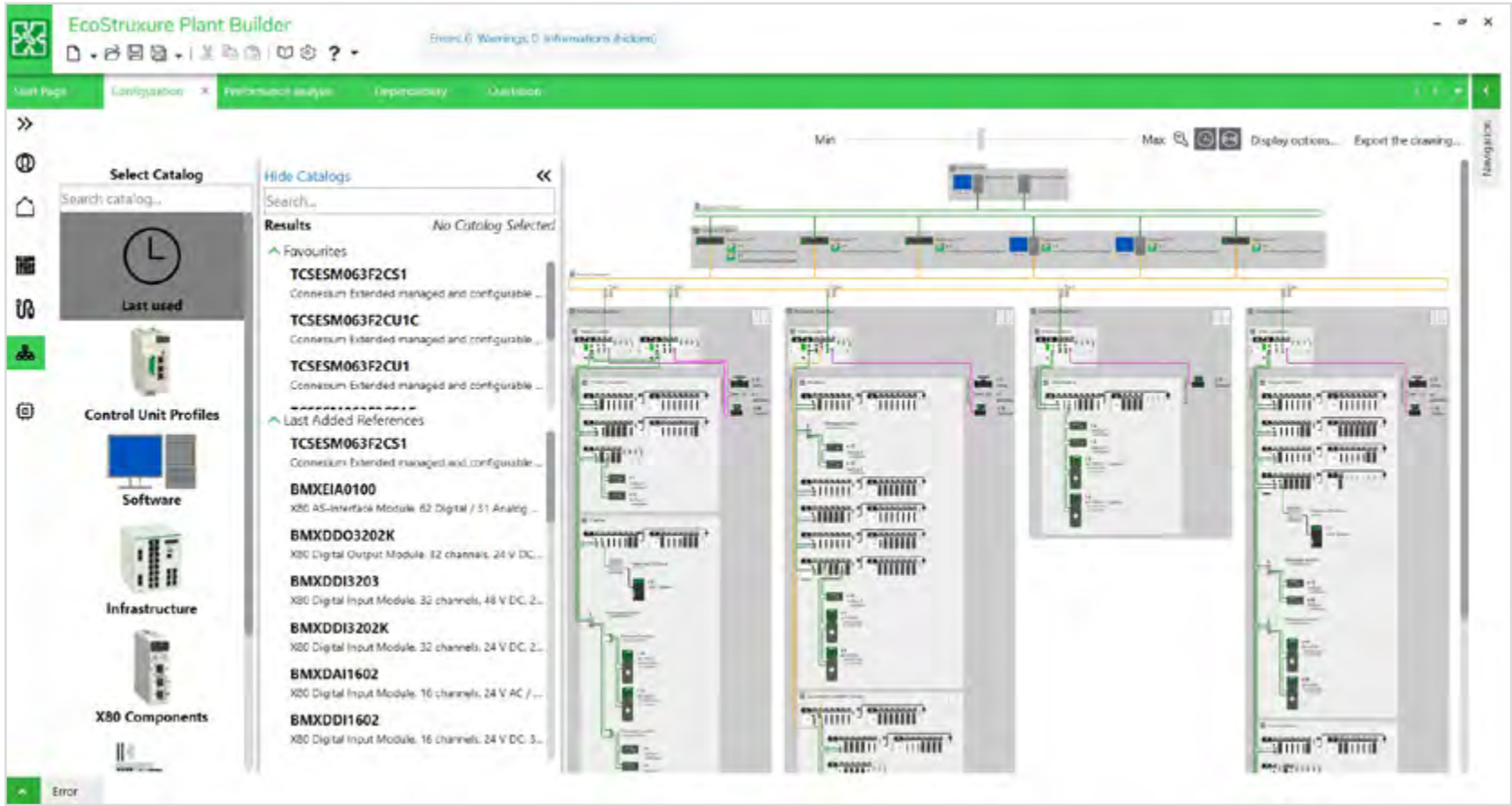
The heart of your EcoStruxure Plant solution

EcoStruxure Control Expert offers a single configuration environment for automation systems based on Modicon M340, Modicon M580 and M580 Safety, as well as Momentum, Premium, and Quantum controllers. Control Expert has more than 15 years history in the field, focused on compatibility and life cycle management. Any version of Controller is supported as well as conversion from older PLC ranges to latest generation “IIoT ready” PAC architectures.

Exchange data with other software used in your global EcoStruxure system through an **open, flexible and connected** platform, and save time by avoiding variables, program blocks or duplicate PLC configurations.

EcoStruxure Control Expert open, flexible and connected



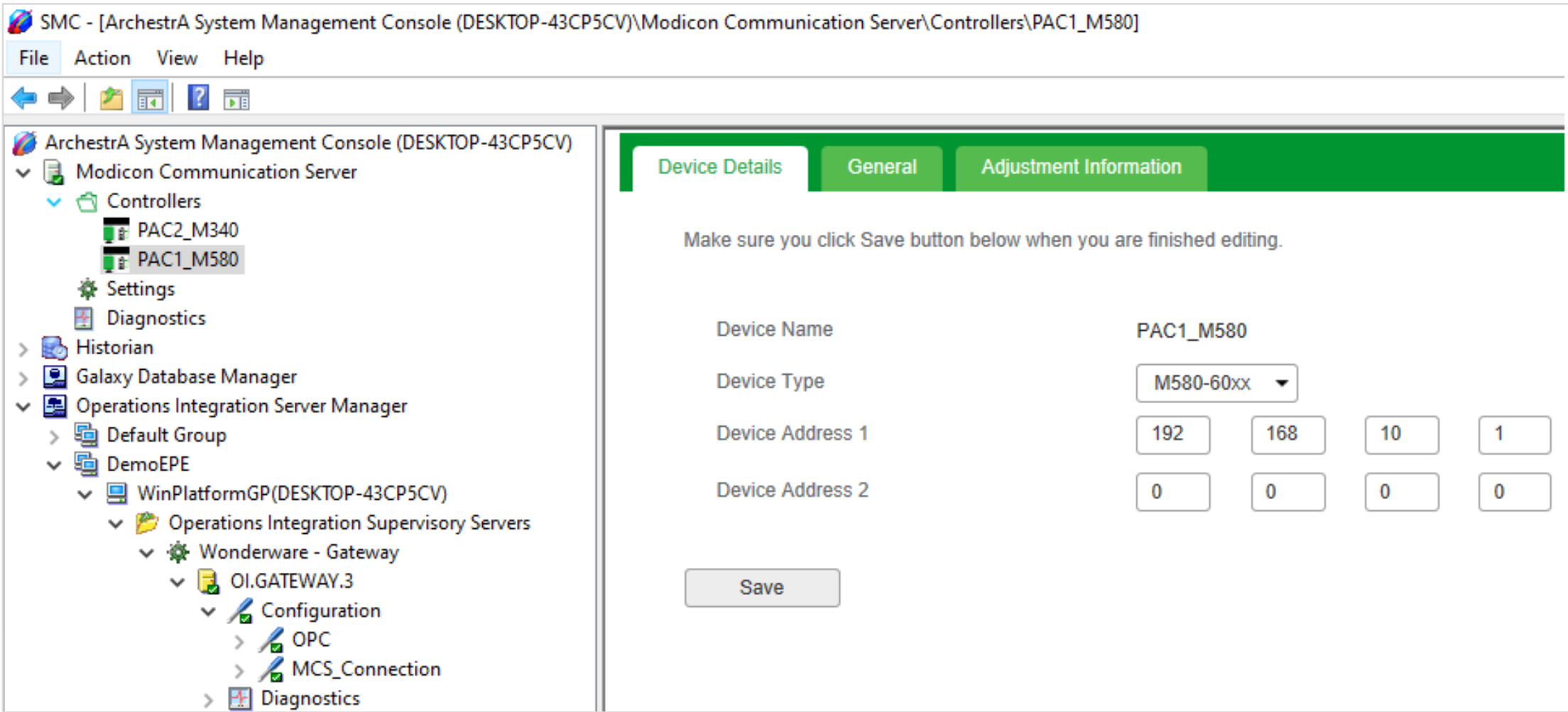
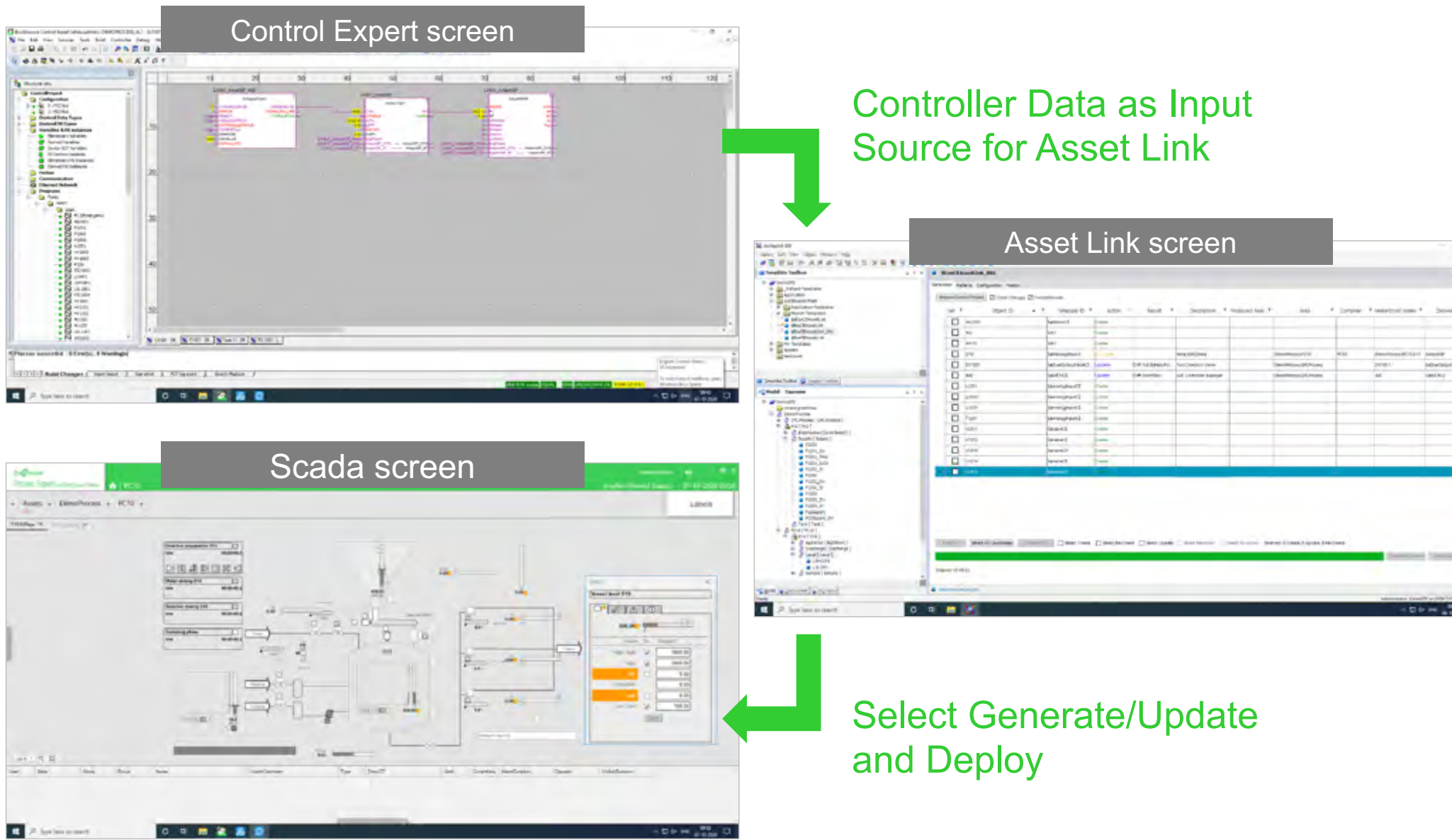


