T40 - What's New in Connected Components Workbench™ Software?
Agenda

What is Connected Components?

Connected Components Workbench™ Software

What’s in Release 10?

What’s New in Release 11?

What’s Coming in Feature Pack Release 11?
Simpler, Faster, More Cost-effective Machine Building

- Enabled by Micro800® controllers, PowerFlex® Drives, PanelView™ 800 graphic terminals, Guardmaster® 440C-CR30 Software Configurable Safety Relay, SMC™ Soft Starters, Kinetix® 3 Servo Drives, GuardShield™ 450L-B Safety Light Curtain
- Connected Components Workbench™ software (CCW) is the single software that simplifies standalone machine development by programming all your products with one software
- Connected Components Accelerator Toolkit (CCAT) makes it quicker and easier to implement common control tasks – Reduce your design time by up to 50%
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Connected Components Workbench™ Software

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Connected Components Workbench™ Software
Single Software for All Your Component Devices
Connected Components Workbench™ Software

**Lower the Cost to Design, Develop and Deliver Your Machine**

- **Easy to Configure**
  - Single software package for all your essential components reduces time to create and maintain your machine design
  - PowerFlex® drive wizards make configuration easier
  - Guardmaster® software configurable safety relay editor makes safety logic intuitive

- **Easy to Program**
  - Micro800® controller supports your choice of IEC-61131 PLC programming languages (Ladder Diagram, Function Block Diagram, Structured Text) to suit your application
  - User-defined function blocks speed up machine development
  - Standard PLCopen® motion instructions with Pulse Train Output (PTO) Motion Axis and HSC Feedback Axis removes the complexity from simple positioning applications

- **Easy to Visualize**
  - Micro800 controllers variable names can be referenced directly by Human Machine Interface (HMI) tags, which result in less complexity and time-saving benefits
Software Comparison of Standard Versus Developer Editions

- Developer Edition is for machine developers to reduce their time to Design, Develop and Deliver
- Standard Edition is meant to be installed on many Personal Computers (PCs) to help ensure availability for simple debugging and configuring devices

<table>
<thead>
<tr>
<th>Feature</th>
<th>Standard Edition</th>
<th>Developer Edition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price</td>
<td>Free for download or on DVD</td>
<td>Contact local distributor or Rockwell Automation® Sales</td>
</tr>
<tr>
<td>Common environment to configure all your common devices</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Project import/export</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Archive manager</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Micro800® Controller Programming</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IEC 61131-3 ladder diagram, function block diagram, structured text</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>User-defined function block</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Run mode change</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>User-defined data types</td>
<td>No*</td>
<td>Yes</td>
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<tr>
<td>Spy List Used</td>
<td>Existing lists</td>
<td>New lists can be created</td>
</tr>
<tr>
<td>Intellectual Property Protection</td>
<td>No**</td>
<td>Yes</td>
</tr>
</tbody>
</table>

* requires Developer Edition to create data types, which can be used in Standard Edition.
** requires Developer Edition to create passwords, which can be used in Standard Edition.
**Order Information**

- Recommended upgrade from previous releases to Release 10
  - *Windows® 10 support*
  - Micro800® controller ladder editor enhancements, new FIFO and PID instructions
  - Guardmaster® 440C-CR30 software configurable safety relay function block editor enhancements
  - PanelView™ 800 graphic terminal support for Virtual Network Computing (VNC) Server and application upload
- Standard Edition
  - [Free for download](#) or order free DVD
- Developer Edition – contact your local distributor or Rockwell Automation® salesperson for pricing
  - Individual lifetime license using FactoryTalk® Activation. Requires Tech Connect contract or toolkit to upgrade to future releases.
  - OEM and Enterprise Toolkits with yearly activations are also supported
- Catalog Number 9328-CCDEVxxE
  - xx ➔ EN-English, PT-Portuguese, FR-French, IT-Italian, DE-German, ES-Spanish, ZH-Simplified Chinese
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What is Connected Components?

