

PYRAMIDSOLUTIONS

# NetStax™ EtherNet/IP Adapter Development Kit



# KIT OVERVIEW

## OUR NETSTAX ETHERNET/IP ADAPTER DEVELOPMENT KIT PROVIDES THE FOLLOWING FUNCTIONALITY AND FEATURES:

- Enables EtherNet/IP Adapter Class functionality
- UCMM (unconnected) explicit message client (originator) and server (target)
- Class 3 (connected) explicit message server (target)
- Class 1 (I/O) implicit connection server (target)
- Read and write Rockwell PLC tags (single or multiple) via UCMM
- Supports multiple NICs
- Provides a rich set of standard objects
- Enables the creation of user defined objects
- Is scalable to manage device resources
- Provides a logical and manageable API

**EtherNet/IP**<sup>®</sup>





### Resource Utilization and Management:

- All resources initialized at stack startup
- No dynamic memory or thread allocation
- Runs on a single thread
- Memory usage is scalable

### Platform, OS, TCP/IP Stack Compatibility and Portability:

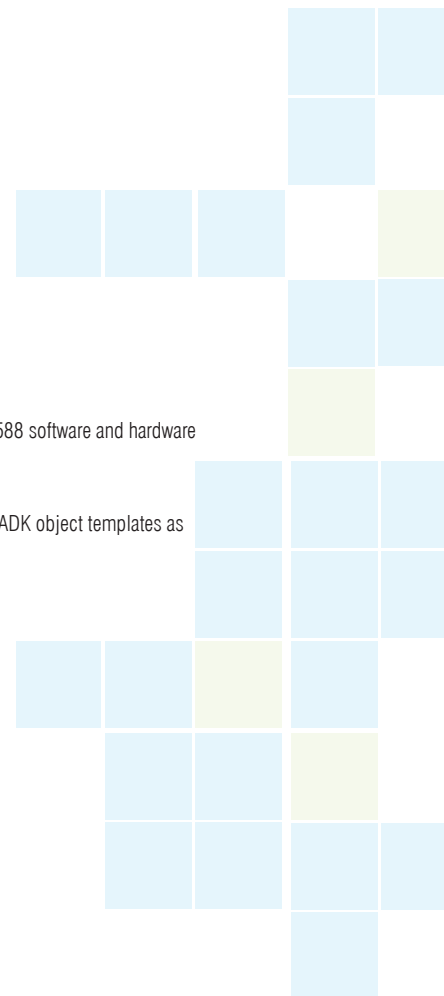
- “Platform files” separate single platform-specific routines for simple porting
- Compatible with TCP/IP stacks that provide Berkeley Sockets compatibility
- Stack core source code is ‘C’ for portability
- Stack code can be moved across platforms with little-to-no modification
- Successfully used on many platforms, from simple widgets with no operating system to mid-level complex computer systems
- Successfully used in environments including:
  - Embedded: VxWorks, Linux, uC/OS, many others
  - Windows CE/Mobile
  - PC-based: Linux and Windows (using included DLLs)
  - No OS: devices driven by a timer tick

### Supports Objects and Functionality:

- Message router
- Connection manager
- Port
- Identity
- Ethernet link
- TCP/IP
- QOS
- \*DLR
- \*CIP Sync
- Assembly
- \*\*Custom objects
- File object
- Class 0 support
- Energy object

\* Configuration objects only – DLR and IEEE1588 software and hardware not included.

\*\* Users can create additional objects using EADK object templates as a starting point.



# NEW FEATURES AND ODVA COMPATIBILITY

## Release 4.8.1

- \*Tested with ODVA CT15
- Supports TCP/IP object revision 2
- Supports Ethernet Link Object revision 4
- Flexible and scalable, allowing users to specify the number of connections, requests, etc. from build time parameters
- Supports “Big 12” diagnostics
- Includes files for conformance test CT15
- Includes a sample EDS file as a starting point

\* To test the latest EADK stack, we create a pseudo-device and run the latest ODVA conformance software against the pseudo-device.