- **EcoStruxure Plant Builder** is a software tool to simplify the solution-selling process for the EcoStruxure Plant architecture, speed up the quotation process. Transition smoothly from bidding to execution by easily importing the PLC configuration created in the quotation stage into EcoStruxure Control Expert so it can be used in the execution stage, saving time.

Starting from a project specification, the tool validates the configuration to provide the appropriate Bill of Materials with pricing as well as the graphical drawing of the architecture and a project report. The Builder can also generate the EcoStruxure Control Expert configuration. The innovative performance estimator allows users to assess the system performance of their architectures in the pre-sales stage for validation or refinement.

- **OFS and EcoStruxure OPC UA Server Expert** are software tools to build a communication platform (client/server) based on OPC-DA or OPC-UA standard: EcoStruxure Control Expert makes the dynamic link to SCADA through OFS or on other systems through OPC-UA, providing better scalability from IoT devices to enterprise grade servers (link to MES/ERP). In addition, easily import/export variables declaration between PLC and HMI.

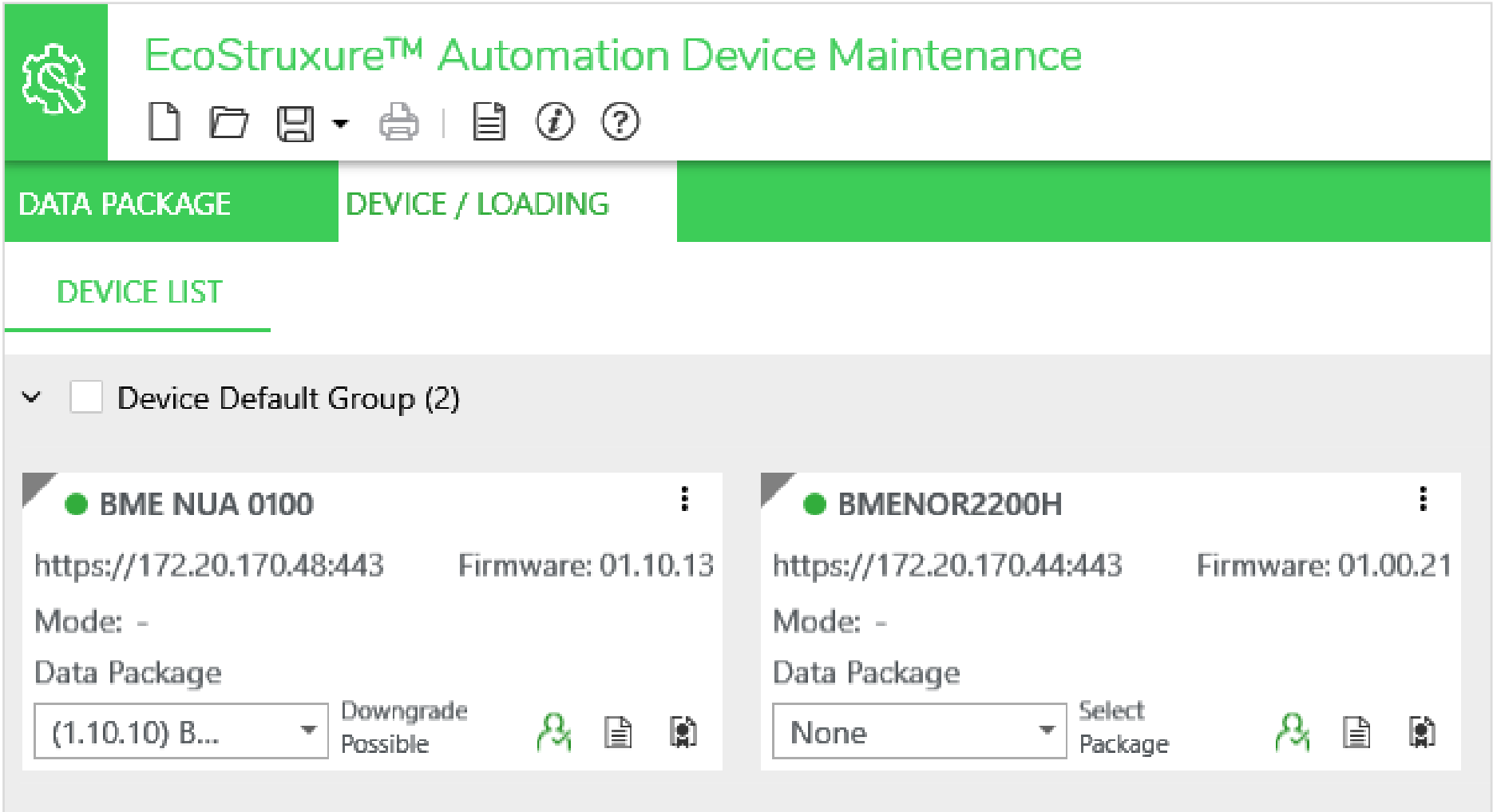
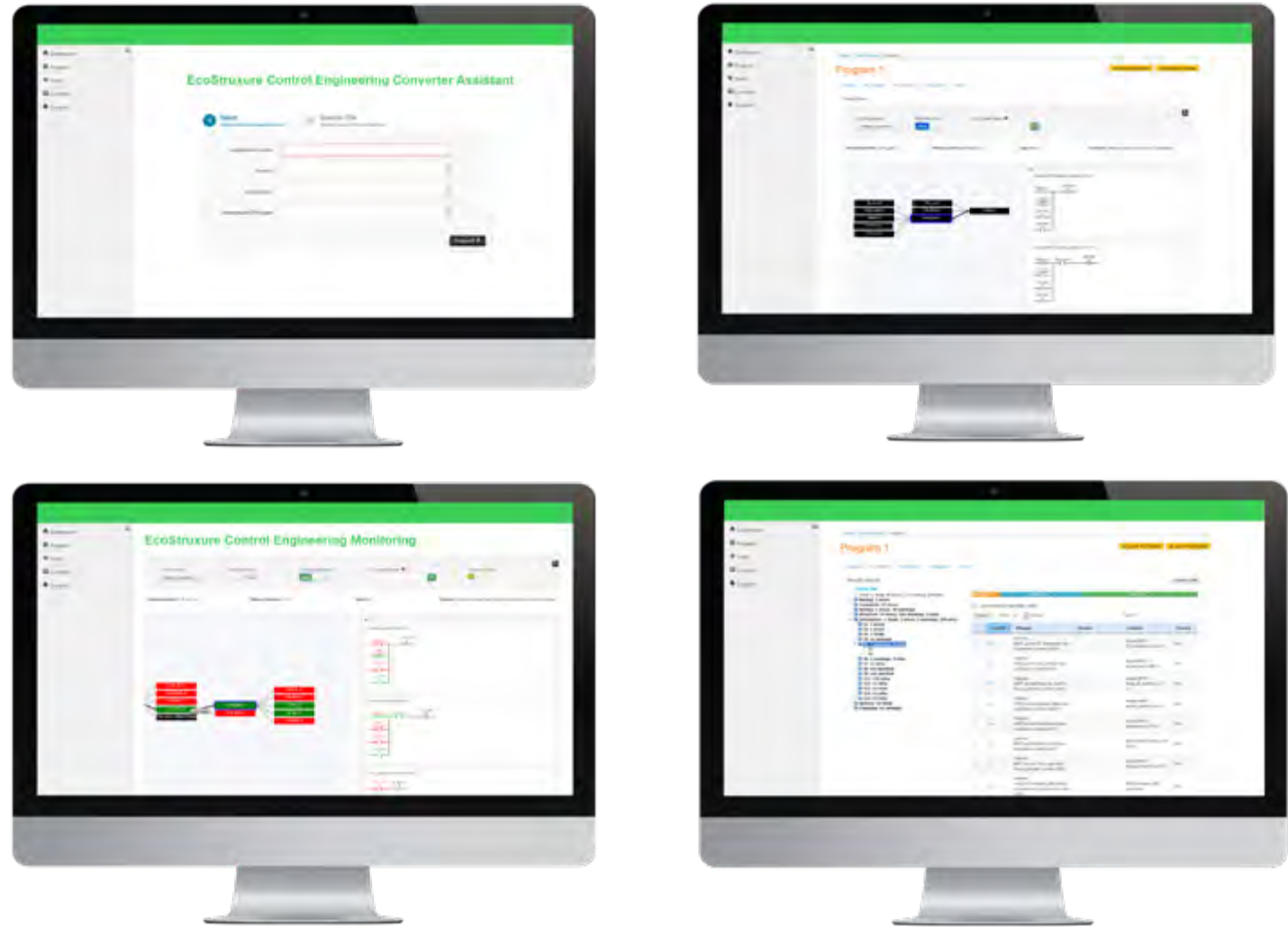