Connected Components Workbench™ Software

What’s in Release 10?

Connected Components Workbench™ Software Overview

What’s New in Release 11?

What’s Coming in Feature Pack Release 11?
Connected Components Workbench™ Software Release 10.01 Overview

- Additional language support for French, German, Italian, Portuguese, Spanish and Simplified Chinese
  - Users can switch languages without having to uninstall and reinstall
  - Base Installation package only includes English user manuals
    - Additional languages are available in a separate User Manual installation package
- PanelView™ 800 Firmware v4.012 that is included, adds support for more CompactLogix™ 5370 L2, L3 controllers
Connected Components Workbench™ Software Release 10 Overview

- Windows® 10 Support
- ControlFLASH™ supports new and more secure DMK format
- ControlFLASH capabilities embedded into the software for easier firmware updates
Windows® 10 Support

- Connected Components Workbench™ software and supported devices are Windows® 10 compliant
- RSLinx® Classic 3.81 has a couple of exceptions
  - Legacy ControlNet and DH+™ PCI card drivers that are typically not used with the software
Easier Firmware Updates

- ControlFLASH™ capabilities that are embedded into the software
  - Supported by Micro800® controllers, PanelView™ 800 graphic terminals, Guardmaster® 440C-CR30 Configurable Safety Relay, GuardShield™ 450L-B Safety Light Curtain
- Context sensitive
  - Uses current path and device project revision
ControlFLASH™ DMK File Format

- Transition to ControlFLASH™ DMK file format for device firmware
  - More secure format
- Only current release of device firmware is installed
  - Older device firmware is not included to encourage transition to DMK file format
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What is Connected Components?

Connected Components Workbench™ Software

What’s in Release 10?

Micro800® Controllers

What’s New in Release 11?

What’s Coming in Feature Pack Release 11?
Micro800® Controllers
Release 10 Overview

- Design Time Performance Improvements
  - Build/Download/Upload times decreased by 36% to 58%, Run Mode Change times decreased by 30% to 61%
  - Automatic renaming of variables throughout project

- Programming Enhancements
  - Indirect Bit Addressing using Variable
  - User-Defined Functions – simplified UDFB with reduced memory usage
  - Additional FIFO and PID Instructions
  - Enhanced Memory Diagnostics

- Ladder Logic Usability Enhancements
  - Improved Ladder Drag and Drop
  - Improved Keyboard Navigation of Rungs and Instructions

- Optional Module
  - Single project for multiple machine configurations

- Download Data Protection
  - Protected variables are not overwritten during project download
Design Time Performance Increases

- Build times decreased by up to 55%

<table>
<thead>
<tr>
<th></th>
<th>R10 Average Time</th>
<th>R9 Average Time</th>
<th>Improvement Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large_Data_POU_M850</td>
<td>18.8425</td>
<td>42.79895</td>
<td>55.97%</td>
</tr>
<tr>
<td>Medium_Data_POU_M850</td>
<td>12.98161111</td>
<td>40.24435</td>
<td>67.74%</td>
</tr>
<tr>
<td>Small_Data_POU_M850</td>
<td>6.174166667</td>
<td>15.06985</td>
<td>59.03%</td>
</tr>
</tbody>
</table>

Average Improvement Percent: 60.92%

- Download times decreased by up to 58%
- Upload times decreased by up to 36%
- Results vary by project and personal computer
Online Change (Online Edits) Performance Increases

- Run Mode Change times decreased by 30% on average
- Test Logic time decreased by up to 39%
- Undo time decreased by up to 45%
- Accept time decreased by up to 61%
- Results vary by project and personal computer
Indirect Bit Addressing Using a Variable

- Bits of an integer can be referenced using an index variable
  - Defined words and constants also supported
- Uses 8X less memory than using array of BOOL
  - Index data type must be SINT
Ladder Editor Drag and Drop Improved

