

# SDK External Presentation



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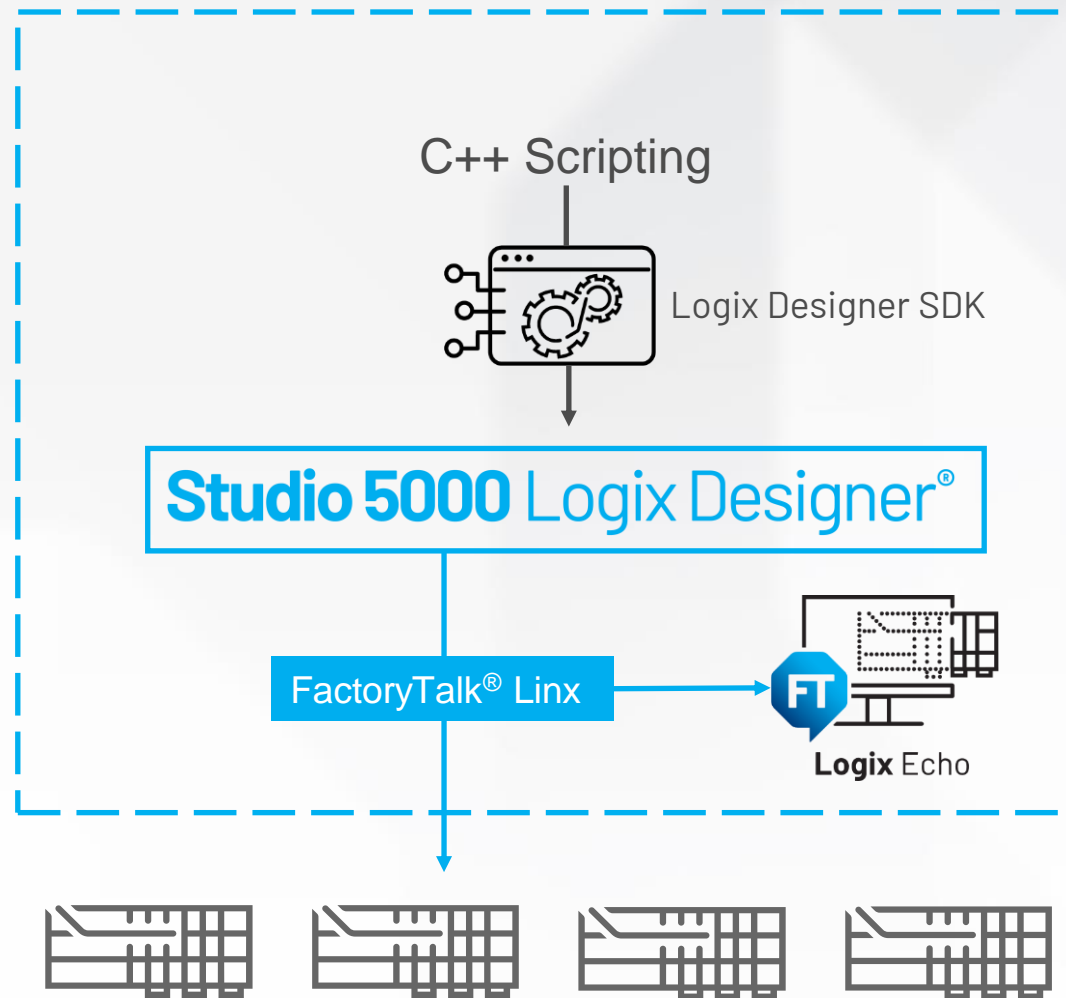


PUBLIC

# Logix Designer SDK

Use the Logix Designer application SDK alongside Studio 5000 Logix Designer® to automate UI functions, reduce labor, and increase your design, test, and deploy speed

Workstation



# Logix Designer SDK

Focused on enabling automation of Logix Designer tasks to save time and reduce labor