- **EcoStruxure Control Expert - Asset Link** enables user to build Control System based on lean Controller code (asset description, variable addresses, interlock comments and scaling variables) defined within the Modicon controller using EcoStruxure Control Expert replicating the configuration up to the AVEVA System Platform. EcoStruxure Control Expert – Asset Link reduces engineering efforts and inconsistencies from the Supervision project configuration to create a higher quality Control System, resulting in reduced Time to Market and Higher Revenues.

- **EcoStruxure Control Expert - Modicon Communications Server** is an approach focused on simplifying the connection of the Modicon Controllers with Aveva System Platform. The EcoStruxure Control Expert - Modicon Communication Server recognizes and resolves the users’ challenge in the Industrial IoT world to optimize and secure communication. The optimization of individual communication links based on the Controller hardware and ensuring cyber-secure links are enabled provides the user a high performance and secure control system without additional skills and training.

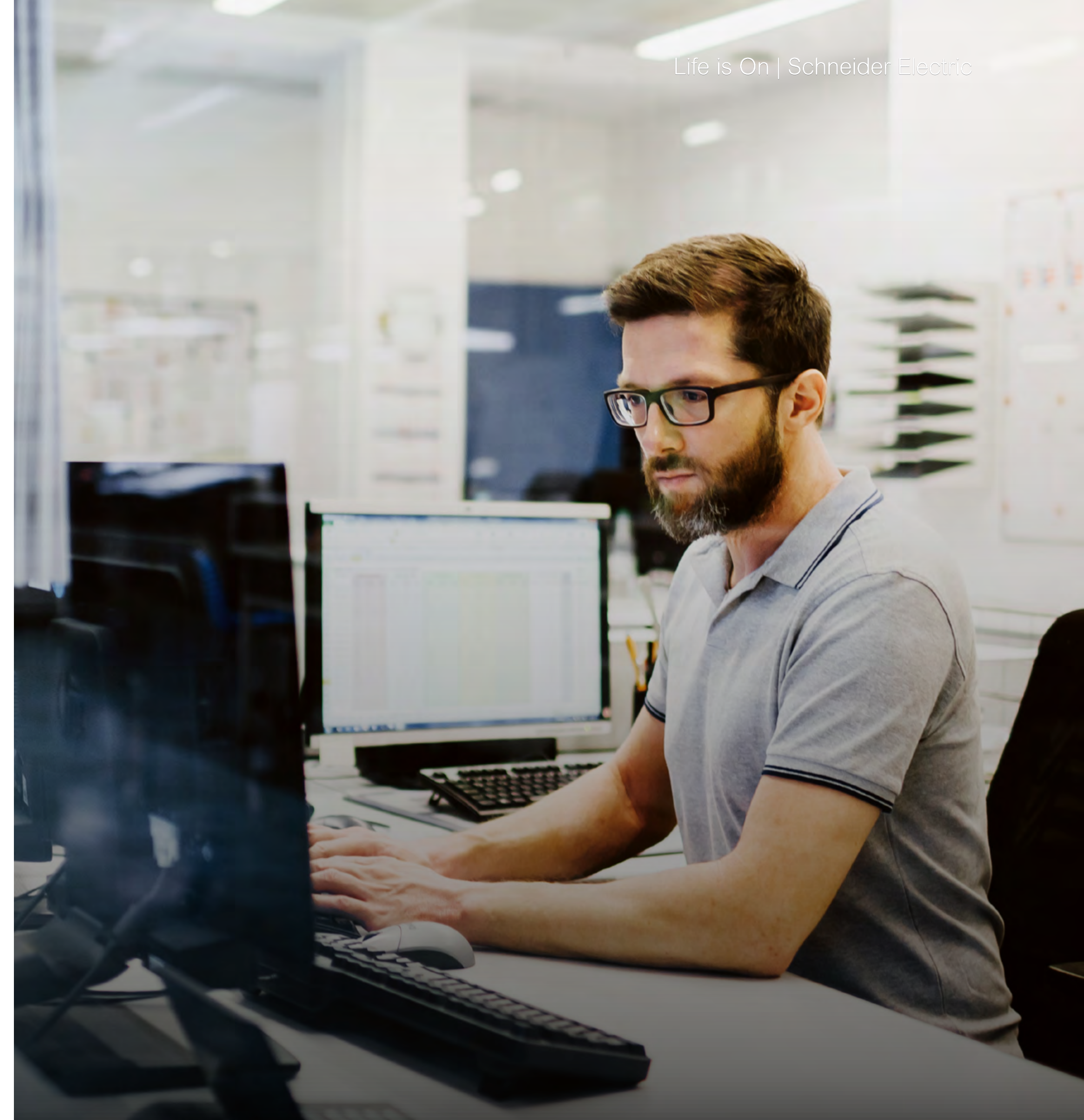




- **EcoStruxure Control Engineering:** EcoStruxure Control Engineering is a set of software engineering tools that help provide a better understanding of control programs at any stage of the application lifecycle. They complement EcoStruxure Control Expert by offering new functions such as:
 - **code verification**
 - **conversion**
 - **reverse-engineering**
 - **troubleshooting**
 - enabling users to improve program quality while reducing costs and time required
- **EcoStruxure Automation Device Maintenance** (formerly known as ‘Unity Loader’): allows to upgrade the firmware on multiple devices simultaneously with additional functions like ‘Automatic device discovery’, IP address or certificate management saving time for End User’s installed base regularly updated.



