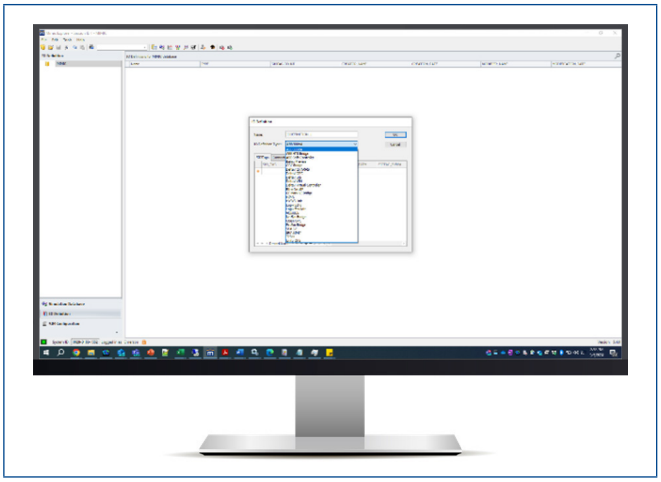
# DeltaV™ Mimic Simulated I/O Drivers

- Provides IO communication between Mimic simulation and offline control systems and control system emulators
- Coordinates snapshot and speed control functionality between Mimic and offline control systems
- Allows process and equipment models to function independent of IO communication
- Allows simulation developed for one control system to be easily moved to another with no process model changes



*Mimic Simulated IO Drivers support communication between Mimic models and offline control systems.*

## Introduction

DeltaV™ Mimic Simulated IO (SIO) Drivers enable communications with specific offline control systems independent of the process and equipment models. Using Mimic simulated IO (SIO) tags to connect models and communications, SIO Drivers provide direct IO simulation of the offline control system. A Mimic system can use Simulated IO Drivers simultaneously to simulate IO signals to multiple offline controls systems.

## Benefits

- **Provides IO communication between Mimic and offline control system –** The SIO Drivers provide direct IO simulation of offline control systems using Mimic Simulated IO tags (SIO tags) to pass database values between Mimic process models and control system logic.
- **Coordinates snapshot and speed control functionality –** SIO Drivers coordinate Mimic snapshot and speed control actions with offline control systems, providing a single point of control in Mimic and keeping the process modeling and controls in sync during these operations.
- **Allows process and equipment models to function independent of IO communication –** Mimic SIO tags are used to link the Simulated IO system to Mimic models that can be implemented from simple tie-back models to rigorous first-principles process models. Separating the modeling and IO processing allows models to be enhanced and modified without affecting the control system configuration.
- **Allows simulation developed for one control system to be easily moved to another with no model changes –** SIO Drivers are built to work with specific control systems or protocols to stimulate IO using the native methods supported by that control system. By using the same SIO tags in multiple SIO tag definitions for different SIO Drivers, users can use the same model for multiple offline control systems with no model changes. In addition, a Mimic system can use SIO Drivers simultaneously to simulate IO signals to multiple offline controls systems. This separation between real IO and models also allows the simulation to be brought online without any IO communications.

## Product Description

To establish communications between Mimic and an offline control system, Mimic must be licensed for the appropriate SIO Driver feature.

