



Deliver EtherNet/IP™ solutions on your PC-based systems faster and more easily with BradCommunications™ software tools.

Features:

• Explicit Messaging DLL Driver kit

- ✓ User friendly API! No EtherNet/IP knowledge required
- ✓ Send & Receive explicit messages
- ✓ Client mode (Server mode on request)
- ✓ DLL library for Windows 32-bit (XP / Vista)

• OEM Engineering Console for EtherNet/IP Scanner

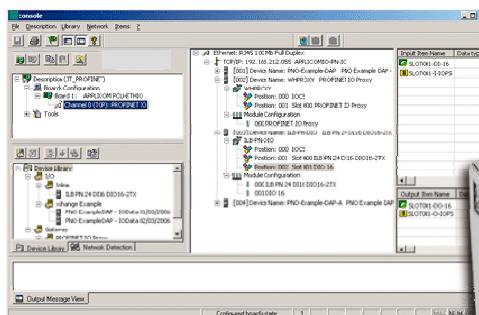
- ✓ Allows configuration and diagnostics of EtherNet/IP devices
- ✓ Automatic device detection
- ✓ ODVA-approved EDS Parser
- ✓ Configuration manager
- ✓ Supports Rockwell devices such as FlexIO, PointIO
- ✓ Rack Optimization
- ✓ On-Line mode for diagnostics

• Diagnostic Tool

- ✓ FREE limited version
- ✓ Supports 0xF5 TCP/IP and 0xF6 Ethernet Link objects
- ✓ Ideal to prepare for EtherNet/IP Plug fest
- ✓ Selected by ODVA as the official tool for testing EtherNet/IP network objects

EtherNet/IP™ Software Tools

A suite of solutions to embed EtherNet/IP into your applications



Overview

Molex, Inc through its automation products is a recognized leader in industrial communication and connectivity solutions.

Molex provides a complete range of EtherNet/IP services, expertise and products, including training, protocol stacks, software tools, network interface cards, I/O modules, and infrastructure products.

Molex is the ideal partner to listen your requirements and turn your projects into successful, cost-effective solutions.

Explicit Messaging DLL Driver kit (EIP_Driver)

BradCommunications™ EIP_Driver provides EtherNet/IP Explicit Messaging (EM) functionality for applications developed for PC / Windows™ platforms. The product consists of a user-mode DLL driver, sample client application source code that demonstrates use of the EIP_Driver DLL API and its capabilities, and the user reference manual.

The EIP_Driver is the fastest and easiest solution to implement Explicit Messaging communication in PC-based client applications such as:

- Configuration / Commissioning consoles
- Diagnostic / Monitoring tools
- HMI / Scada applications
- Custom software

The EIP_Driver provides an Application Programming Interface (API) that simply send/receive buffer of data on the network with remote EtherNet/IP EM server devices. The EIP_Driver is managing the complete CIP communication (connection / reconnection, etc) so the application software writer needs no special expertise in the EtherNet/IP protocol. The EIP_Driver DLL library can be statically or dynamically linked with the target application.

The EIP_Driver is distributed under a royalty-free site license.



Active member of the ODVA interoperability plug fest and working groups.

EtherNet/IP™ Software Tools



EIP_Driver Features

Object Library	DLL Windows 32 bits (validated under the Windows XP and Windows Vista 32-bit environments)
Explicit Messages	Client mode only <ul style="list-style-type: none"> ▪ Supports connected and unconnected messages ▪ Supports synchronous and asynchronous modes
List Identify	This service provides a way to detect all EtherNet/IP™ stations connected to the network
Multi-Threading	The API is designed to be used in multi-threaded applications
Multi-Process	Several applications can use the EIP_Driver simultaneously

OEM Engineering Console Tool (EIP_CT)

BradCommunications™ EIP_CT is an OEM engineering Console Tool (CT) that is used to configure and diagnose an EtherNet/IP™ network. It runs on Windows PC platforms.

It enables an industrial products' manufacturer to easily provide a full range of configuration and diagnostics functions for an Ethernet/IP Scanner, in a branded and field-tested application.