- **Unity DIF:** compares two Control Expert project files and represents the differences graphically with the similar look and feel of Control Expert so the user can easily understand the project differences.
- **Unity EFB Tool Kit:** develops your own EFB though C Language tool kit for performant code.
- **Import/Export data or program structure** (bulk code) with Third Party Process design tools.
- **Syslog and centralized Security editor tools:** Track all historic connections to PLC and modifications done in EcoStruxure Control Expert program.
- **Exchange:** platform where you may share EcoStruxure code/libraries in specific forum or download additional software tools like UDE.
 - UDE is providing capability to extend EcoStruxure Control Expert with additional services: either program the APIs provided or Import/Export XML files
 - UDE includes:
 - Developer guides and associated Help pages describing the APIs provided by EcoStruxure Control Expert
 - XML source format descriptions to use for import/export services in EcoStruxure Control Expert
- Easily integrate a device based on **standard technology FDT/DTM** as EcoStruxure Control is a 'FDT container' provided with a catalog of DTM ready to use.



Meet unique user needs

Support all user needs during the full installation lifecycle with EcoStruxure Control Expert's wide range of functions and services:

- **End User** needs

- Use a secure built in software that protect your data and give access only to authorized users
- Streamline maintenance: easily and quickly identify the root cause of defaults (PLC diag, watch dog, etc.)
- Simply modify existing applications: extend devices or I/O without stopping the process, avoiding costly downtime for continuous processes
- Easily configure devices through FDT/DTM standards (versus private protocols)
- Track modifications and log-ins for full traceability and security
- Configure PLC access parameters through a non-IT specialist for cybersecurity

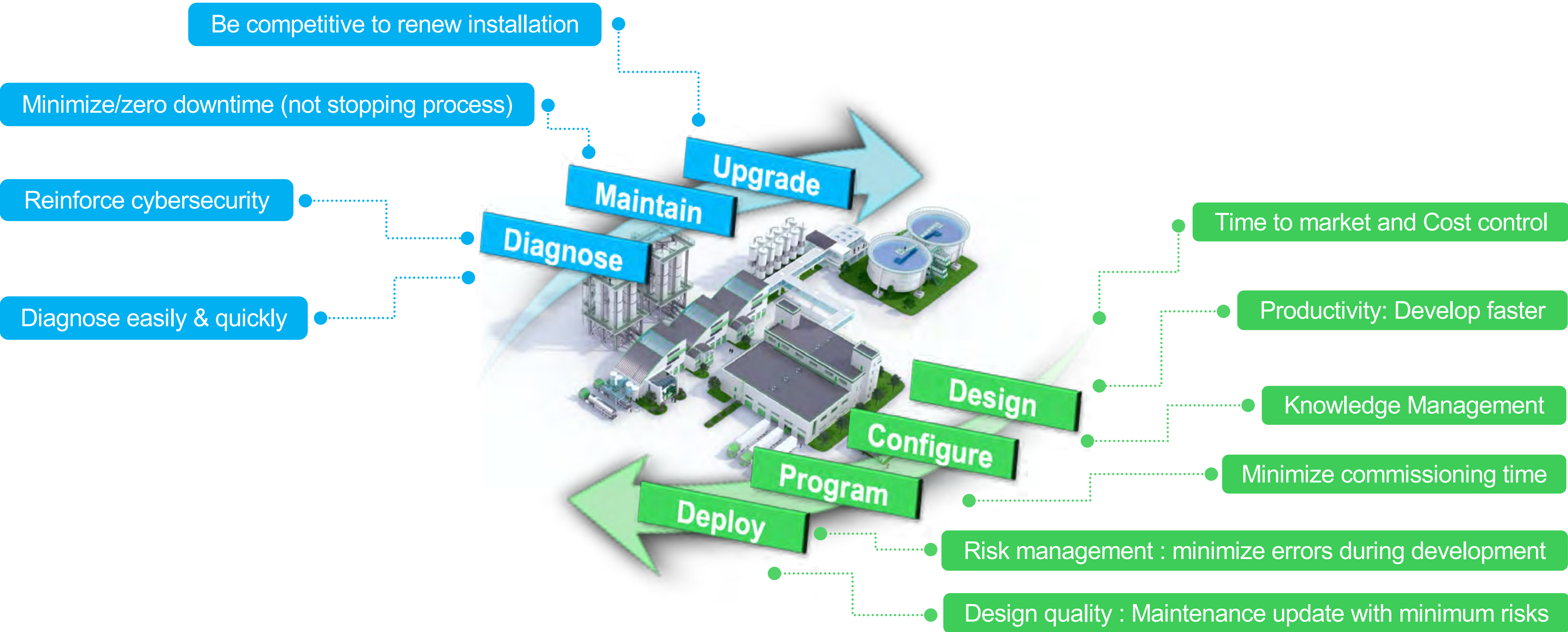
- **System Integrators** or **OEM process** needs

- Quickly and easily configure and program PLCs via an intuitive and user-friendly interface
- Reduce engineering time with fast transfer from laptop to PLC and fast building application time
- Decrease costly commissioning time by early simulation and auto-checking
- Leverage IEC1131-3 languages adapted to different needs, processes or habits
- Simplify editing with a large choice of editors including your own design tools
- Save time development (and reduce errors with safe code) with libraries of predefined functions tested, validated and ready to use
- Easily reuse your own standards to protect your know-how
- Consistently manage all devices with the same version of device libraries per project