- Drag and drop of instructions with more visible drag and drop points
- Similar improvement for rungs
Ladder Editor Keyboard Improvements

- Control-t to toggle Boolean values when online with controller to aid in debugging

- More intuitive arrow key navigation of rungs and instructions
User-defined Function

- User-defined Function (UDF) is a simpler version of current User-defined Function Block (UDFB)
  - Targeted for simpler calculations such as converting from Fahrenheit to Celsius
- UDF does not support multiple instances BUT can use significantly less memory than UDFB
  - Only one output parameter is supported
- UDF is similar to Subroutine (whereas UDFB is similar to an Add-on Instruction in Studio 5000 Logix Designer®)
Additional MicroLogix™ Instructions

- Instructions added to aid in MicroLogix™ migration
- FIFO instructions (FFL, FFU)
- PID instruction
  - Intuitive Parameter names similar to MicroLogix PID instruction
Optional Module Feature for OEMs

- Target to OEM Machine Builders who use the same controller project for machines that have variable amounts of I/O
- No need to have 3 different projects for small, medium, and large machines, which vary in I/O quantity
- Plug-ins and Bulletin 2085 Expansion I/O can be configured as Optional Modules
- Similar to MicroLogix™ Do-Not-Fault and Logix Inhibit Module features
Cross-reference Browser
Delete Unused Variables

- Easier to delete unused variables from cross-reference browser
- No need to delete variables individually one at a time
Automatic Renaming of Variables throughout Project

- Renaming variable will result in all references to the variable being automatically renamed. Includes PanelView™ 800 graphic terminal Tag Mapping!
- Example of renaming variable SensorA ➔ SensorAB

Program is automatically updated!

Variable is renamed and ...
Improved Memory Diagnostics

- Embedded Project size now listed as part of the Memory Diagnostics
- Embedded Project contains Comments, Symbolic Variable Names
  - Non-executable parts of the project
- Aids when project does not build due to too many comments in the project or too many long variable names
Download Data Protection Enhancement

- Data Protection helps user to prevent up to 60 variables from being overwritten during Download and Project Restore from memory module
  - Micro820®, Micro830®, Micro850® controllers
- Equivalent to the ability of MicroLogix™ controllers to disable data files from being downloaded and restore
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What is Connected Components?

Connected Components Workbench™ Software

What’s in Release 10?

PanelView™ 800 Graphic Terminals

What’s New in Release 11?

What’s Coming in Feature Pack Release 11?
## PanelView™ 800 Graphic Terminals
### Release 10 Overview

<table>
<thead>
<tr>
<th>Feature</th>
<th>Firmware Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extended Connectivity to CompactLogix™ 5370 L2, L3 Controller</td>
<td>4.012</td>
</tr>
<tr>
<td>Virtual Network Computing (VNC) Server for Remote Monitoring</td>
<td></td>
</tr>
<tr>
<td>Upload Applications over EtherNet/IP™</td>
<td></td>
</tr>
<tr>
<td>Support for Micro800® DATE and TIME Data Types</td>
<td>4.011</td>
</tr>
<tr>
<td>Support for Pasting Tags from Excel into Tag Editor</td>
<td></td>
</tr>
<tr>
<td>Terminal Password Protection</td>
<td></td>
</tr>
<tr>
<td>Recipe Enhancement from Terminal (Edit Recipe Names and Automatic Alphanumerical Arrangement of Recipes)</td>
<td></td>
</tr>
<tr>
<td>Modify Controller Ethernet address from Terminal</td>
<td></td>
</tr>
<tr>
<td>Disable/Enable Communication Port from Terminal</td>
<td></td>
</tr>
</tbody>
</table>

**Mobile Phone as VNC Client to PanelView 800 graphic terminal**
## Extended Connectivity to CompactLogix™ 5370 Controller

*Ideal for applications that require CompactLogix™ controller performance with a cost-effective HMI*