## Market Drivers

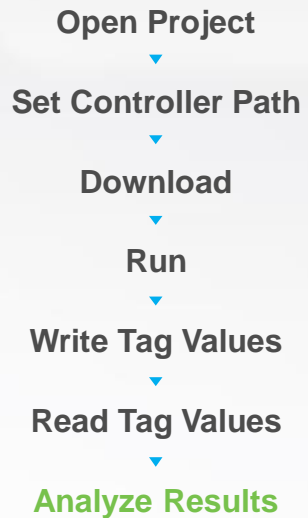
- Demand for automating Studio 5000 Logix Designer® operations
- Focus on enabling maintainability and testability
- Enable users to increase deployment speed
- Help reduce repeated manual operations within Studio 5000 Logix Designer®

## Priorities

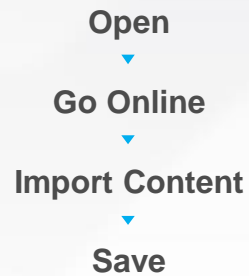
- Provide a modern and well-documented API
- Support for Studio 5000 Logix Designer® professional edition version 31 and higher
- Security throughout the SDK architecture

# Studio 5000 Logix Designer® SDK

## Automate test conditions



## Deploy new content to multiple controllers



| Function                            | Logix Designer application SDK | Logix Designer application UI |
|-------------------------------------|--------------------------------|-------------------------------|
| Open                                | •                              | •                             |
| Save                                | •                              | •                             |
| Go Online                           | •                              | •                             |
| Change Project Version              | •                              | •                             |
| Change Controller Type              | •                              | •                             |
| Change Controller Mode              | •                              | •                             |
| Upload / Download                   | •                              | •                             |
| Partial Import / Export             | •                              | •                             |
| Safety-lock / Unlock                | •                              | •                             |
| Generate/ Remove / Read Safety Sig. | •                              | •                             |
| Read/write Tag Values               | •                              | •                             |
| Program Logic                       | X                              | •                             |