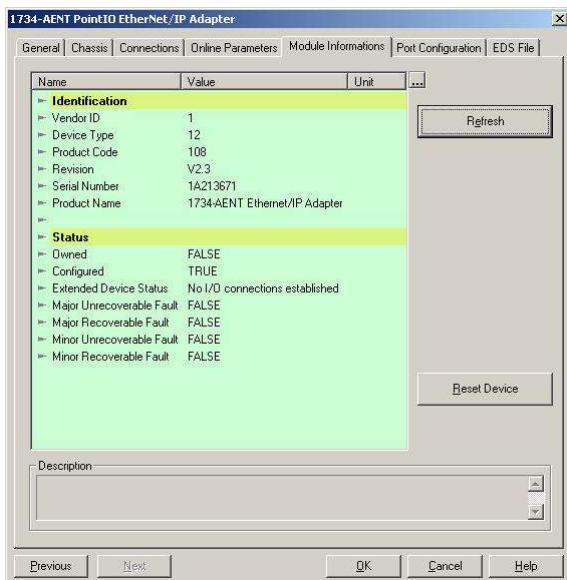
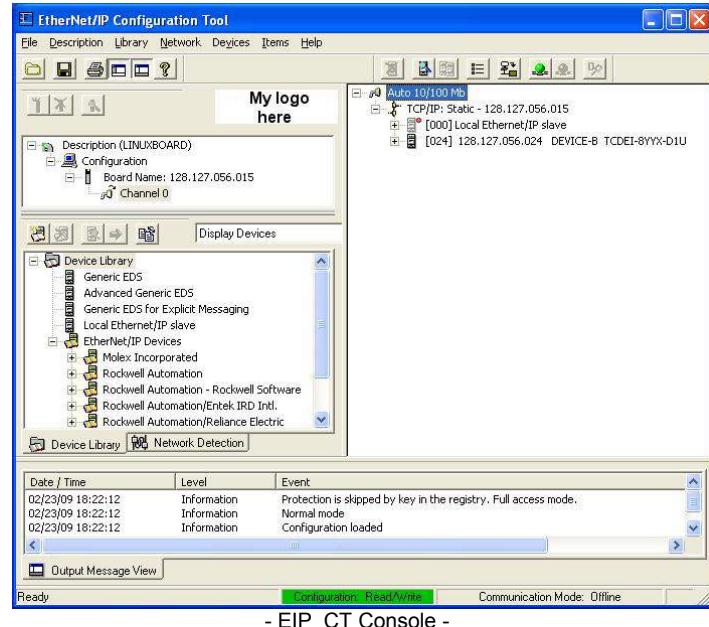
EIP_CT is connected to a remote Scanner and within a few mouse clicks, a user can configure a complete EtherNet/IP™ network including Scanner parameters and device connections. The user configuration is downloaded to the Scanner using the FTP protocol.

EIP_CT includes an EDS parser equipment library that is used during the device detection step to build automatically the network topology.

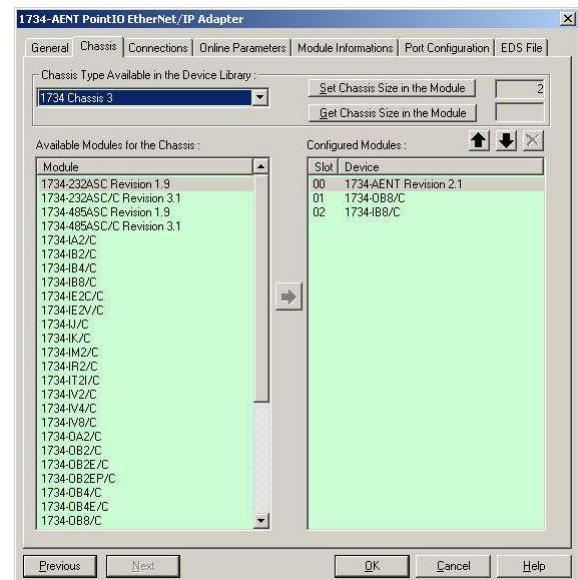
When EIP_CT is running in ON_LINE mode, the console provides useful diagnostic information (device parameters, module information, port configuration and I/O process data).

EIP_CT can be customized very quickly through an XML template which defines the information such as: tool name, system platform name, product logo.

EIP_CT is selected by ODVA to validate ESD file integrity and communication for EtherNet/IP interoperability testing.



- Device Diagnostic -



- Device Chassis Configuration -

EtherNet/IP™ Software Tools



EDS Manager (EIP_EDS-Manager)

BradCommunications™ EIP_EDS-Manager is a Windows software component that enables a product developer to implement an EtherNet/IP Scanner configuration console in proprietary engineering software.

EIP_EDS-Manager includes an API library to handle:

- EDS file library
 - EDS import Wizard
 - EDS Remover
- EDS parser
- Display device properties
- Add/Remove a device into user configuration
- Add/Remove modules in a device chassis
 - Support Rockwell FlexIO / PointIO
 - Support Rack optimization for Rockwell devices
- Configuration of Scanner connections
 - Add/Remove connection
 - Support of Exclusive Owner (EO), Listen Only (LO), and Input Only (IO)
- Automatic tag creation of I/O data
- Load/Save a user configuration (XML format)

EIP_EDS-Manager is delivered with a Windows sample that illustrates the different calls of API library.