<table>
<thead>
<tr>
<th>Feature</th>
<th>Required PanelView™ 800 HMI Firmware</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>CompactLogix 5370 L1 Controller Support</td>
<td>v3.011</td>
<td>Released Dec 2015</td>
</tr>
<tr>
<td>CompactLogix 5370 L2 and L3 Controller Support*</td>
<td>v4.012</td>
<td>Released Jan 2017</td>
</tr>
</tbody>
</table>

*Exclude Atlas based (L2x, L3x and L4x), CompactLogix 5370 L37 and 5380 controllers*
VNC Server for Remote Monitoring

- Remote Monitoring of the terminal using VNC Server
- Operators, supervisors can monitor terminal applications remotely using PC, tablet, mobile phone
  - Password Authentication for Read and Read/Write modes
- Also use it for Troubleshooting, Demos, and so on, and in turn increase your productivity
Upload Applications Over EtherNet/IP™

- Upload of applications from Terminal using Connected Components Workbench™ software over EtherNet/IP™
  - Choose which application to upload
  - Shows the status and revision
  - Upload application and make your edits if necessary, and download again
- Programmers workflow improvement
  - Saves times and increases productivity
Now, map Micro800® TIME and DATE data type as External Tag

- Eases the programming of applications that require the TIME and DATE data types to be mapped in PanelView™ 800 graphic terminal
- Saves time and increases productivity

**Note:** Requires Micro800 firmware version 10 and above
Improved Copying and Pasting of Tags

- Added support for maintaining tags in Excel spreadsheets
  - Use copy and paste to enter tags into Tag Editor
  - Saves time and increases productivity
- When pasting tags into Tag Editor, screen objects referencing the tags will maintain their tag references
  - No need to reenter the tag information
Terminal Password Protection

- Secure your terminal with password protection
- Authentication is required to download/upload applications
- Use with existing user account authorization for the application screens
Recipe Enhancements from Terminal

- Recipe Enhancements to Modify/Delete the Recipe Names on the terminal
  - End users can rename the recipes on the terminal without using Connected Components Workbench™ software
- Recipes are arranged on terminal according to the recipe file names by special character, numbers and alphabets
- Saves time and increases productivity
Modify Controller Address from Terminal

- Controller address settings of the application can be edited from terminal
  - No need to use Connected Components Workbench™ software
  - End users can configure the controllers address as required by their network on the terminal
- Saves time and increases productivity
Enable/Disable Communication Ports

- Unused Ports can be Enabled/Disabled from the terminal
  - Disable Ethernet or Serial Port on the terminal
- Helps protect your terminal from unauthorized access by disabling the ports that are not in use by the application
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What is Connected Components?

Connected Components Workbench™ Software

What’s in Release 10?

GuardShield™ 450L-B Safety Light Curtain

What’s New in Release 11?

What’s Coming in Feature Pack Release 11?
Support for GuardShield™ 450L-B Light Curtain

- Monitored over USB
- Each light curtain functions as both receiver and transmitter
  - Simplifies stocking and replacement
Agenda

- What is Connected Components?
- Connected Components Workbench™ Software
- What’s in Release 10?
- What’s New in Release 11?
- What’s Coming in Feature Pack Release 11?
Connected Components Workbench™ Software Release 11 Overview

- Transition to Rockwell Software® Common Installer
  - Same experience as installing Studio 5000 Logix Designer® application
  - English and CPFIGS local languages are combined into one release
  - User manuals and sample code are separately downloadable

- Feature pack updates to Release 11 planned throughout the year
  - Feature packs are small downloads, which do not require a complete reinstallaton
  - Micro800 feature pack adds Logix-like experience
  - UDC updates to add new devices and features

- Supports Micro870™ controller, offers 280 KB memory that supports up to 128 KB user data and up to 20,000 program steps. Supports up to 8 expansion I/O modules, up to 304 I/O points and scales the Micro800® family up to CompactLogix™ 5370 L1 controller