# Studio 5000 Logix Designer® SDK

## V1.0

Q1 2023

**Download:** Open an ACD file, set the communication path, and download the project file to a controller

**Upload:** Upload from a controller to an existing project file or to a new project file

**Controller Mode:** Read or change the controller mode

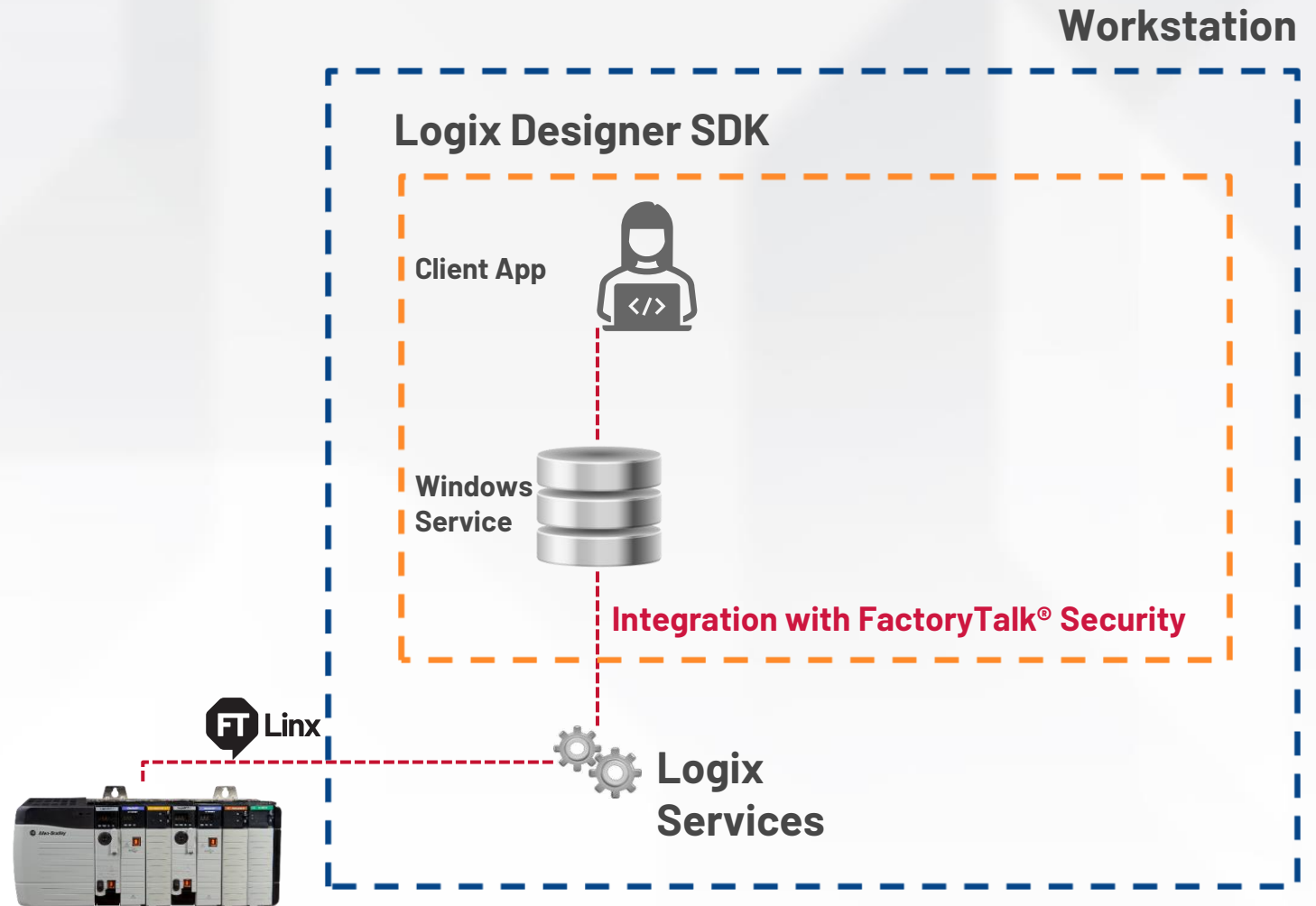
**Load/Store to SD Card:** Transfer the controller's project to and from the controller's SD Card in version 34 and above

**Tag Values:** Read or write tag values

**Multiple Supported Versions:** Logix Designer version 31 and above across all supported controller types

# Designed with Security in Mind

- The SDK provides security throughout its architecture to defend against unauthorized access and behavior
- Integration with FactoryTalk® Security permissions system
- Currently, SDK clients must run on the same machine as the Windows service



