

# VIRTUAL COMMISSIONING SOLUTION

**A realistic and intelligent virtual environment for Control Engineers  
to debug and validate PLC Programs**

## Overview

**What is Virtual Commissioning?** Virtual Commissioning allows the debugging of the code on an actual Programmable Logic Controller (PLC) that will be on the shop floor, weeks or months before the integration of all the devices from tooling, robots, clamps, safety devices, electrical, hydraulics and pneumatics on the shop floor occur.

By building a virtual environment in DELMIA Virtual Commissioning solutions that is the exact reproduction of a production cell, a control engineer will be able to see this virtual cell come to life as it interacts with the PLC. DELMIA Virtual Commissioning solutions can save weeks in the debugging process by enabling the user to setup workcells with smart devices and link the logical behavior for those devices or machines in the workcell to validate them before commissioning on the shop floor.

**Building an intelligent virtual environment.** DELMIA Virtual Commissioning solutions offers easy-to-use smart device building tools with SMART DEVICE BUILDER, to quickly prepare the digital Environment for Virtual Commissioning. It enables the engineer to build and validate a library of mechatronic smart devices and to capitalize Virtual Commissioning knowledge for better productivity.

Once the digital environment is established, SMART DEVICE BUILDER's reusable Smart Devices allows any company to build

a library of smart devices that describes the behavior of a device and continues to use that device "as is" on future projects. This means less time spent in building the virtual environment while simultaneously using pre-validated components.

**Test, Validate, and debug your system before physical commissioning.** DELMIA Virtual Commissioning solutions allow the control engineer to leverage the virtual model of the machine or cell to explore different "what if?" scenarios that are otherwise very difficult to validate. What if one robot is running slow? What happens when the line transitions from product A to product B? How will the system react to an operator hitting the emergency switch, and how the machine will start again after the emergency stop to resume full production rate? -- Weeks before integration of all components and systems occur, the control engineer can test all fault conditions, saving costly down time once the system is in production.

In addition to testing and debugging the PLC code, DELMIA Virtual Commissioning solutions allows the engineer to perform a virtual integration of all devices and check the engineering in the different disciplines. Are the hydraulic, pneumatic and electrical systems complete and properly defined? During Virtual Commissioning, errors such as a device not being grounded in the schematics can be identified and corrected.

## Questions to ask Yourself to Address Your Manufacturing Challenges

Do you always meet your ramp-up to line rate schedules on new production systems?

Are your delays in the schedule due to the first build?

Are your delays in the schedule due to tear down and shipping?

Are your delays in the schedule set-up time and re-debug on the shop floor?

Do you have delays in the schedule of new production systems in engineering?

What is the time and cost involved in training line operators?

### What is the answer to your challenges? DELMIA Virtual Commissioning solutions!

*DELMIA Virtual Commissioning solutions are offered in two levels of implementation.*

DELMIA SMART DEVICE BUILDER is used to setup and prepare the 3D digital Environment for Virtual Commissioning. It enables to build and validate a library of mechatronic smart devices. It also includes the Run Time Environment for Virtual Commissioning.

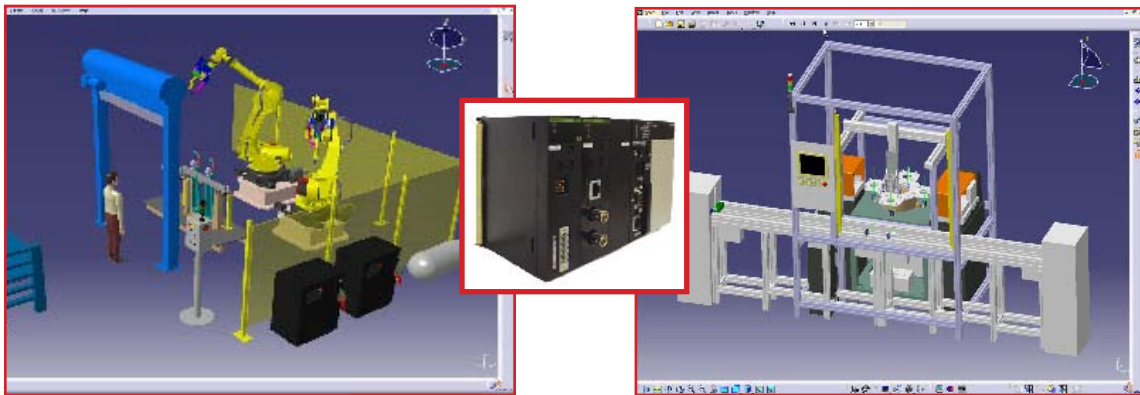
DELMIA VIRTUAL COMMISSIONING is a RunTime Environment used by Control Engineers to connect a PLC for Virtual Commissioning activities.

## Key Functionality

- Validate all diagnostic codes without being on the shop floor
- Visualize and validate the process, driven by the PLC code prior to integration
- Validate as many “what if?” scenarios as needed and fully debug controls
- Test production and failure conditions
- Build and validate a library of mechatronic smart devices
- Train operators to handle all of the “what if?” scenarios

## Benefits

- Work with any PLC on the market such as Schneider, & Omron, Rockwell Automation
- Ease-of-use allows a wider range and adoption of the technology
- Helps achieve a significant reduction in risk and start-up time
- Provides virtual production training with simulation
- Review safety aspects in a virtual 3D environment
- Reduce cost of ramp-up support during commissioning



*Effectively commission your PLC code in a 3D virtual environment.*

*See your virtual cell come to life as it interacts with actual PLC hardware, saving valuable engineering time debugging and validating your PLC code.*

**For more information on DELMIA, visit our website at [www.delmia.com](http://www.delmia.com)**

### About Dassault Systèmes:

As a world leader in 3D and Product Lifecycle Management (PLM) solutions, Dassault Systèmes brings value to more than 100,000 customers in 80 countries. A pioneer in the 3D software market since 1981, Dassault Systèmes develops and markets PLM application software and services that support industrial processes and provide a 3D vision of the entire lifecycle of products from conception to maintenance to recycling. The Dassault Systèmes portfolio consists of CATIA for designing the virtual product - SolidWorks for 3D mechanical design - DELMIA for virtual production - SIMULIA for virtual testing - ENOVIA for global collaborative lifecycle management, and 3DVIA for online 3D lifelike experiences. Dassault Systèmes is listed on the Nasdaq (DASTY) and Euronext Paris (#13065, DSY.PA) stock exchanges. For more information, visit <http://www.3ds.com>

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