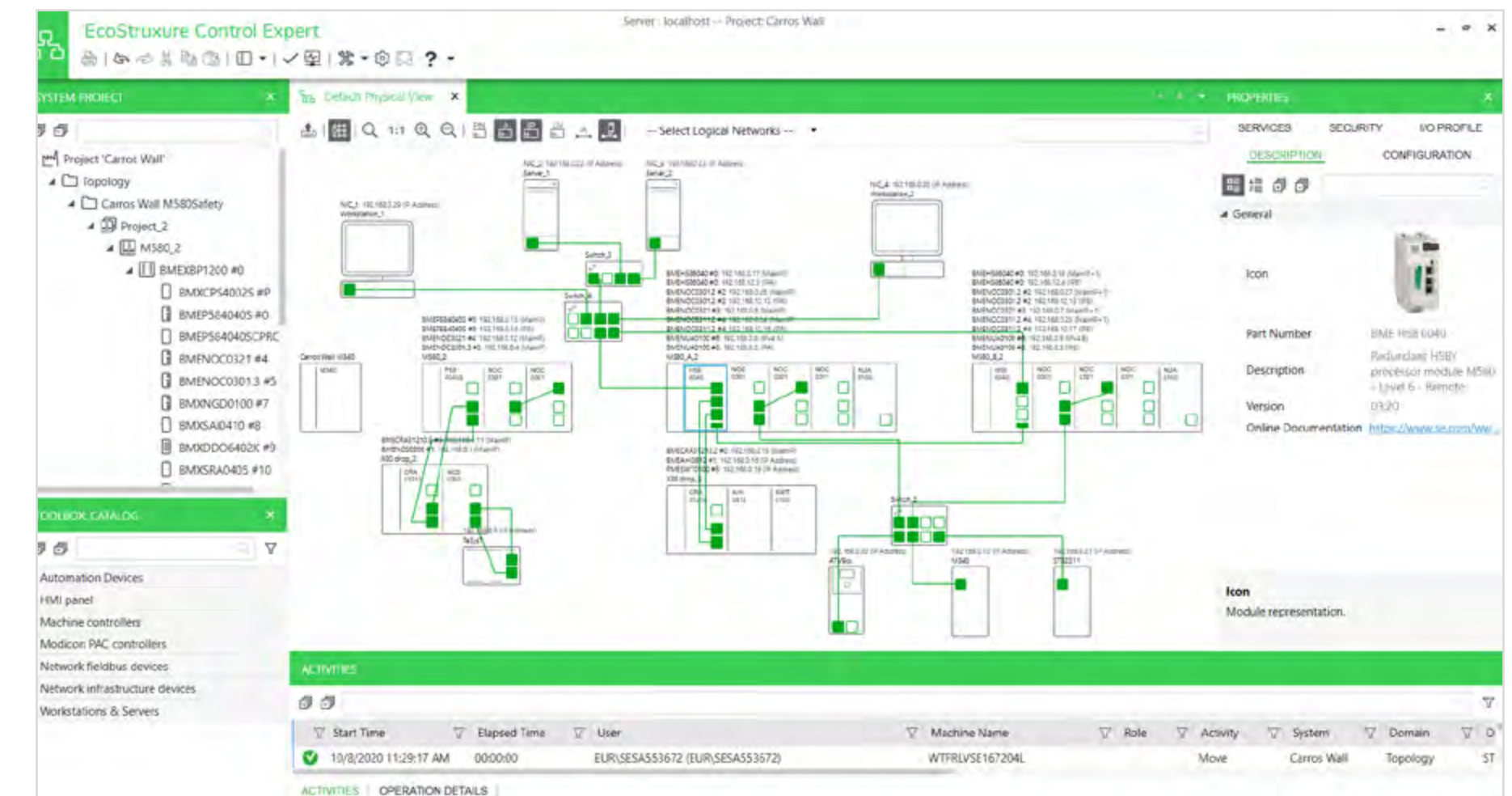
Meet unique user needs

Main stages of your project during all the cycle life of your process



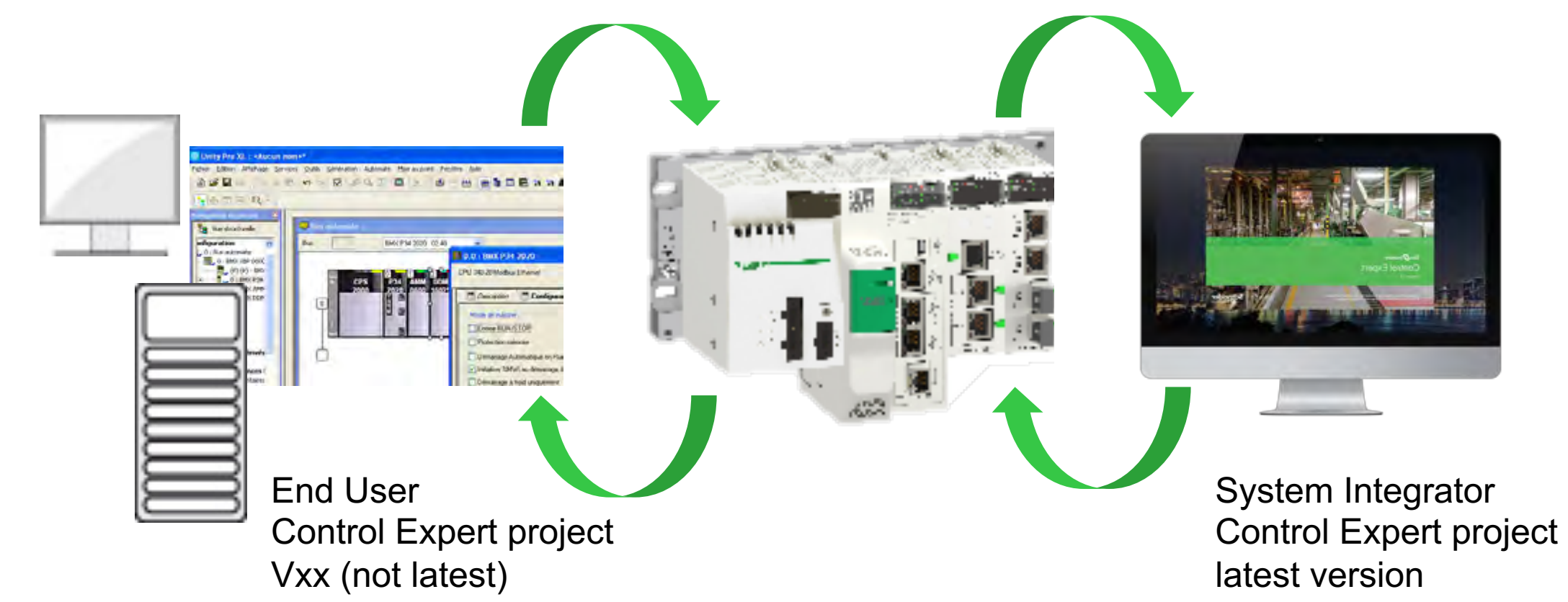
Reduce your time to market through Smart Engineering design

- **'Topology Manager'** is a multi-PAC configuration environment reducing engineering hours, commissioning and start-up time as well as the overall cost and risk of industrial automation projects. An Intuitive design workflow (drag/drop, copy/past, graphical/tree presentation) for global administration of complete architecture make your life easier. The Network consistency is checked through update of the logical network view with automatic IP address assignment allowing you to update a project easily, reducing engineering, maintenance, and total lifecycle costs.
- An **innovative client/server architecture** and central repository allow multiple designers to work in parallel for complex projects.
- Your applications are built from **standardized, pre-tested objects or libraries** saving time for elementary tests, including GPL optional libraries.
- **Improved commissioning time** by increasing operational efficiency, quality and reducing waste trough:
 - Deploy a configuration in one click
 - Animation tables
 - Operator screens
 - Ready to use Device DDTs to monitor and diagnose your system efficiently
 - Simulation mode without any hardware PLC in multiple instances