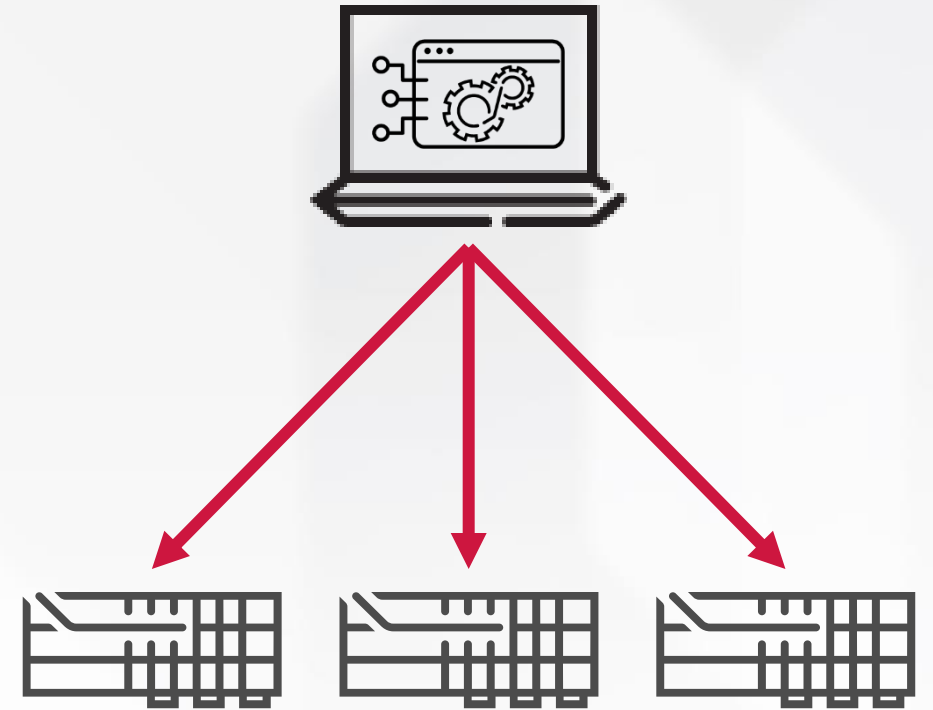


# Logix Designer SDK

## Use Cases

# Use Case: Download to Multiple Controllers

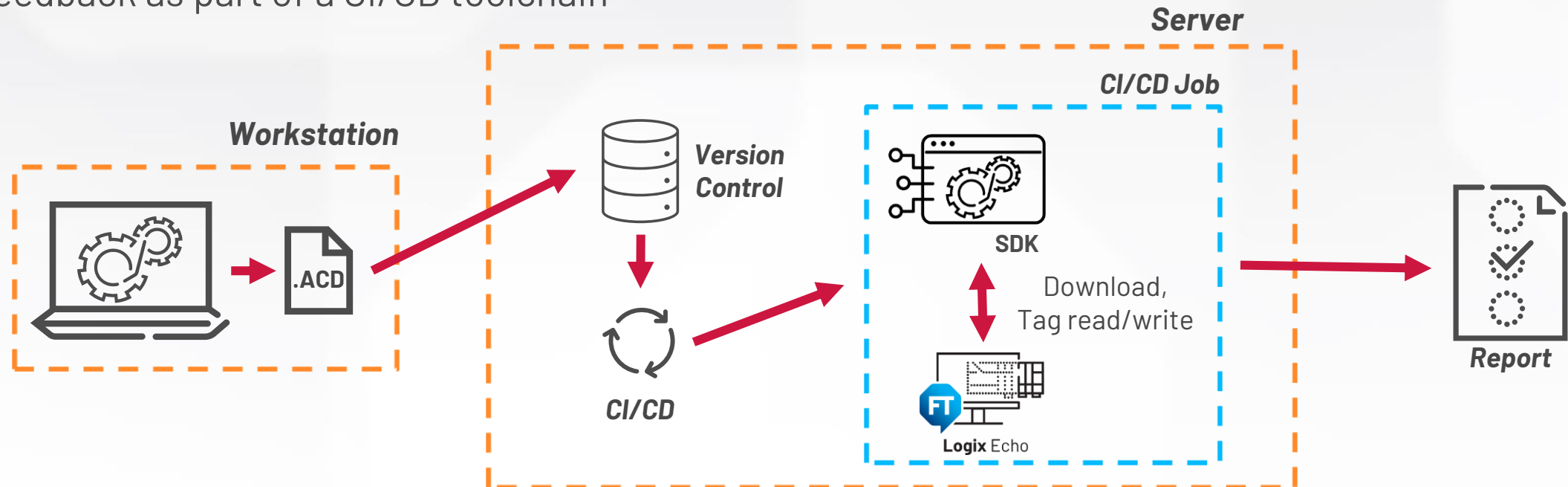
1. A client program uses the SDK to open an ACD file
2. For each target controller, the program uses the SDK to
  - i. Change the project's communication path
  - ii. Download the project to the current target controller
  - iii. If applicable, set the current target controller to Remote Run mode