- Additional device support includes: PowerFlex® 755T AC drive and GuardShield™ 450L-E Safety Light Curtain with muting and blanking

- PanelView™ 800 graphic terminals enhanced with FTP (alarms, data log, recipes), secure email client and printing over Ethernet and USB
What’s New in Release 11?
Micro870™ Controller

**NEW**
- 2x the program and data memory capacity of Micro850®
- Up to 20,000 steps
- Additional memory provides more programming freedom
  - Less need to optimize memory consumption
  - Enables more modular programming with User-defined Function Blocks and User-defined Functions

**NEW**
- Up to 8 expansion I/O modules
- Up to 304 local I/O

**NEW**
- 2x the program and data memory capacity of Micro850®
- Up to 20,000 steps
- Additional memory provides more programming freedom
  - Less need to optimize memory consumption
  - Enables more modular programming with User-defined Function Blocks and User-defined Functions

Plug-in modules to customize base controller with more I/O and communication ports

- Ethernet, Serial and USB ports
- Native EtherNet/IP, Modbus-TCP/IP, Modbus RTU, ASCII
- Open socket programming

- PID with autotune
- Four 100 kHz High-Speed Counter
- Two 100 kHz Pulse Train Output
- PLCopen® Motion Instructions

Watch Micro870™ Controller Overview Video

**NEW**
- 2085-EP24VDC Expansion power supply module

2080-LC70-24QBB: 14-pt DC In, 10-pt DC Out
2080-LC70-24QWB: 14-pt DC In, 10-pt Relay Out

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Watch Micro870™ Controller Overview Video
What’s New in Release 11?
Additional Device Support

- PanelView™ 800 DesignStation v5 Firmware Enhancements
  - 64K color pallet, downloadable screen saver
- PowerFlex® Drives
  - PowerFlex 755T drive support added to installation using UDC 4
- GuardShield™ 450L Safety Light Curtain
  - Added GuardShield 450L-E safety light curtain with muting and blanking
  - Enhancements to GuardShield 450L-B safety light curtain
What’s New in Release 11?
PanelView 800™ Firmware 5.011

New Features
- Email Client using SMTP
  - Supports encryption
  - Supports runtime and design time configuration
- Direct Printing
  - Alarm triggered printing
  - Print current screen & alarm history
- FTP server
  - Read only
  - Enables access to alarm history, data log, recipes
- Download new fonts and custom screensavers

Usability Enhancements
- Color Palette (65K Color Support) in DesignStation
- Symbols organized by categories for easier selection
- Data log up to 7 trends
- Active alarm filter

Example of screen design with Runtime Email configuration

Connected Components Workbench™ Software
Version 11 required
Agenda

What is Connected Components?

Connected Components Workbench™ Software

What’s in Release 10?

What’s New in Release 11?

What’s Coming in Feature Pack Release 11?
What’s Coming in Feature Pack Release 11?
More Comfortable User Experience for Logix Users

- Ladder Editor updates to make MicroLogix™ and Logix users more comfortable with programming Micro800® controllers
- Add ladder logic using similar workflows as RSLogix 500® and Studio 5000 Logix Designer®
  - Ability to quickly enter and modify ladder rungs using ASCII Text
  - Add instructions using an Instruction Toolbar
- With single operation, switch themes between current Micro800 IEC theme to Studio 5000 Logix Designer ladder editor theme
  - Automatically maps IEC to equivalent Logix instructions
    - “+” maps to “ADD”, “-” maps to “SUB”
- Copy and paste ladder logic between Connected Components Workbench™ software, RSLogix 500 and Studio 5000 Logix Designer ladder editors
What’s Coming in Feature Pack Release 11?
Scalability and Reusability At-A-Glance

IEC style

Logix style

Copy/Paste

Converter Tool

Copy/Paste
Watch Connected Components Workbench™ Software Release 11 and Feature Pack Video on YouTube
Thank You!