The product consists of a user-mode DLL component, sample client application source code that demonstrates use of the EIP_EDS-Manager DLL API and its capabilities, and the user reference manual.

EIP_EDS-Manager uses the same core engine of EIP_CT engineering console selected by ODVA to validate ESD file integrity and communication for EtherNet/IP interoperability testing (PlugFest).

Chassis configuration

Chassis Type Available in the Device Library : Flex 8 slot chassis

Available Modules for the Chassis :

Module
1203 - SCANPort
16 Point 24V DC Input, Sink 1793-IB16/A
16 Point 24V DC Input, Sink 1793-IV16/A
16 Point 24V DC Protected Output, Sink 179
16 Point 24V DC Protected Output, Source 1
16 Point 24V DC Protected Output, Source 1
16 Point NAMUR 8V DC Input/Counter
1794 - 10 Input/6 Output 24V DC, Sink/Sour
1794 - 12 Channel Analog Input
1794 - 16 Input/16 Output 24V DC, Sink/Pro
1794 - 16 Point 120V AC Input
1794 - 16 Point 120V AC Output
1794 - 16 Point 24V dc Diagnostic Input Mo
1794 - 16 Point 24V dc Diagnostic Output Mo
1794 - 16 Point 24V DC Input, Sink
1794 - 16 Point 24V DC Input, Source
1794 - 16 Point 24V DC Output, Sink 1794-0
1794 - 16 Point 24V DC Output, Source
1794 - 16 Point 24V DC Protected Output
1794 - 16 Point 48V DC Input
1794 - 16 Point 48V DC Output, Source
1794 - 2 Channel 24V DC Incremental Encod
1794 - 2 Channel 24V DC Incremental Encod

Configured Modules :

Slot	Device
n/a	1794-AENT FLEX I/O Ethernet Adapter
00	1794 - 16 Point 120V AC Output
01	1794 - 16 Point 120V AC Output
02	1794 - 16 Point 24V DC Input, Sink
03	
04	
05	
06	
07	

OK Cancel

- Chassis Configuration -

DTM Simulator

Build DTM Library Device Properties

DTM Library:

- wgeneric.eds Generic Device
- WHEMOnly.eds Generic Device for Explicit Messaging
- WHAdvance.EDS Advance Generic EDS
- 00010000C005A0301.eds 1794-AENT FLEX I/O Ethernet
- UU1UUUJU6UJU2U01.eds 1794-AENT PointIO EtherNet
- 0000000C0000304.eds TCDI-0D0P-DIU
- 00080000C0301304.eds TCDI-8C2P-DIU
- 00080000C0920304.eds TCDI-8B4P-DIU
- 00080000C0930304.eds TCDI-8B8P-DIU
- 00080000C0940304.eds TCDI-8D0N-DIU
- 00080000C0950304.eds TCDI-8C2N-DIU
- UU8UUUJU6UJU3U.eds TCDI-8B4N-DIU
- 0000000C0070304.eds TCDI-000N-DIU
- 00080000C0080304.eds TCDI-8YXX-DIU
- 00080000C0910304.eds TCDI-8D0P-DYU
- 00080000C0911304.eds TCDI-8C2P-DYU
- 00080000C0912304.eds TCDI-8B4P-DYU
- 00080000C0913304.eds TCDI-8B8P-DYU
- UU8UUUJU7UJU4U3U.eds TCDI-8D0N-DYU
- 00080000C09150304.eds TCDI-8C2N-DYU
- 00080000C03160304.eds TCDI-8B4N-DYU

Load Configuration Add Device Chassis Configuration

Save Configuration Device Properties Delete Device Connection Configuration

Current Configuration Configuration

Error Returned by EDSGetLastError: Empty

Log Zone: Add Exchange XML in the Log Zone Empty the Log Zone Log File Close

Call CreateConfiguration
CreateConfiguration successful
Call GetDSPath
GetDSPath successful
c:\Documents and Settings\All Users\Application Data\Motorola\ETHERNET_IP_EDS
Call GetEDSList
GetEDSList successful

- EDS Manager -

Connections

Configured Connections :

- 1794-AENT FLEX I/O Ethernet
 - Online Parameters
 - Rack Optimization
 - General
 - Check Identity
 - Configuration Setting
 - Items
- 1794 - 16 Point 120V AC Output
 - Online Parameters
 - Rack Optimization
 - General
 - Check Identity
 - Configuration Setting
 - Items
- 1794 - 16 Point 24V DC Input, S
 - Online Parameters
 - Rack Optimization
 - General
 - Check Identity
 - Configuration Setting
 - Items
- 1794 - 16 Point 120V AC Output
 - Online Parameters