| Mimic Simulated IO Driver | Supported Automation System Platform |
|---|---|
| DeltaV Simulate OPC SIO Driver | DeltaV Simulate Standalone and Multi-Node |
| DeltaV CIOC/VCIOC/Virtual Machine Controller SIO Driver | DeltaV v11.3 or greater for physical or virtual machine DeltaV CIOC;<br>DeltaV v12.3 or greater Virtual Machine Controllers;<br>DeltaV v14 or greater for DST Simulation (see DeltaV Simulate PDS for more information) |
| DeltaV SIS SimulatePro OPC SIO Driver | DeltaV SIS SimulatePro Standalone and Multi-Node |
| DeltaV Railbus SIO Driver | Direct IO Simulation for DeltaV Controllers |
| Rockwell FactoryTalk Logix Echo SIO Driver | Rockwell FactoryTalk® Logix Echo |
| Rockwell Studio 5000 Logix Emulate SIO Driver | Rockwell Studio 5000® Logix Emulate™ Virtual PLC Chassis and Emulate for OTS |
| Open OPC Client SIO Driver | Any offline control system with an OPC DA Server |
| Modbus TCP/IP SIO Driver | Schneider PLCs, any Modbus TCP/IP Process Controller |
| ABB 800xA Simulator SIO Driver | ABB 800xA® Simulator and Soft Controller |
| ABB HTS SIO Driver | ABB Harmony Training System (HTS) |
| Schneider Unity (OFS v3.2 or higher) SIO Driver | Schneider Unity PLCs and Soft PLCs |
| Mimic SPA SIO Driver | Siemens SIMATIC S7- PLCSIM v5.4, SIMIT for S7, PCS7 |
| Siemens/TI 5XX PLC SIO Driver | Siemens PLCs using TBP or NITP ASCII protocols via RS-32 serial ports |
| Woodward NetSim SIO Driver | Woodward NetSim™ Virtual environment (nVe) |
| HIMA Soft PLC Visualization Gateway SIO Driver | Hima Soft PLC Visualization Gateway |
| GE Mark VIe SIO Driver | Mark VIe DCS |
| GE Mark VIe SIO Driver | Mark VIeS DCS |
| CCC SIO Driver | TrainTools® |

## DeltaV Simulate OPC SIO Driver

The DeltaV Simulate OPC SIO Driver supports communication with DeltaV Simulate workstations via OPC DA. This Simulated IO Driver works with both DeltaV Simulate multi-node and standalone and supports snapshots and speed factor control coordination with DeltaV SimulatePro. The Simulated IO definition consists of a set of SIO tags, where each tag points to a fully qualified OPC path in DeltaV Simulate. Initialization of all values and DeltaV module simulate flags is handled by the driver. Simulated IO tags and IO relationships can be built for this driver using the DeltaV FHX utility in Mimic.

## DeltaV CIOC/VCIOC/Virtual Machine Controller SIO Driver

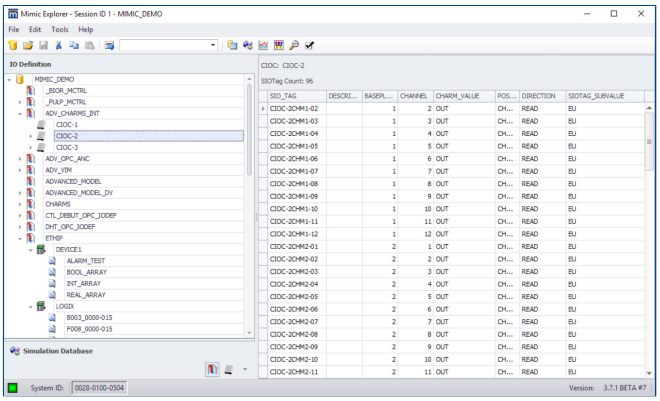
The CIOC/VCIOC/Virtual Machine Controller SIO Driver supports communication with physical or virtual DeltaV Charms IO cards and DeltaV virtual machine controllers via OPC DA through DeltaV Simulate workstations. The Simulated IO definition consists of a set of SIO tags, where each tag points to a single Charm channel, virtual machine controller IO channel, or virtual machine controller Device Signal Tag (DST) parameter. Simulated IO tags and IO/DST relationships can be built for this driver using the DeltaV FHX utility in Mimic.

## DeltaV SIS SimulatePro OPC SIO Driver

The DeltaV SIS SimulatePro OPC SIO Driver supports communication with DeltaV Simulate workstations that are simulating DeltaV Safety Logic Solvers (SLS1508) via OPC DA. The Simulated IO definition consists of a set of SIO tags, where each tag points to a single channel of a DeltaV SIS Logic Solver running as an alias in the DeltaV SimulatePro SIS workstation. Simulated IO tags and IO relationships can be built for this driver using the DeltaV FHX utility in Mimic.

