Call to Order

General Session and
17th Annual Meeting of Members

October 15, 2015
Welcome Back
8:15 AM  17th TERM IN REVIEW: REPORT ON THE ACTIVITIES OF THE ASSOCIATION

  with special report on the
  OPTIMIZATION OF INDUSTRIAL CYBERSECURITY: UPDATE ON ODVA’S TECHNICAL APPROACH

9:30 AM  MEMBERSHIP: PRESENTATION OF CANDIDATES FOR ELECTION

9:45 AM  Election and Break

10:15 AM  INTEGRATING ETHERNET/IP™

10:45 AM  THE INTELLIGENT FACTORY OF THE FUTURE: INDUSTRIE 4.0 AND THE SMARTFACTORYKL PROJECT

11:30 AM  18TH TERM: LOOKING AHEAD

12:00 PM  Adjourn

Member Luncheon immediately following in the Cypress Room.
First, a look back at ODVA...

20 Years Old

March 24, 2015
Founded in Wisconsin USA
on March 24, 1995

by

OMRON
Rockwell Automation
Square D and Westinghouse Cutler-Hammer
Founded for the purpose of promoting the adoption of DeviceNet including the promulgation of standards, establishment of compliance criteria and conformance testing.
Pioneer in the use of COTS for ICT applied to industrial automation - adapting CAN to a viable industrial network -
Based on IEEE 802.3 and the TCP/IP Suite, EtherNet/IP proved that COTS can work for industrial automation applications as a result of standards, compliance criteria and conformance testing.
Networks Built on a Common Industrial Protocol
Its ascent during the same time frame has ideally positioned it for the 4th Industrial Revolution. ... the world of integrated cyber-physical systems.
REFLECTIONS ON THE ODVA EXPERIENCE
from the “Historians”
AND NOW THE 17TH TERM IN REVIEW

by
Katherine Voss, president & executive director
Rich Harwell, chief technology officer
Mix by Principal Place of Business

- USA/Canada: 48%
- Germany: 16%
- Japan: 13%
- China: 3%
- Other Europe: 12%
- Other Asia: 5%
- All Other: 3%

305 and counting
Membership by Areas of Activity

- HQ Staff & local PR supporting North & Latin America
- HQ Staff supporting Asian in-country resources
- RIC Germany
- RIC Italy
- TAG Korea
- ODVA ATS with TAG China
- TAG Japan
- HQ Staff supporting Asian in-country resources
Leadership in the 17th Term: Board of Directors

Michael Höing  
Weidmüller Interface

Fabrice Jadot  
Schneider Electric

Dr. Jürgen Weinhofer  
Rockwell Automation

Kent Howard  
Balluff

Tony Shakib  
Cisco Systems

Dr. Thomas Bürger  
Bosch Rexroth

Dr. Rolf Birkhofer  
Endress+Hauser

Ikuo Tateishi  
Omron
Leadership in the 17th Term: Officers

- President and Executive Director – Katherine Voss
- Chief Technology Officer – Rich Harwell
- Secretary – Christopher Lynch
- Treasurer – Jürgen Weinhofer
Since Sunny Phoenix in March 2014 . . .
Deployment of New Brand Architecture

New Brand Assets Launched at Hannover Fair 2014
Deployment of New Brand Architecture

Brand Standards+Identity Guidelines
Published August 2014

Declaration of Conformity
New Template Released Q2 2015
Including Hannover Fair 2014, the EtherNet/IP exhibit by ODVA has appeared at five industry tradeshows:

- Hannover Fair 2014 (Hannover, Germany)
- Industrial Automation Show 2014 (Shanghai)
- SPS IPC Drives Show 2014 (Nuremberg, Germany)
- Hannover Fair 2015 (Hannover, Germany)
- ACHEMA 2015 (Frankfurt, Germany)

At each of these shows, ODVA members participate with products in the Product Gallery, displays in the Member Gallery and a multi-member interoperability demonstration.
Territory Alliance Groups and Regional Interest Communities have driven additional local presence with:
  - Seminars
  - Webinars
  - Tradeshow Support for ODVA Exhibits.
China