## Release 4.8.1 Includes:

- EtherNet/IP Adapter Class Protocol Stack ‘C’ source code for cross-platform development and portability
- EADK Adapter DLLs (32 & 64bit) with C++ function call API, C# API and COM API for use of EADK stack with Windows and .NET applications
- An adapter class example application executable with source code that demonstrates use of the EADK’s adapter class API and functionality
- EADK getting started guide, software reference manuals and porting guide
- Application notes and code samples that demonstrate specific stack features
- Example STC file to edit and use with your product when pre-conformance testing
- Example EDS file that demonstrates the EADK stack as a Class 1 connection target by remote tools, such as RSNetWorx for EtherNet/IP or other configuration tools
- Sample platform files included as mapping examples for different platforms



## PERFORM FUNCTIONS, SUCH AS:

- Start the stack
- Establish an event callback
- Instantiate assembly instances
- Respond to an external connection
- Produce data on a connection
- Receive data from a connection
- Process an object request
- Send an unconnected explicit message
- Stop the stack

Note: The above is an example subset of the EADK APIs.

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## DEFINING YOUR DEVICE

When you define your device, you determine what application objects are needed to interface to the outside world for data and configuration.

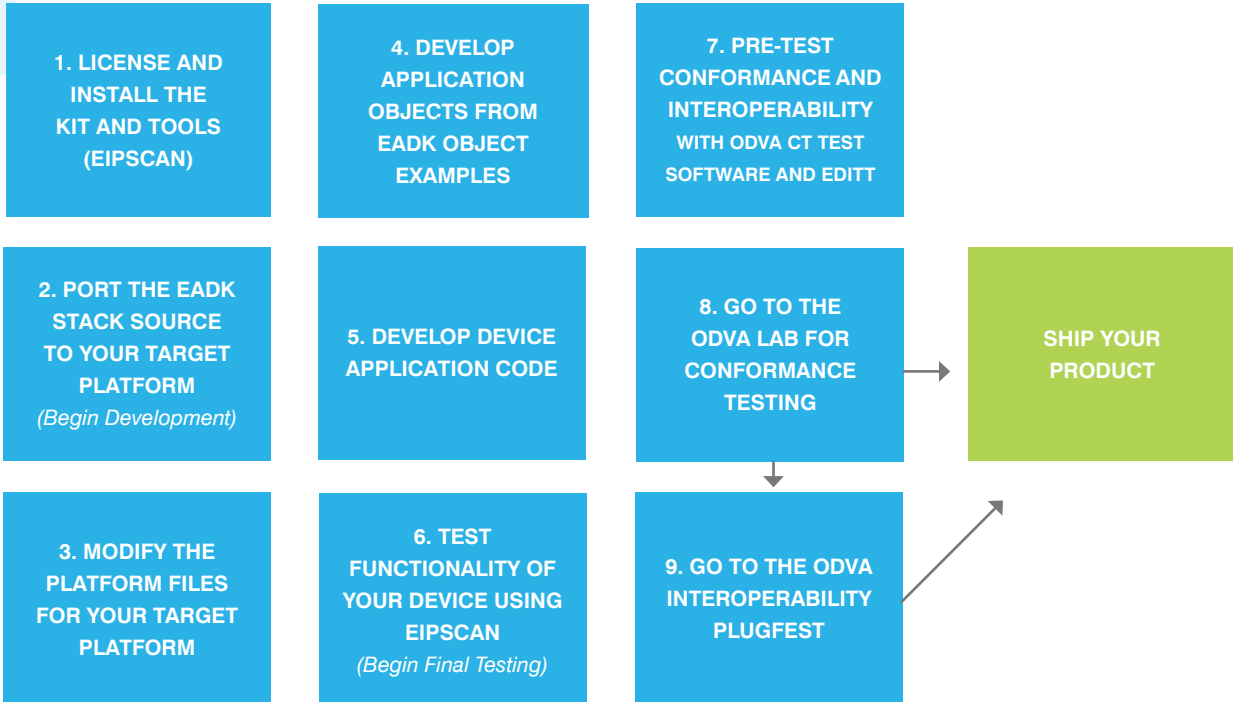
Our EtherNet/IP Adapter Development kit ships with a set of standard objects, but by using the object templates, you can create your own application objects that will be included at runtime in the stack.