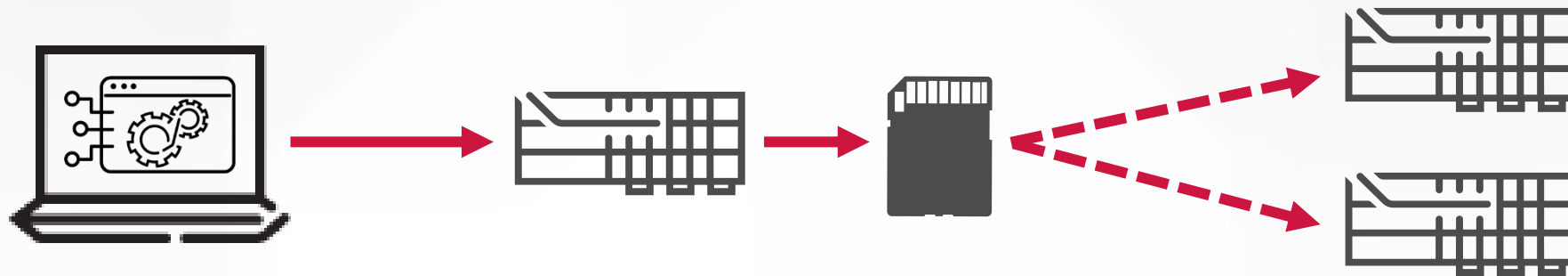
# Use Case: ACD File Testware

1. A user commits an ACD file to version control (for example, a Git repository)
2. CI/CD system (for example, Jenkins) invokes a script that uses the Logix Designer SDK to download and run the project on an emulated controller (for example, via FactoryTalk® Logix Echo's API)
3. The script writes and reads tag values to verify expected ACD file behavior, providing automated feedback as part of a CI/CD toolchain



# Use Case: Create Portable SD Card for Project Deployment

1. A client program uses the SDK to open an ACD file and download it to a target controller
2. The program calls the SDK's SD card store function to write the project to the controller's SD card
3. The customer can then move the SD card to different controllers to load the project on power-up





# Logix Designer SDK

## Samples and Features

# Open, Close, and Save Projects

- Opening an .ACD file returns a corresponding LogixProject instance that provides the programmatic interface to Logix Designer operations

## Related Use Cases:

- ACD file testware
- Download to multiple controllers
- Create portable SD card for project deployment

```
project = LogixDesigner::OpenLogixProject(  
    "C:\\Users\\Rockwell\\Documents\\Studio 5000\\Projects\\MyProject.ACD");  
project->Save();
```

# Change Project Communications Path

- Supports getting existing communication path in project
- Returns an empty string if project does not contain a communication path
- Supports updating the communication path in the project

## Related Use Cases:

- ACD file testware
- Download to multiple controllers

```
project->SetCommunicationsPath("AB_ETH-1\\10.88.44.99");
```

# Download and Upload Projects

- Supports uploading from a controller to either a newly-created .ACD file or an existing .ACD file
- Download the project to the controller at the current communications path

## Related Use Cases:

- ACD file testware
- Download to multiple controllers

```
project->Download();
```

# Controller SD Card Load/Store

- Supports storing a controller project to its internal SD card
- Also allows for triggering a controller project load from its SD card

**Related Use Case:** Create portable SD card for project deployment

# Change Controller Mode

- Enables clients to put controller in the requested mode (that is, run, program, or test)
- Operation requires that the hardware keyswitch is in “remote” position
- Also supports reading current controller mode (that is, run, program, faulted, or test)

## Related Use Cases:

- ACD file testware
- Download to multiple controllers
- Create portable SD card for project deployment

```
ChangeControllerMode(  
    *project, LogixDesigner::LogixProject::RequestedControllerMode::Run);
```



# Thank You



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