## DeltaV Railbus SIO Driver

The DeltaV Railbus SIO Driver supports communication between the Virtual IO Modules (VIM and VIM2) and DeltaV controllers over the DeltaV controller backplane. Using the VIM or VIM2, the driver simulates the IO cards that would normally be connected on the DeltaV IO carriers. The Simulated IO definition consists of a set of SIO tags, where each tag points to a single channel of a DeltaV IO Card or Digital Bus IO signal. All DeltaV IO cards are supported by this driver including digital bus IO. Simulated IO tags and IO relationships are built for this driver using the DeltaV FHX utility in Mimic.




*Mimic Simulated IO Definition Tree in Mimic Explorer.*

## Rockwell FactoryTalk Logix Echo SIO Driver

The Rockwell FactoryTalk Logix Echo SIO Driver supports communication with FactoryTalk Logix Echo emulated processors. It uses OPC DA to send and receive IO through FactoryTalk Gateway and the Echo's API for snapshot and restore functionality coordination. The Simulated IO definition consists of a set of SIO Tags, where each tag points to a fully qualified OPC path to a tag in the PLC.

## Rockwell Studio 5000 Logix Emulate SIO Driver

The Rockwell Studio 5000 Logix Emulate SIO Driver supports communication with Logix processors running in either the Logix Emulate virtual chassis in Studio 5000 or Emulate for OTS. It uses OPC to send and receive IO and the Rockwell TagServerAPI for snapshot and restore functionality. The Simulated IO definition consists of a set of SIO tags, where each tag points to a fully qualified OPC path to a Tag in the PLC. Simulated IO tags can be built for this driver using the Tag Browser utility in Mimic.

## EtherNet/IP SIO Driver

The EtherNet/IP SIO Driver supports communication between offline Logix processors and the Simulated IO definition in Mimic using a subset of the EtherNet/IP protocol. One EtherNet/IP SIO definition can communicate with multiple devices. Mimic acts as either a DF1 or TagAccess client. The Simulated IO definition consists of a set of SIO tags, where each tag points to a DF1 table value or tag element in the Logix Processor. Simulated IO tags can be built for this driver using the Tag Browser utility in Mimic.

## Modbus TCP/IP SIO Driver

The Modbus TCP/IP SIO Driver supports communications between Mimic and Modbus compatible devices. The SIO Driver can use network connections to communicate with a TCP/IP devices or serial connections to communicate with serial device. One Modbus TCP/IP SIO Definition can communicate with multiple devices. Each defined device in the IO definition will contain a collection of segments, specifying non-overlapping, contiguous sections of Modbus registers (Coil, Input Status, Input Register, Holding Register) that will be read from or written to by the driver. The Simulated IO definition consists of a set of SIO tags, where each tag points to a Modbus register.

## Open OPC Client SIO Driver

The Open OPC Client SIO Driver supports communication between Mimic and control system simulators that support OPC DA. This Simulated IO Driver has been used with Honeywell, Yokogawa, Foxboro, and other control system simulators. The Simulated IO definition consists of a set of SIO tags, where each tag points to a fully qualified OPC path in an offline control system. Simulated IO tags and IO relationships can be built for this driver using the Bulk Generation utility in Mimic.

## ABB 800xA Simulator SIO Driver

The ABB 800xA Simulator SIO Driver supports communication between Mimic and the ABB 800xA Simulator (FP3 and FP4) and soft controllers. The Simulated IO Definition consists of a set of SIO Tags, where each tag points to the fully qualified path of the ABB 800xA Simulator IO Parameters. The 800xA Link Server can be used to capture and restore snapshots of the soft controller. Simulated IO Tags and IO relationships can be built for this driver using the Bulk Generation Utility in Mimic.

## ABB HTS SIO Driver

The ABB HTS SIO Driver supports communication between Mimic and the ABB Harmony Training System (HTS). This IO definition supports snapshots and speed factor control. Simulated IO tags and IO relationships can be built for this driver using the Bulk Generation utility in Mimic.

## Siemens/TI 5XX PLC SIO Driver

The Siemens/TI 5XX PLC SIO Driver supports communication between Mimic and TI 5XX PLCs, using either Transparent Byte Protocol (TBP) or Non-Intelligent Terminal Protocol (NITP) ASCII protocols via RS-232 serial ports. One TI 5XX SIO definition can communicate with one device. Each defined device will contain a collection of segments (specifying a non-overlapping, contiguous section of TI5XX registers) that will be read from or written to by the driver. The Simulated IO definition consists of a set of SIO tags, where each tag points to the TI5XX register in the segment. Simulated IO tags and IO relationships can be built for this driver using the Bulk Generation utility in Mimic.