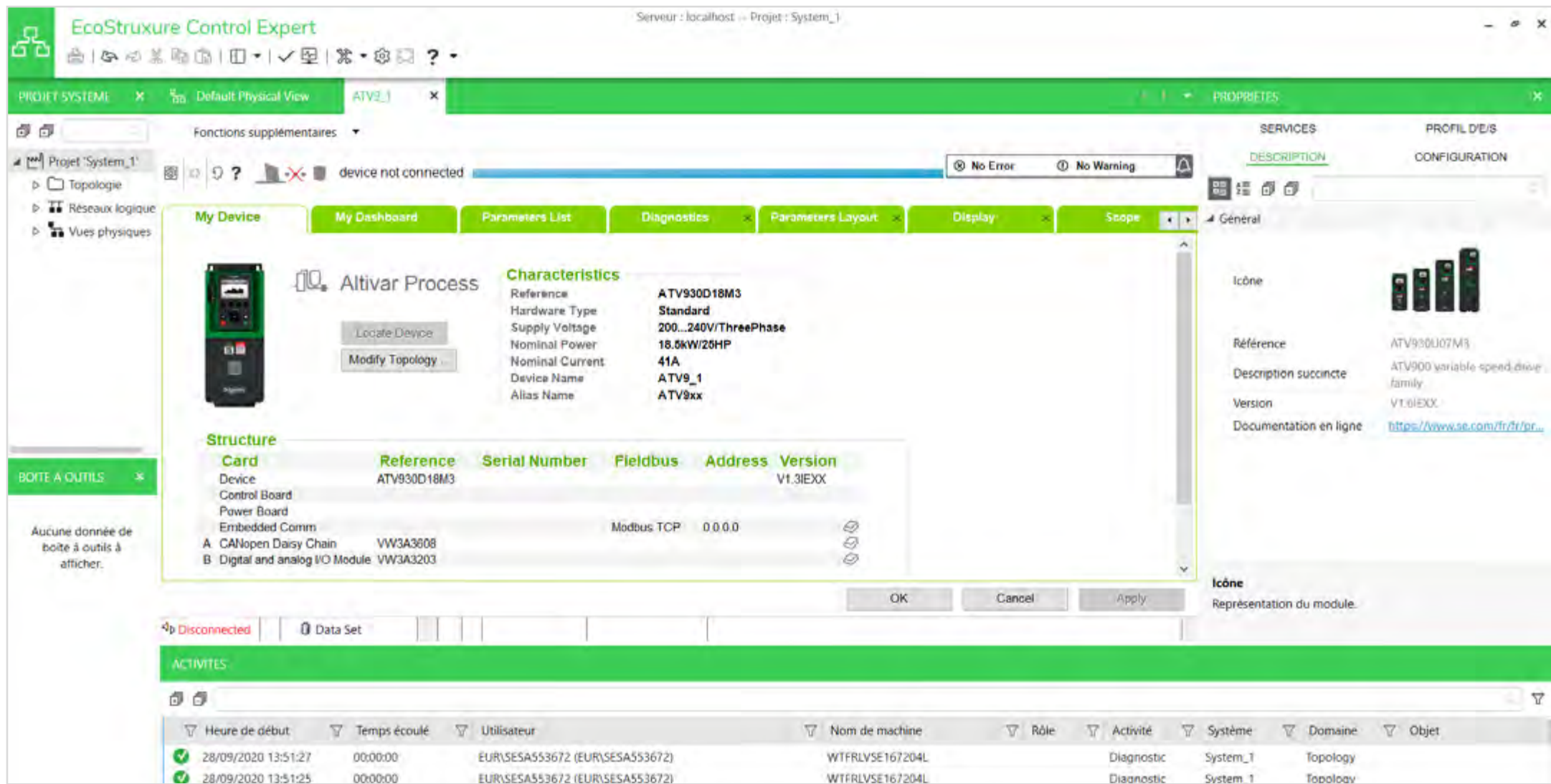


Enhance your productivity

- **Upgrade your plant** through online modifications and CCOTF (Change Configuration on the Fly) to add new devices or new hardware modules without stopping your process.
- **Maintain your plant**
 - Apply a structured program with objects/ tasks/program units and documented applications to make it easy to modify your existing PLC application.
 - Use the latest version of Control Expert to manage any older versions of Unity Pro or Control Expert project, and any versions of controllers.



- **Configure and Diagnose field bus devices** with standard DTM (Device Type Manager), as Control Expert is FDT/DTM technology container.



- **OUT of Box system diagnostics:** Integrated Global System Diagnostic feature to localize and analyze errors. The intuitive and visual interface ensures that errors are visualized easily and quickly to boost efficiency.
- **Trending tool:** The trending tool allows easy monitoring of variables by detecting operating problems or improving process performance. You can select any variable in your application and start acquisition, save records, and analyze records with integrated tools or Excel.
- **DTM Audit Tool:** Easily find the Device’s DTM you need to maintain your project.

Outil d'audit de DTM

Catalogue DTM synchronisé

Nom de l'équipement / Vendeur	Version de l'équipement dans le projet	Version de l'équipement installé sur le PC	Nom du DTM / Vendeur	Version du DTM dans le projet	Version du DTM installé sur le PC	La DTM est compatible		
BMEP58_ECPU_EXT Schneider Electric	2.9.3.0	2.14.22.0	BMEP58_ECPU_EXT Schneider Electric	2.9.3.0	2.14.22.0	✓		
BMENOC0321 Schneider Electric	2.9.3.0	2.14.22.0	BMENOC0321 Schneider Electric	2.9.3.0	2.14.22.0	✓		
BMENOC0301_2 Schneider Electric	2.9.3.0	2.14.22.0	BMENOC0301_2 Schneider Electric	2.9.3.0	2.14.22.0	✓		
Advanced Generic EDS Schneider Electric	1.10.10.0	1.10.10.0	Generic EDS Device DTM Schneider Electric	1.10.10.0	1.10.10.0	✓		
TeSys T Schneider Electric	2.8.0.0	2.13.0.0	TeSys T Schneider Electric	2.8.0.0	2.13.0.0	✓		
BMEP58_ECPU_EXT Schneider Electric	2.7.18.0	2.14.22.0	BMEP58_ECPU_EXT Schneider Electric	2.7.18.0	2.14.22.0	✓		
BMENOC0301_2 Schneider Electric	2.9.1.0	2.14.22.0	BMENOC0301_2 Schneider Electric	2.9.1.0	2.14.22.0	✓		
BMENOC0321 Schneider Electric	2.9.1.0	2.14.22.0	BMENOC0321 Schneider Electric	2.9.1.0	2.14.22.0	✓		
BMENOC0311_2 Schneider Electric	2.9.1.0	2.14.22.0	BMENOC0311_2 Schneider Electric	2.9.1.0	2.14.22.0	✓		
BME AHI 0812 Schneider Electric	1.1.5.0	1.1.9.0	BME AHI 0812 Schneider Electric	1.1.5.0	1.1.9.0	✓		
I/A Pressure S Series Foxboro	1.300.005	1.300.006	I/A Pressure S Series Foxboro	1.300.005	1.300.006	✓		
PME SWT 0100 SCAIME	01.00	01.00	PME SWT 0100 SCAIME	01.00	1.0.48.0	✓		

Quitter



Hardware portfolio

Products on active sale



Modicon M580: PAC and **Safety PLC** with built-in Ethernet for process, high availability and safety solutions, common Safety is mixing safety and process functions in order to reduce your training investments and spare parts.



Modicon M340: Mid-range PAC industrial process and infrastructure control



Modicon distributed I/O **STB** and **Momentum**



Modicon MC80: Powerful and cost-effective "all-in-one" compact controller



Hardware portfolio

Products still supported by services

Modicon Quantum/Premium legacy platforms may be also configured through EcoStruxure Control Expert. Software converters are included in the standard package EcoStruxure Control Expert for the modernization of your program from legacy Software (PL7, Concept, ProWORX) to the EcoStruxure Control Expert with the same Hardware platform, modernization of your hardware is possible through services (see next page).



Software portfolio

1. We provide different sizes

- S:** Small, limited for M340 and Momentum platforms
- L:** Large, included small + middle range CPUs of M580 platform
- XL:** eXtra Large for all Modicon PAC platforms
- Add-on safety is available with L and XL size to configure M580 safety applications: it is TUV certified
 - Add-on Topology Manager is available with XL size with or without M580 Safety Add On



2. We provide different seats per size

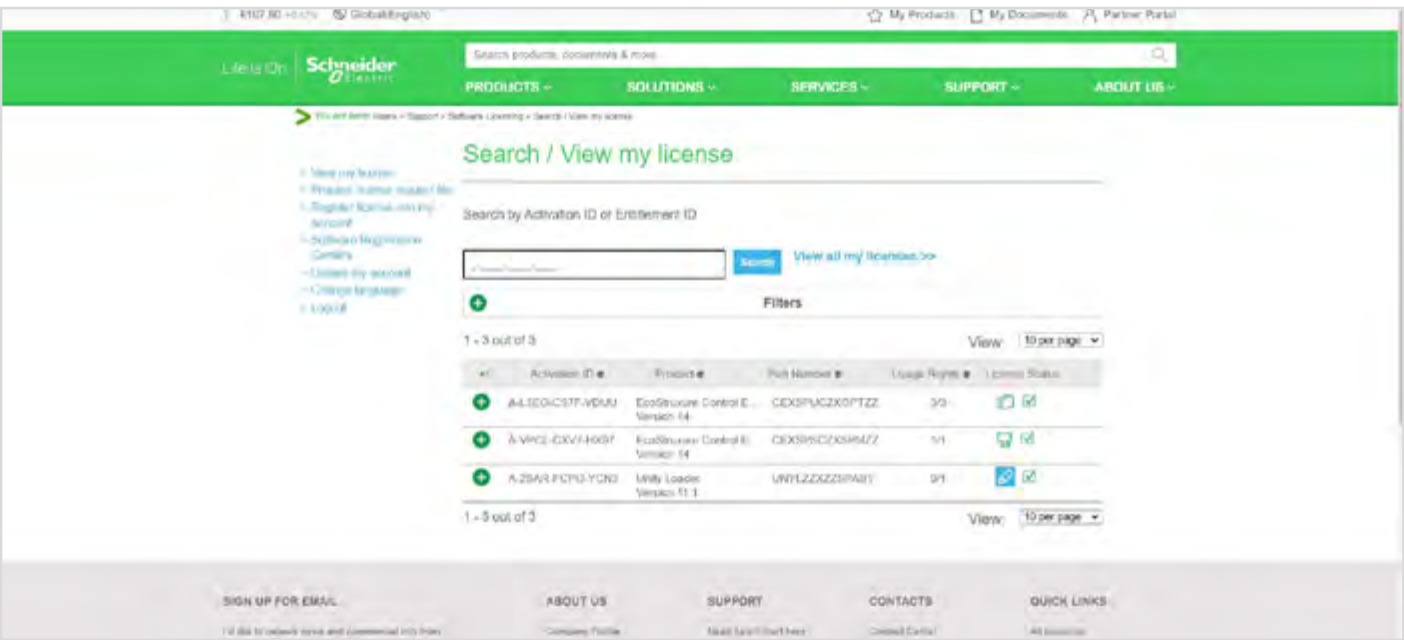
- **Single** 1 computer
- **Group** 3 computers
- **Team** 10 computers
- **Entity** 100 computers
- **Corporate** license dedicated to companies with unlimited users and worldwide locations

3. We provide different types of licenses adapted to your different needs

Easy and Secure Licensing

- **Simple Node locked licenses:**
Video ‘How to Activate and Register Control Expert with Node Locked License’ on SE YouTube channel:
<https://www.youtube.com/watch?v=0bSzFztSt7k&t=1s>
- **Floating licenses:** flexible and configurable with multi users
Video ‘EcoStruxure Control Expert: How-to Use a Floating License’:
<https://www.youtube.com/watch?v=jvQBbFYtOg0&t=61s>

Licensing Portal View



4. We provide also upgrades on seats and sizes

Software licensing portal allow user to view and manage all his licenses (who activated, how many remaining activations, and more).



