PLC-5 Migration Strategies
# PLC-5 Lifecycle Status

## Catalog

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From Typical PLC-5 Installation…
…to Logix and EtherNet/IP
How do we get there?

1. Analyze - Know current state
2. Plan - Evaluate options & Develop plan
   - Integrated Architecture Builder
   - RSLinx Project Migrator
   - Controller & I/O Wiring Conversion Systems
   - Network Interface Modules – 1756-RIO
3. Execute – Leverage Resources
   - Migrate in Phases at a pace that’s right for you
   - Migration Services
Planning: Integrated Architecture Builder (IAB)

- IAB includes a Migration Wizard specifically created for PLC-5 to ControlLogix migrations
  - helps you accurately convert an existing 1771 chassis to the equivalent 1756 counterpart
  - helps you determine any critical application considerations
  - picks out the necessary 1771 wiring conversion system components to greatly reduce your conversion time
    - selection of a mounting base
    - conversion modules for each I/O module
    - appropriate cabling
  - allows you to convert multiple chasses through a series of dialogs
Planning:
Integrated Architecture Builder (IAB)

- IAB includes a Migration Wizard specifically created for PLC-5 to ControlLogix migrations
  - creates Bill of Material including:
    - fully configured 1756 chassis and modules
    - 1771 Wiring Conversion System accessories
    - 1756 swing arms (if Conversion Kit was not selected)
  - creates a Project Report detailing specification differences by module for Engineering to verify application concerns (see next slide for more details)
    - Full Bill of Material
    - Graphic representation of populated chassis
    - Cross reference table including 1771 module to 1756 equivalent (and any 1771 Wiring Conversion System accessories)
    - Application Considerations for each 1756 module included in Appendix at the end of the report
Planning: Logic Code Translation Tool in RSLogix 5000

“Wizard-style” step-by-step dialogs guide the user through the translation process.

Updated and updateable controller list
Planning:
I/O Wiring Conversion System
Planning: 1771 Conversion Chassis

- Reduces risk by eliminating potential wiring errors
  - Preserves existing field wiring connections by using existing 1771 swing-arms
- No need to drill new holes in the control panel

I/O Wiring Conversion system:
- Typically saves 10 hours per rack of ten, 40-point I/O modules
- Lowers engineering and labor costs
- Reduces production downtime
Planning: I/O Wiring Conversion System Components

Cover Plate to attach 1756 Chassis

Base Plate to house Conversion Modules

1756 Chassis and I/O

D-shell Connector for 1492 Cable

Conversion Modules

Pre-drilled & tapped holes for mounting 1756 Chassis

EXPL. START / Default Explode
Planning: I/O Wiring Conversion System Components

Mounting Assembly

Base Plate

Cover Plate

Conversion Modules

Cables
Planning: I/O Conversion Cable Assemblies

Extension set of conversion cables for digital and analog modules

- Converts field terminations to match the compatible 1756 I/O module
- More information available in the I/O Wiring Conversion System Selection Guide

Digital Inputs and Outputs

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<thead>
<tr>
<th>1771 Module</th>
<th>1756 Module</th>
<th>1402 Module</th>
<th>1402 Cable</th>
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Analog Inputs & Outputs

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NEW Solution with Existing Cable
NEW Solution with NEW Cable
Planning:
1756-RIO (Remote I/O) Module

- Communication performance equal to the existing PLC-5 system that it replaces
- Ideal solution for phased migrations
  - Allows the reuse of the Remote I/O network when multiple racks of PLC-5 and ControlLogix products will be communicating to one another
  - Can be configured as:
    - **Scanner which allows migration of master PLC-5 rack first**
    - **Adapter which allows migration of remote 1771 I/O racks first (note that a processor is still required in the ControlLogix rack)**
Planning: 1756-RIO Module (more detail)

- The 1756-RIO provides a Logix solution for communications over RIO
  - Transfer all data to/from module as normal I/O
    - Eliminates the MSG instructions and the confusion over tag names
    - Improved performance for data exchange with controller
  - Create a thin RSLogix 5000 I/O profile for the module
    - Allows you to configure how the controller talks to the module
    - Simplifies a portion of the configuration process (instance IDs and Sizes)
    - Provides a direct link to the module’s configuration tool
  - Communicate all chassis and module data in native INT (16 bit) format
    - Reduces data conversion processing by module which increases the performance of the module
    - Avoids conversion issues resulting from Boolean data
  - Embed Block Transfer Control and Status information into the data
    - Provides better visibility and control
    - Allows communications with all modules requiring Block Transfers
Execution: Phased Migration

Enabling Migration Tools:
• Installed Base Evaluation
• Integrated Architecture Builder

DH+ Network

Remote I/O Network
Phase 1: Logic Code Conversion & Monitor Mode

Making the decision to keep or replace HMI before performing controller code conversion will save time and money.

Using the 1756-RIO Module in “Monitor Mode” allows you check your logix before going live. The module reads the inputs but outputs are disabled.

Enabling Migration Tools:
• Logic Code Conversion Services or embedded software translation tools
• 1756-RIO Module
Phase 2: Controller Replacement

Making the decision to keep or replace HMI before performing controller code conversion will save time and money.

1756-DHRIO allows communication over the existing DH+ network.

1756-RIO module configured as a scanner allows ControlLogix communications to RIO Adaptors located in remote racks.

The I/O wiring conversion system allows replacement using existing wiring and mounting holes.

Enabling Migration Tools:
- I/O Wiring Conversion System
- 1756-RIO Module

DH+ Network

Remote I/O Network
Phase 3: HMI/EOI Migration

Enabling Migration Tools:
- HMI Application Code Conversion Services or embedded software conversion utilities
Phase 4: Remote I/O Replacement

**Remote I/O Network**

With the I/O wiring conversion system, 1771 I/O racks can quickly be replaced with 1756 I/O without disturbing the field wiring...one rack at a time if necessary.

**EtherNet/IP Network**

1756-RIO modules configured as adaptors in the remote racks.

Enabling Migration Tools:
- I/O Wiring Conversion System
- 1756-RIO
Phase 4: Remote I/O Replacement & Network Upgrade

Enabling Migration Tools:
- I/O Wiring Conversion System
• Visit the Literature Library:
  • Rockwell Automation Migration Solutions Brochure MIGRAT-BR002A-EN-P (May)
  • PLC-5 > ControlLogix Phased Migration Solution Profile
  • 1756-RIO Product Profile
  • 1492 I/O Wiring Conversion System Selection Guide
• Visit the E-tools Website:
  • Install Integrated Architecture Builder
  • Install ProposalWorks
• Visit the Product Lifecycle Status Website
• Visit the Modernization Support Website
• Visit the IA Tools Website