Standardization Administration of China Approved CIP Safety as Chinese National Standard July 2015

Blended effort by staff, members and ODVA's standardization partner in China, ITEI
 Territory Alliance Groups and Regional Interest Communities have driven additional local presence with
  - Seminars
  - Webinars
  - Tradeshow Support for ODVA Exhibits.
ODVA Community in Action

Territory Alliance Groups and Regional Interest Communities have driven additional local presence with
- Seminars
- Webinars
- Tradeshow Support for ODVA Exhibits.

Italy
Territory Alliance Groups and Regional Interest Communities have driven additional local presence with
- Seminars
- Webinars
- Tradeshow Support for ODVA Exhibits.

Japan
ODVA Community in Action

Territory Alliance Groups and Regional Interest Communities have driven additional local presence with
- Seminars
- Webinars
- Tradeshow Support for ODVA Exhibits.

Korea
Other Activities of Note

• EtherNet/IP QuickStart

• Functional Safety Week in July 2015
Agenda

- ODVA technology development overview
- Technical Review Board (TRB) roster
- Special Interest Group (SIG) roster
- Key Accomplishments in the 17th Term
- Planned Activities in the 18th Term
Technical Review Board

1. Rudy Belliardi
2. Paul Didier
3. Dr. Jörg Hähniche
4. Rich Harwell, chairperson
5. Rich Jackson
6. Dr. Ludwig Leurs
7. Eric Scott
8. Dave VanGompel
9. Joakim Wiberg
Special Interest Groups

- EtherNet/IP In Process Industries – Mirko Brcic (Endress+Hauser) (new SIG)
- CIP Safety – Bruce Brown (Rockwell) (new chair)
- IO-Link Integration – Frank Moritz (SICK)
- DeviceNet of Things – Thomas Peter (Weidmueller)
- Machinery Information – Rainer Beudert, Steve Zuponcic, Ludwig Leurs
- EtherNet/IP Physical Layer – Bob Lounsbury (Rockwell)
- DeviceNet Physical Layer – Brad Woodman (Molex)
- EtherNet/IP Infrastructure – George Ditzel (Schneider)
- EtherNet/IP System – Brian Batke (Rockwell)
- Distributed Motion – Steve Zuponcic (Rockwell)
- CompoNet – Tianbing Li (Omron)
- Conformance – Qi Zeng (ODVA)
- Modbus Integration – Todd Snide (Schneider)
- Energy Applications – Rick Blair (Schneider)
- CIP System – Dave VanGompel (Rockwell)
- EtherNet/IP Roundtable – Kevin Knake (HMS) in North America, Ulrich Kaemmerer (Schneider) in Europe
74 specification enhancements over 4 publication cycles with a focus on extending CIP Common features and EtherNet/IP.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CIP Common (V1)</td>
<td>12</td>
<td>11</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>EtherNet/IP (V2)</td>
<td>7</td>
<td>4</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>DeviceNet (V3)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>CIP Safety (V5)</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Modbus Integration (V7)</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>CIP Security (V8)</td>
<td></td>
<td></td>
<td></td>
<td>6</td>
</tr>
</tbody>
</table>
### Key Accomplishments Since Last Annual Meeting

<table>
<thead>
<tr>
<th>Topic</th>
<th>SIG</th>
<th>Volume</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIP Security</td>
<td>EtherNet/IP System : Cybersecurity WG</td>
<td>New CIP Security Volume 8</td>
<td>First Step (Doggett presentation)</td>
</tr>
<tr>
<td>Gigabit Ethernet Support</td>
<td>EtherNet/IP system</td>
<td>Vol 2</td>
<td>Supporting Slide</td>
</tr>
<tr>
<td>EtherNet/IP CT12 and DeviceNet CT26 released</td>
<td>Conformance</td>
<td>Conformance Test Enhancements</td>
<td>Supporting Slide</td>
</tr>
<tr>
<td>CIP Motion Device Axis Object Updates</td>
<td>CIP Motion</td>
<td>Vol 1</td>
<td>Updated Frequency Control, feedback types and start and stop control</td>
</tr>
<tr>
<td>Dual Channel Safety Feedback</td>
<td>Safety</td>
<td>Vol 5</td>
<td>Extended safety product support</td>
</tr>
</tbody>
</table>
Gigabit Ethernet Enhancements

