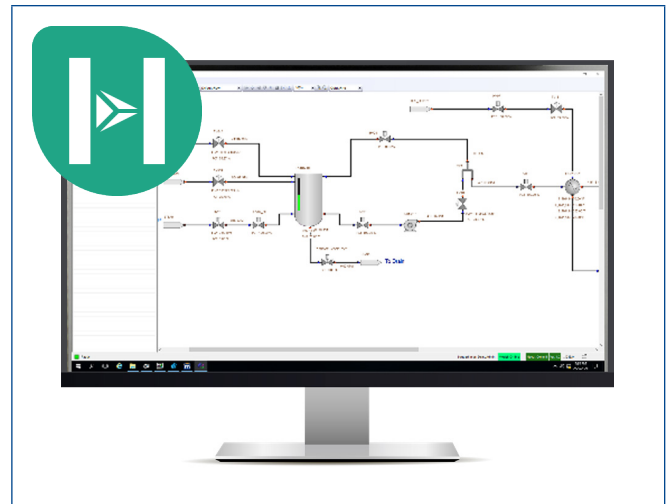# DeltaV™ Mimic Aspen HYSYS® Link

- Movement of IO data between DeltaV Mimic and DeltaV Simulate or other control system simulators

- Support for multiple Aspen HYSYS cases in a single machine or across multiple machines

- Ability to run the models and external systems at speeds other than real-time

- Ability to create, store, and restore snapshots

Introduction

The DeltaV™ Mimic Aspen HYSYS® Link allows direct integration of HYSYS Dynamics models into Mimic, allowing those models to be used for control system development and testing, operator training, continual improvements and OPEx initiatives. Apply the Mimic HYSYS link to multi-purpose dynamic simulation projects, with a proven method to support the use of Aspen HYSYS for process design and HYSYS Dynamics for operations and control testing with the control system.

Built upon the proven communication bridge architecture in Mimic, the Mimic HYSYS link provides:

- Movement of IO data between DeltaV Mimic and DeltaV Simulate or other control system simulators

- Support for multiple Aspen HYSYS cases in a single machine or across multiple machines

- Synchronization of variables between cases in the same machine or across several machines

- Synchronization of execution for multiple cases in the same machine

- Pause and resume the models and external systems

- Ability to run the models and external systems at speeds other than real-time

- Ability to create, store, and restore snapshots

Benefits

- **Complete integration for HYSYS Dynamics into the Emerson Digital Twin –** The Mimic HYSYS link uses a direct API interface, based upon the HYSYS automation interface, creating high-speed and secure communications between Mimic and HYSYS, through the HYSYS end point server. The Mimic HYSYS link provides synchronous IO updates and execution control of HYSYS Dynamics models. Mimic bulk generation and discovery tools make integration fast and easy.

- **Built Upon the Proven Performance of DeltaV Mimic –** Mimic is a dynamic real-time, process simulation software that provides selective (low, medium, and high) modeling of process plants with an extensive modeling library. Mimic automatically integrates with DeltaV Simulate and other control system simulators. Mimic is built on the latest technology with a multi-threaded 64-bit real-time simulation engine, multi-user support, and is VMware and Hyper-V ready.

Product Description

Endpoint Application

The Mimic HYSYS link uses the HYSYS automation interface API. The Mimic HYSYS endpoint server is installed on the HYSYS machine and provides multiple simultaneous connections from the Mimic HYSYS bridge. When a connection is established, the bridge will send information about the case to launch and the subscription list of HYSYS items for the bridge.

The Mimic HYSYS endpoint application supports a variety of functionality:

- Communication methods supported:
  - HYSYS IO to Control System Simulated IO Tags Direct
  - HYSYS IO to Mimic Base / IO / Equipment Models
  - HYSYS Case1 to CaseN Direct
  - HYSYS End Point to End Point Server
- Snapshot coordination and speed control
- Synchronous IO updates and execution control of HYSYS Dynamics models
- Updates configured in the Mimic SIO definition

IO Definition

The Mimic HYSYS IO definition is optimized for HYSYS IO tables (the recommended communication method). The user defines the IO table in HYSYS Dynamics and the Mimic HYSYS endpoint server finds the HYSYS cases and IO tables. To make IO table selection easy, there is a browsable interface. The Mimic SIO tag configuration allows user selection of the HYSYS IO use.
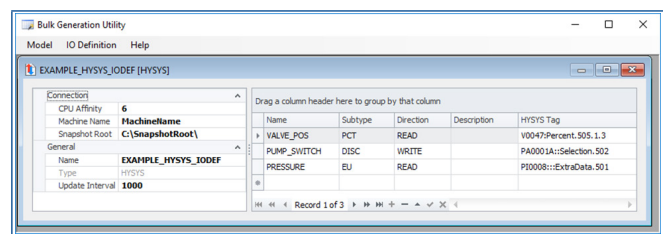
Configuration Values for the HYSYS SIO tag configuration include:

- SIO_TAG: The name of the Mimic SIO tag
- DIRECTION: From the perspective of Mimic, the direction of data movement
- LINK_TYPE: A connection detail that allows the mapping of data from one node in Mimic to another or for the endpoint to pass data from one case variable to another

- LINK_REF: The connection detail needed to map between systems if required
- HYSYS_TABLE: Identifies the HYSYS table name
- HYSYS_TAG: Identifies the variable to exchange data
- SIO_SUBVALUE: The portion of the SIO tag to read/write

Customize SIO Communications

To customize Mimic HYSYS SIO communications, users can edit and update their HYSYS SIO definition using the Mimic bulk generation utility. This supports editing in the utility, MS Excel, or CSV format.

Integration with Mimic Snapshots and Mimic Train

Mimic Foundation supports full integration of DeltaV, HYSYS, and Mimic snapshot controls. Mimic Train allows for creation of training scenarios and ad-hoc malfunctions supported with Mimic IO and equipment models. Training controls, as with the integrated solution, can be built in Mimic instructor station graphics or DeltaV Live.

Mimic Explorer controls starting and stopping HYSYS SIO Communication, execution speed controls, and SIO model selections.

Integration with Mimic Diagnostics

The Mimic HYSYS link is fully integrated into Mimic Diagnostics. SIO communication and HYSYS case execution data and status are displayed. System failures are automatically logged into session log files, with error time and source logs for all failures. Windows service and connection failures are written to the Windows event log for troubleshooting.

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.

Optionally, the Mimic Aspen HYSYS Package can be bundled with Mimic to include the required licensing for Aspen HYSYS Dynamics.

Related Products

- DeltaV
- DeltaV Mimic Foundation
- DeltaV Mimic Field 3D
- DeltaV Mimic Process
- DeltaV Mimic Test Bench
- DeltaV Mimic Train
- DeltaV Mimic Aspen HYSYS Package

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