You also determine what assembly instances and sizes you need, which you can instantiate at runtime. This feature can be used by your application code based on the configuration of your device.

Regarding your platform, we ship example platform files with our stack to assist you in getting the kit ported to your target platform and OS (or no OS). We use the platform files for mappings so the stack can stay intact, making it easier to integrate updates in the future.

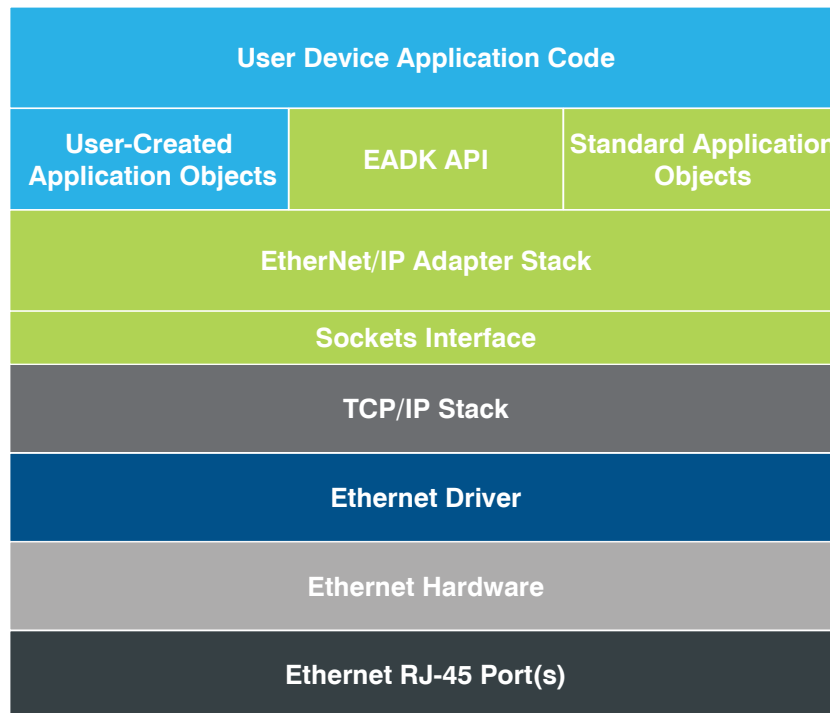


## DEVELOPMENT LIFE CYCLE



Note: You need to get a vendor ID and the CIP and EtherNet/IP specs from ODVA as required by their Terms of Usage.