Capitalize on your investments with optimized modernization

Capitalize on your software investments (without re-developing all your applications) through software converters included into EcoStruxure Control Expert, facilitating the modernization of your installed base with our legacy platforms Modicon Premium and Quantum managed with PL7/Concept/ProWORX software.



With our smooth migration paths, **you will save most of 50% of your conversion efforts** to upgrade obsolescent technology. Service activity may provide additional powerful tools, for a full modernization of PLC legacy hardware managed with Unity Pro/ EcoStruxure Control Expert program to our latest technology Modicon ePAC M580.

Unity M580 Application Converter (UMAC) simplifies the process of upgrading Unity/Control Expert Premium and Unity/Control Expert Quantum applications to EcoStruxure Control Expert M580 with the following benefits:

- Reduced time for application conversion
- Better quality of converted applications
- Reduced testing time
- Faster availability of a fully functional application inside M580

UMAC complements the EcoStruxure Control Expert embedded converters (PL7 Pro, Concept,etc) with 2 versions:

- The Lite version brings the original Quantum and Premium applications in the M580 world while retaining the local and remote I/O configurations as well as the application logic.

- The Standard version adapts the M580 applications appropriately to take care of topics such as replacement of I/O, automatic translation of Ethernet I/O scanner to DTMs, alignment constraints and any unsupported functions and descriptors etc.

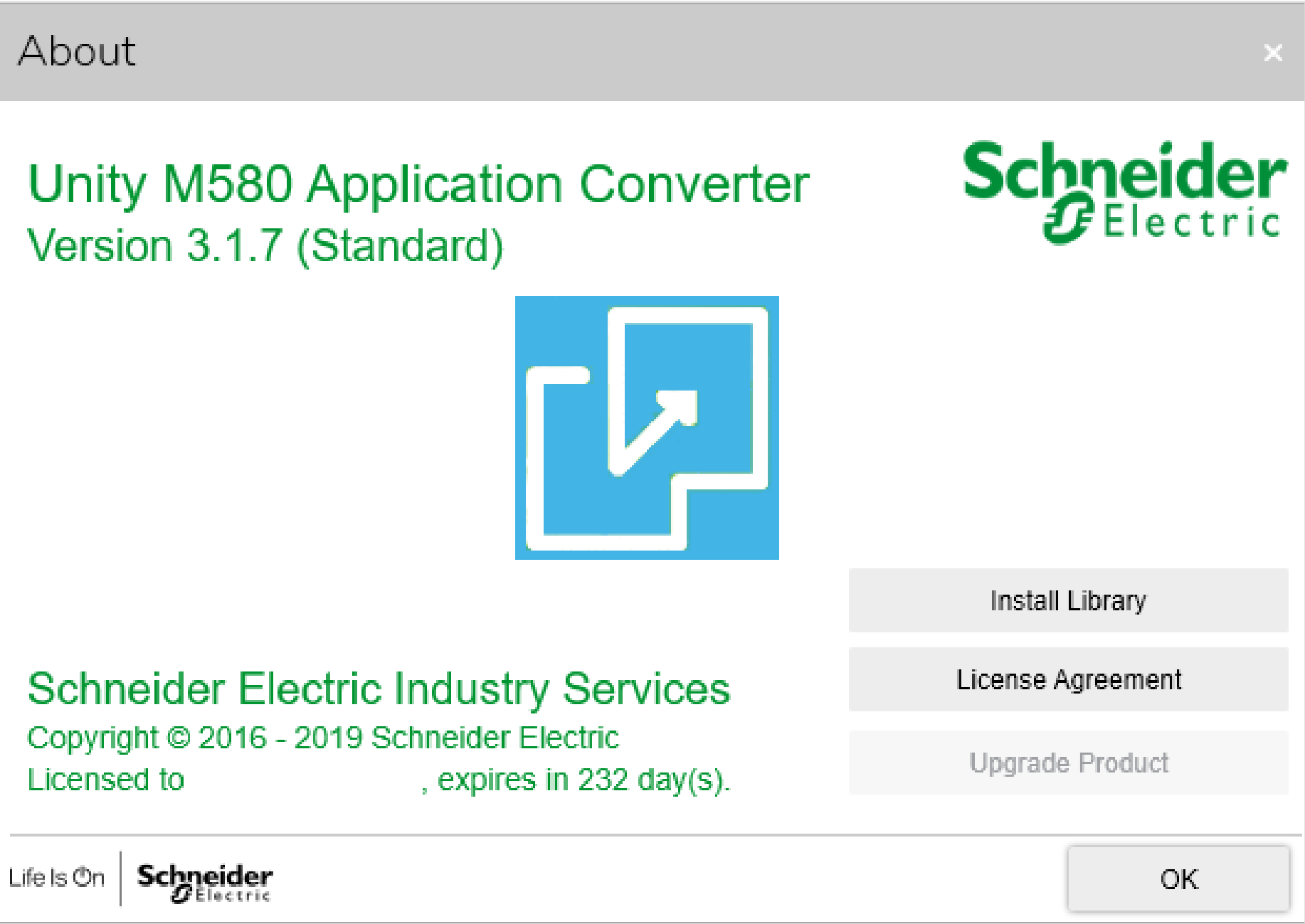
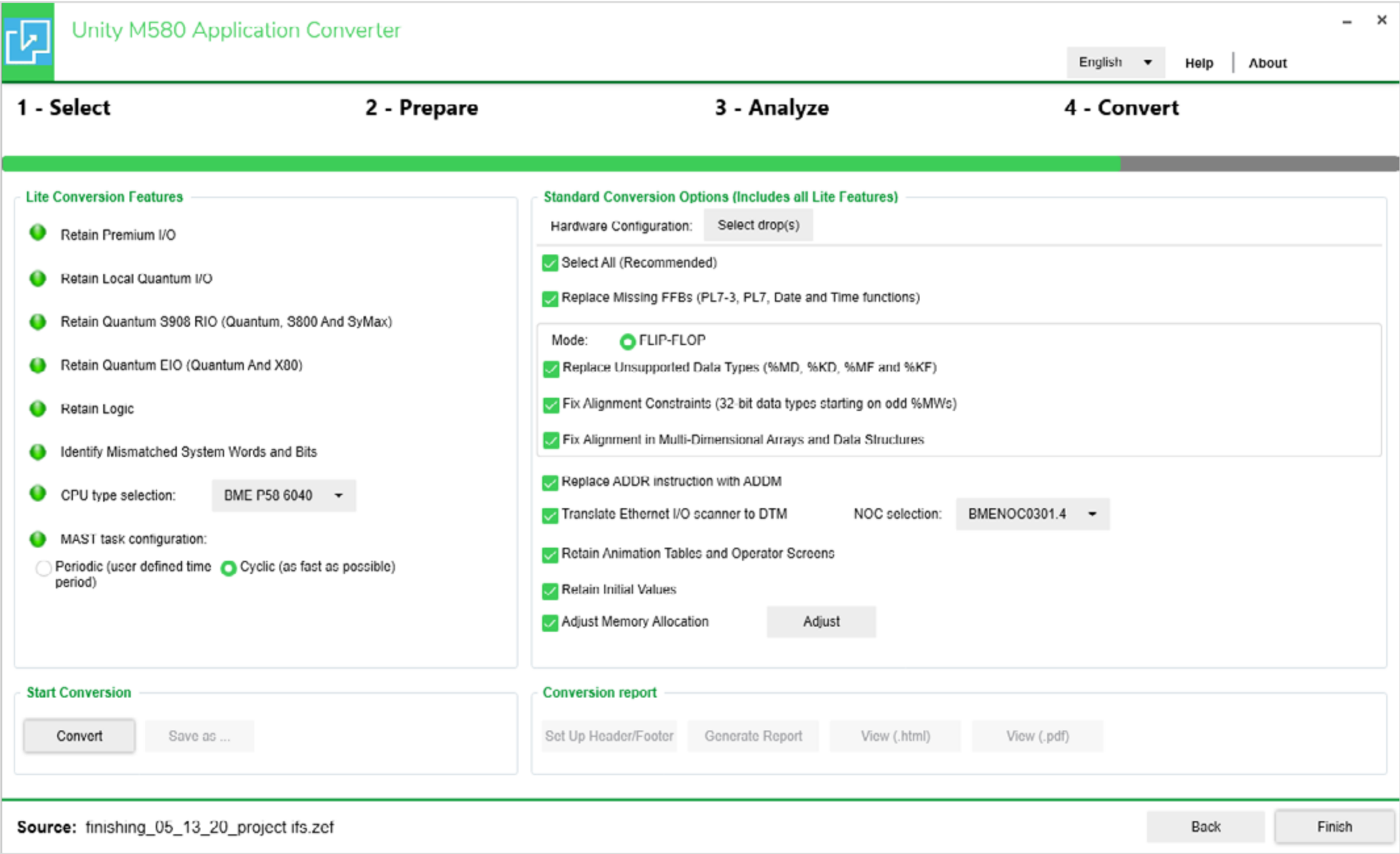
UMAC also provides an Evaluation Report, an estimation of the conversion labor saved using the tool, and a conversion report that lists the modifications brought to the application.