Connections Parameters :

Name	Value	Unit
Connection Identifier	DISPLAY_CONN_0	
Name	Rack Optimization	
Type	Rack Optimization	
Is Generic	False	
Request Packet Interval (RPI)	30	ms
Input T->O		
Input Mode	Multicast	
Input Type	Fixed	
Input Priority	Scheduled	
Input Trigger Type	Cyclic	
Output O->T		
Output Mode	Point to Point	
Output Type	Fixed	
Output Priority	Scheduled	

Add Remove Forward Open

Device Data for Debug OK Cancel

- Configuration of Scanner connections-

EtherNet/IP™ Software Tools



Diagnostic Tools (EIP_DiagTools)

BradCommunications™ EIP_Tools provides a set of EtherNet/IP utilities that enable a user or product developer to test CIP objects. EIP_Tools consists of an executable application for PC / Windows™ platforms.

A FREE limited version is available on request to access objects such as:

- 0x01 Identify Object
- 0xF5 TCP/IP Object
- 0xF6 EtherNet/IP Link Object

The full version supports:

- List Identify; automatic detection of EIP devices connected to network
- Explicit Message; allows to send and receive Explicit Messages in unconnected and connected modes
- Ping service

EIP_Tool is selected by ODVA to validate 0xF5 and 0xF6 objects during EtherNet/IP Interoperability tests (Plug fest).

This screenshot shows the '0x01 Identity Object' configuration window. It includes fields for Instance, Vendor ID, Device Type, Revision, Major Revision, Minor Revision, and various Get_Attribute buttons. On the right, there's a large panel for 'Extended Device Status' with numerous checkboxes for fault conditions like Non-existent, Device Self Testing, Standby, Major Recoverable Fault, Major Unrecoverable Fault, Pending, Default or GetAttributeFault, and more. Other tabs in the header include '0xF5 TCP/IP Object', '0xF6 Ethernet Link Object', 'List Identity', 'Explicit Message', and 'Ping'.

- 0x01 Identity Object -

This screenshot shows the '0xF5 TCP/IP Object' configuration window. It contains sections for Physical Link, Safety Network Number, Interface Configuration, TTL Value, Multicast Config, and Host Name. Each section has its own Get_Attribute and Set_Attribute buttons. The 'Interface Configuration' section includes fields for IP Address, Network Mask, Gateway Address, Name Server, and Domain Name. The 'Multicast Config' section includes fields for Multicast Address, MAC address generated by, and Destination address.

- 0xF5 TCP/IP Object -

This screenshot shows the 'List Identify' results table. It lists 30 entries of device information, including Vendor ID, IP Address, Vendor ID, Dev Type, Prod Code, Revision, Status, Serial Number, State, and Product Name. The table includes entries for various Moxa products like the 140 NDC7710P, 140 NDC7710, and 173A-ENET Ethernet/IP Adapter.

- List Identify -

Ordering Information

Part Number	SAP Number	Description
SDK-EIP-EML	1121065008	BradCommunications EtherNet/IP Explicit Messaging DLL Driver kit, Client mode (EIP_Driver)
SDK-EIP-SCA-CNF-U	1121065011	BradCommunications EtherNet/IP OEM Configuration Console, USB Dongle, 1 license (EIP_CT)
SDK-EIP-DIAG	Consult Us	BradCommunications EtherNet/IP Diagnostic Tools (EIP_DiagTools)
SDK-EIP-EDSM	Consult Us	BradCommunications EtherNet/IP EDS Manager DLL Driver kit (EIP_EDS-Manager)

Other related EtherNet/IP products

Part Number	SAP Number	Description
SDK-EIP-ADP	1121060000	BradCommunications EtherNet/IP Adapter Protocol Software Development Kit (stack)
SDK-EIP-ADP-SAF	1121170001	BradCommunications EtherNet/IP CIP Safety Adapter Protocol Software Development Kit (stack)
SDK-EIP-SCA	1121065003	BradCommunications EtherNet/IP Scanner/Adapter Protocol Software Development Kit (stack)
SDK-EIP-EDS	86000000141	BradCommunications Engineering Development Support for EtherNet/IP Software Development Kits
SDK-EIP-TRN	86000000143	BradCommunications EtherNet/IP Software Development Kit Training & Implementation (2 + 1 days)
DRL-EIP-PCU	1120005030	BradCommunications EtherNet/IP Scanner/Adapter PCI Universal 5V/3.3V interface card

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