- Benefit of Leveraging Standard Unmodified Ethernet

- Related Specification Activity
  - ESE-001-051: Gigabit Ethernet support in Ethernet Link Object (EtherNet/IP System SIG)
  - 1 Gbit Industrial Ethernet cable study (EtherNet/IP Physical Layer SIG)

- Positive Impact Across EtherNet/IP applications
  - CIP Motion
    - Ability to handle many more axes per millisecond
    - Easier to intermix CIP Motion devices with non-CIP Motion devices
Conformance Test Updates

- EtherNet/IP CT12 and DeviceNet CT26 released (December 2014)
  - Significant Enhancements in key object testing
    - Port object, identity object, connection manager object...
  - Improved DLR testing

- Test Plans for Conformance Test extensions:
  - TCP Socket Cleanup Test Plan
    Author: Jamin Wendorf (Real Time Automation)
  - CIP Transport IO Packet Injection Test Plan
    Author: Christoffer Lind, Björn Otterdahl (HMS Industrial Networks)
  - PRP Test plan
    Author: Sunita Patel (Schneider Electric)
### Key Future Activities

<table>
<thead>
<tr>
<th>Topic</th>
<th>SIG</th>
<th>Volume / Revision</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>EtherNet/IP for Process enhancements</td>
<td>EtherNet/IP for process</td>
<td>Vol 1 and Vol 2, White Paper</td>
<td>Supporting Slide</td>
</tr>
<tr>
<td>Roundtable Diagnostic activities</td>
<td>EtherNet/IP Roundtable/CIP System/EtherNet/IP System</td>
<td>Vol 1 and Vol 2</td>
<td>Supporting Slide</td>
</tr>
<tr>
<td>CIP Security Parts 1.5 &amp; 2</td>
<td>EtherNet/IP System</td>
<td>Vol 2 and Vol 8</td>
<td>Step 1.5 and Step 2 (Doggett Presentation)</td>
</tr>
<tr>
<td>CIP Motion Reorganization</td>
<td>CIP Motion</td>
<td>New CIP Motion volume</td>
<td>Reorganize the material from current volumes</td>
</tr>
</tbody>
</table>
EtherNet/IP in the Process Industries

Plans for next 12-18 months

- Follow-up Reference Architecture for Process Industries
  - Provide implementation examples of 'X in the cloud' 'as a service' developments, e.g. SCADA implementation in the cloud (either public or private) based on the logical architecture.

- Finalizing Input Assembly structure including device diagnostics
  - Standardized access to process data from EtherNet/IP devices including device diagnostics
  - Definition of device diagnostics for native EtherNet/IP devices that are compliant with NAMUR NE-107

- Finalizing HART mapping on CIP
  - Standardized CIP object structure to get access to HART

- Define PoE adaptation for EtherNet/IP
Change in structure, scope of work and mission of the Roundtable allows much better alignment with ODVA objectives with the TRB directed topics to the group and approval of work products.

Work in progress:

- **Diagnostics project** - Common diagnostic method and parameters that can be consistently implemented across all EtherNet/IP devices. Complete Diagnostics Scope drafted and submitted to relevant SIGs.
- **LLDP investigation** - How LLDP can be applied to EtherNet/IP
- **Interoperability Conformance Testing** - Assisting Conformance Authority to add interoperability testing to a future Conformance Test offering.
- **PlugFest** - ACD test improvements, prove out tests for multi-port devices and DLR Performance Profile.
- **Vendor education** - EtherNet/IP technology tutorials, presenters for Quick Start training
- **CIP Security** - supporting adoption of these key new capabilities
THANK YOU