## Mimic SPA SIO Driver

The Mimic SPA SIO Driver supports communication between Mimic and Siemens SIMIT Virtual Controllers or SIMATIC S7-PLCSIM v5.4 software. The Simulated IO definition consists of a set of SIO tags, where each tag points to either a fully qualified OPC path in SIMIT or IO parameter in SIMATIC S7-PLCSIM. The SPA SIMIT IO definition type uses OPC to send and receive IO to SIMIT Virtual Controllers, and COM for snapshot and restore functionality. The SPA S7 IO definition type does not support snapshots of PLCSIM. Simulated IO tags and IO relationships can be built for this driver using the Bulk Generation utility in Mimic.

## HIMA Soft PLC Visualization Gateway SIO Driver

The HIMA Soft PLC Visualization Gateway SIO Driver supports communication between Mimic and the HIMA Visualization Gateway Soft PLC. The Simulated IO definition consists of a set of SIO tags, where each tag points to the fully qualified path of the HIMA Soft PLC IO parameters. Simulated IO tags and IO relationships can be built for this driver using the HIMA Soft PLC utility in Mimic.

### Schneider Unity (OFS v3.2 or higher) SIO Driver

The Schneider Unity SIO Driver supports communication between Mimic and Schneider Unity class PLCs and PLC Simulator using OFS v3.2 or higher. The Unity PLC and PLC Simulator located and unlocated variables are both supported with this Simulated IO Driver. The Simulated IO definition consists of a set of SIO tags, where each tag points to a fully qualified OPC path in the Unity Class PLC or PLC Simulator using OFS. Simulated IO tags and IO relationships can be built for this driver using the Unity OFS utility in Mimic.

### Woodward NetSim SIO Driver

The Woodward NetSim SIO Driver supports communication between Mimic and Woodward NetSim Virtual environment (nVe), which simulates the Compressor Control System. This driver supports snapshots and speed factor control. Simulated IO tags and IO relationships can be built for this driver using the Bulk Generation utility in Mimic.

### GE Mark VIe SIO Driver

The GE Mark VIe SIO Driver supports communication between Mimic and emulated Mark VIe controllers. This driver supports snapshots and speed factor control. Simulated IO Tags and IO relationships can be built for this driver using the Bulk Generation Utility in Mimic.

### GE Mark VIeS SIO Driver

The GE Mark VIeS SIO Driver supports communication between Mimic and emulated Mark VIeS safety system controller. This driver supports snapshots and speed factor control. Simulated IO Tags and IO relationships can be built for this driver using the Bulk Generation Utility in Mimic.

### CCC SIO Driver

The CCC SIO Driver supports communication between Mimic and the Compressor Controls Corporation (CCC) TrainTools platform. This driver supports snapshots and speed factor control. Simulated IO Tags and IO relationships can be built for this driver using the Bulk Generation Utility in Mimic.

## Product Support

Mimic Product Support is delivered through Guardian™. Guardian is Emerson's digital platform for addressing the end-to-end lifecycle needs of automation & control software and asset performance management solutions. The Guardian digital experience enables users to quickly connect to product support; securely manage subscriptions; get intuitive views into system health; and explore additional software and services that propel performance.

## Ordering Information

DeltaV Mimic is licensed on a Flexible Subscription Unit (FSU) basis. An FSU is a currency that can be used to access any Mimic feature licensed on an FSU basis, with each feature requiring its own number of FSUs. The FSU subscription is offered in one-year, three-year, and five-year terms. To purchase, extend, or expand a license, please contact your Emerson Sales Representative.

## Related Products

- DeltaV
- DeltaV Mimic Foundation
- DeltaV Mimic Field 3D
- DeltaV Mimic Process
- DeltaV Mimic Test Bench
- DeltaV Mimic Train
- DeltaV Simulate
- DeltaV Virtual Machine Controller Simulation
- DeltaV SIS with Electronic Marshalling - Virtual Simulation

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