## ETHERNET/IP ADAPTER DEVICE HIGH LEVEL ARCHITECTURE



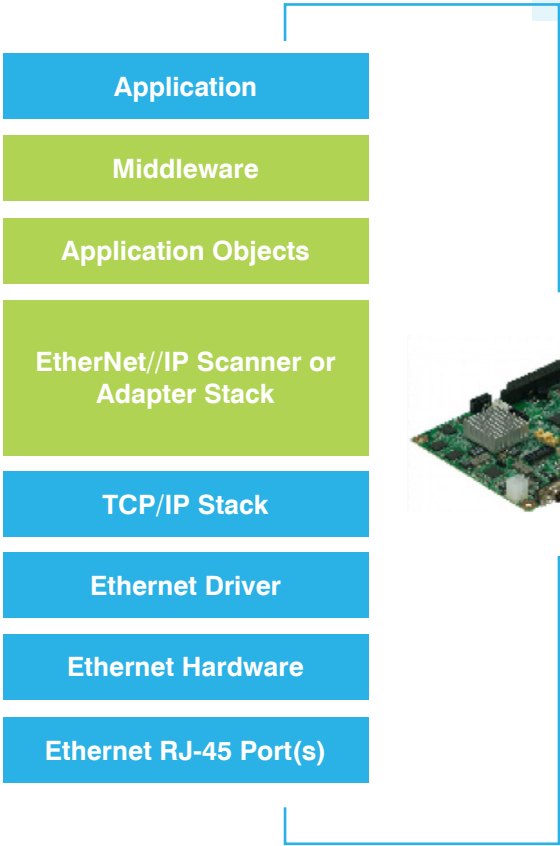
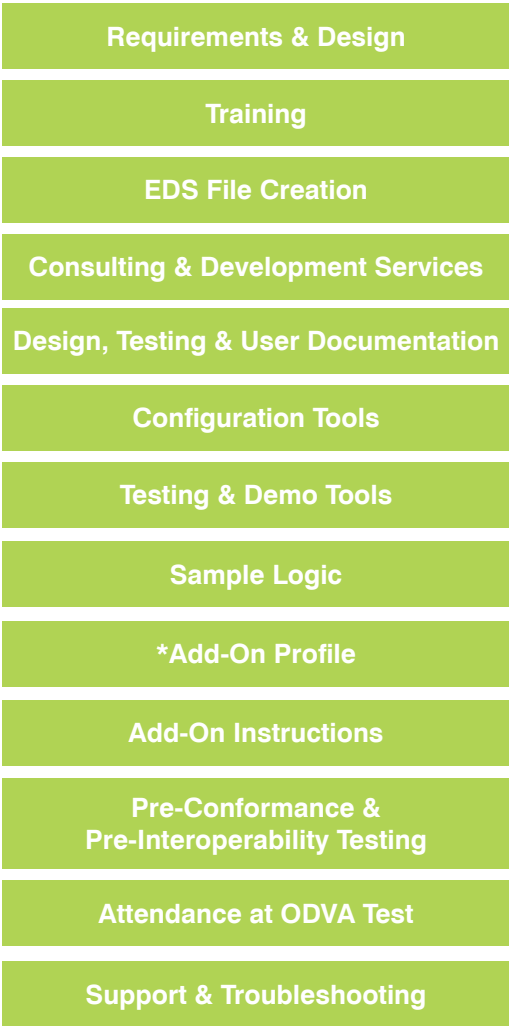
### NetStaX EtherNet/IP Adapter Development Kit

User-created application objects are developed using the object templates provided with the kit.

Assembly instances are dynamically allocated by the device application code at runtime from the assembly object's pre-allocated resources.

# PYRAMID SOLUTIONS PROVIDES THE FOLLOWING SERVICES:

- EtherNet/IP and EADK kit training
- Assistance in requirements gathering
- Expert consulting – design / development / testing / troubleshooting
- Development services – from getting you started to full turnkey development
- Configuration and test tools development
- Pre-conformance and pre-interoperability testing
- Attendance of the ODVA lab test or remote support
- Extended support



**Pyramid Solutions Product & Services Options**

\* Rockwell Automation provides AOP services and Pyramid Solutions prepares the device properly beforehand.

## **IF YOU HAVE QUESTIONS PLEASE CONTACT:**

Glenn Beal

248-549-1200 x5791

[gbeal@pyramidsolutions.com](mailto:gbeal@pyramidsolutions.com)

## **IF YOU ARE LOOKING FOR SUPPORT FOR YOUR EXISTING NETSTAX PRODUCTS CONTACT:**

[productsupport@pyramidsolutions.com](mailto:productsupport@pyramidsolutions.com)

**PYRAMID**  
SOLUTIONS

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