UMAC Lite version is available to anyone and requires registration on the Schneider Electric Software Server. UMAC Standard requires an activation code and the availability is restricted to users with Customer Support Plans, or registered partners.



Capitalize on your investments with optimized modernization

Converter from Quantum/Premium ECE code to M580 ECE code



Secure environment and cybersecurity: don't compromise!

And easily accessible to non-IT experts

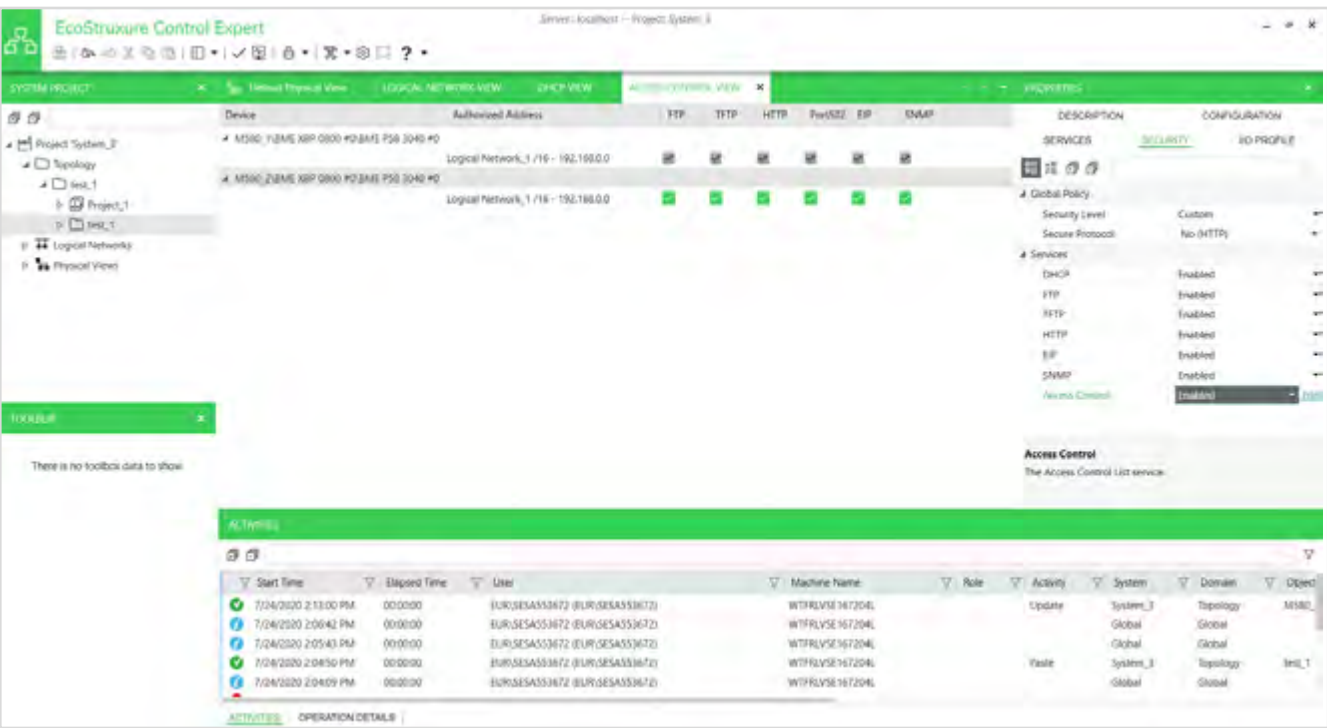
The security of your process and applications is essential to avoid costly downtime and protect your know-how. You have different levels of firewall and protections.



- EcoStruxure Control Expert protects the “Edge Control” layer by assigning different levels of passwords (process, safety, DFB) at the PLC application.
- Also configure cybersecurity parameters of Ethernet ports of CPU/Ethernet modules that can be **easily done by Automation staff**.

- To protect the data into Modicon PAC M580 and M340 controller against any unauthorized access, Data Memory Protect is easily configurable for each data.
- As you need to trace changes in program and manage easily multiple users' rights, Topology Manager implements a Centralized Security Editor with Easy to configure Access Rights defined centrally, providing a reliable and detailed logging journal with all updates from LD or FBD Editor.

Easy configuration of cybersecurity parameters into EcoStruxure Control Expert



As cybersecurity is a global approach, we suggest referring to:

- Our TVDA ‘Reduce Vulnerability to Cyberattacks in an M580 Functional Unit’
- Our STN ‘EcoStruxure Security Architecture’
- Our ‘Modicon PAC Cyber Security guide’



Helpful links

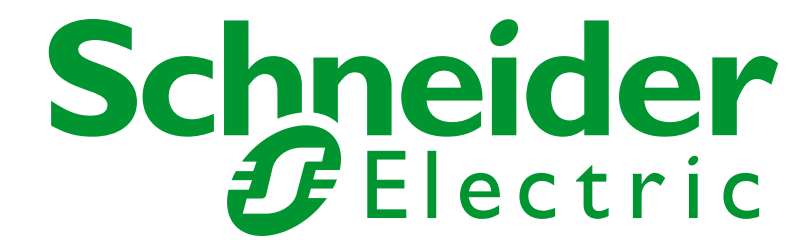
- Learn more about EcoStruxure Control Expert with the product finder tool here:
<https://www.schneider-electric.com/en/product-range/548-ecostruxure%E2%84%A2-control-expert/?filter=business-1-industrialautomation-and-control>
- Access to the full software catalog:
https://download.schneider-electric.com/files?p_Doc_Ref=MKTED2140504EN
- **EcoStruxure Control Expert** how-to playlists ('Create New Project (M580, Modbus, ATV6x)', 'Import existing project in Topology Manager', 'Multi-Users Demonstration'):
 - EcoStruxure Control Expert:
<https://www.youtube.com/playlist?list=PLa7UGrWOTyjmmdyweOFrYny3ZKwq1DbBC>
 - EcoStruxure Control Expert how-to tutorials:
<https://www.youtube.com/playlist?list=PLa7UGrWOTyjn6sMvM9glyle22WlxIVVOr>
- Exchange platform:
<https://exchange.se.com/>
- Modicon PAC Exchange Forum:
<https://community.exchange.se.com/t5/Modicon-User-Group/bd-p/modicon-user-group-forum>

Abbreviations used into this document:

- EcoStruxure Control Expert was formerly known as “Unity Pro”
- OFS: OPC Factory Server
- OPC: Open Platform Communication
- OPC-DA: Data Access
- UA: United Architecture
- MES: Manufacturing Execution System
- ERP: Enterprise Resources Planning
- TVDA: Tested Validated Document Architecture
- STN: System Technical Note



Life Is On



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