

The InterNational Committee for Information Technology Standards INCITS

Systems Integration: Internet of Things
(IoT); Smart Cities

System Integration

Background on Systems Integration in JTC 1

- Why
 - Complex Topics
 - Cross functional expertise required
 - Deliverables across SCs
- Existing Processes Reviewed
 - IEC System Committees
- Draft of JTC 1 Systems Integration Guidelines
 - SG – Exploration of a Topic
 - JTC 1 WG

Internet of Things (IoT)

Background on IoT

- In 2013 Special Working Group was formed in JTC 1 to discuss Internet of Things
 - Develop a common understanding of IoT
 - Identify Market Requirements for IoT
 - Identify Standardization Gaps and develop a Standards roadmap
 - Reference Architecture/Framework

Additional Background

- Notions of IoT
 - Cyber Physical Systems (CPS)
 - M2M (Machine to Machine Communications)
 - Internet of Everything
 - Industrial Internet
- 400+ Existing standards that relate to IoT
- Key will be a Reference Architecture

Definition of IoT

An infrastructure of interconnected objects, people, systems and information resources together with intelligent services to allow them to process information of the physical and the virtual world and react.

Working Group 10 on IoT

Terms of Reference

1. *Serve as a focus of and proponent for JTC 1's IoT standardization program.*
2. *Develop foundational standards for IoT related to JTC 1 for guiding IoT efforts throughout JTC 1 upon which other standards can be developed.*
3. *The work will cover:*
 - *Developing Terms and Definitions for JTC 1 IoT Vocabulary*
 - *Developing IoT Reference Architecture and other foundational specifications as JTC 1 standards*
 - *Continuing the work begun in SWG on IoT on standardization gaps*
 - *Establishing a liaison with JTC 1, ISO, IEC or other entities undertaking work related to IoT*
 - *Encouraging the prompt and efficient exchange of information within JTC 1 and with ISO, IEC, or other entities working on IoT, as appropriate*
 - *Monitoring the ongoing IoT regulatory, market, business and technology requirements*
 - *Developing other IoT standards that build on the foundational standards when relevant JTC 1 subgroups that could address these standards do not exist or are unable to develop them.*

IoT Facilitation with SWG-Management

1. *Facilitating IoT projects in JTC 1 by:*
 - a) *Noting approved NWIPs in the area of IoT*
 - b) *Facilitating the initiation of NWIPs considering recommendations prepared by the JTC 1 WG 10 on IoT.*
 - c) *Advising JTC 1 on IoT related projects that are ongoing and proposed within JTC 1 Subgroups.*
2. *Addressing and coordinating the areas of possible conflict including such things as NWIPs and project splits relating to IoT when a concern is brought forward.*
3. *Developing and maintaining a list of existing IoT standards produced and standards development projects underway in JTC 1.*
4. *Collaborating with the JTC 1 WG on IoT's efforts to grow the awareness and involvement of those outside JTC 1 in IoT efforts within JTC 1.*

Subgroups in WG 10

- Standardization Gaps
 - Continue to leverage work from SWG on IoT
- Network Level Technologies for IoT
 - Identify Network Level Requirements
 - Identify existing standards and potential gaps
 - Review existing solutions
- IoT Identification

Existing Work on IoT in JTC 1

- 30141 – IoT Reference Architecture (WG 10)
- Study Period on IoT Security and Privacy (SC 27)
- NWIP on Information technology – Use of object identifiers to identify devices in the Internet of Things (SC 6)
- TR 29181-9 Future-Network – Problem statement and requirements-Part 9: network of everything (SC 6)
- MPEG IoT exploration

Some other Organizations working on IoT

- ITU-T <http://www.itu.int/en/ITUT/techwatch/Pages/internetofthings.aspx>
 - In particular SG 13 and SG 17
- oneM2M <http://www.onem2m.org/>
- IoT-I <http://www.iot-i.eu/public/public-deliverables/>
- IoT Forum <http://iotforum.org/>
- IETF <http://www.ietf.org/>
- - 6lowPAN <http://www.6lowpan.org/>
- - 6man <https://datatracker.ietf.org/wg/6man/documents/>
- - COAP <https://datatracker.ietf.org/doc/rfc7252/>
- MQTT <http://mqtt.org/>
- Industrial Internet Consortium <http://www.iiconsortium.org/>
- Open Interconnect Consortium <http://www.openinterconnect.org/>
- Thread Group <http://www.threadgroup.org/>
- AllSeen Alliance <https://allseenalliance.org/>
- Auto-ID Labs <http://www.autoidlabs.org/>
- IEEE Standards Association <http://standards.ieee.org/innovate/iot/>
- Web of Things Community Group <http://www.w3.org/community/wot/>
- AIM <http://www.aimglobal.org/>
- OASIS Message Queuing Telemetry Transport
https://www.oasisopen.org/committees/tc_home.php?wg_abbrev=mqtt

Meeting Information

- INCITS IoT10
 - 05 May 2015 (Teleconference)
- WG 10
 - 1st Meeting: Jan 27-29, 2015 in Berlin
 - Planned meetings:
 - 18-22 May 2015 Brussels Belgium
 - 31 Aug – 4 September 2015 Canada

Smart Cities

What Happened With Smart Cities Last Year?

- Study Group 1 – Smart Cities concluded last September
 - Study Group Report – [JTC 1 N 12211](#)
 - Study Group proposed to convert itself into Special Working Group
 - China had proposed 4 NWIPs to SG 1, but they were rejected as being premature.

What Happened With Smart Cities Last Year?

- JTC 1 Plenary in Abu Dhabi declined SWG, Reinstated SG instead
 - JTC 1 N 12395 – Abu Dhabi Resolution 23
 - Smart Cities *could* eventually become a JTC 1 level “system integration” WG, *if* appropriate ICT-related NWIPs are identified
 - Unlike Big Data and IoT, Smart Cities has *components* of ICT in it, but it itself is not *entirely* ICT related. Since Big Data and IoT are themselves ICT centric issues, it made sense to have JTC 1 “own” the umbrella--defining the vocabulary and reference architecture---for each, but since Smart Cities is a broader topic, we can follow our parents’ leads as they establish the big picture.
 - Study Groups are typically shorter lived entities than Special Working Groups, so since we hope to be ready this year to move to a “system integration” WG, a Study Group made most sense
 - The previous SG leaders from China were retained
 - Convenor (Yuan Yuan) and Secretary (Tangli Liu)

What's happening now with Smart Cities?

- SG 1 – Smart Cities Deliverables for 2015
 - a new SG Report
 - identify one or more appropriate, ICT-related NWIPs
- Keeping eye on parent's Smart Cities efforts
 - ISO Technical Management Board Advisory Group (TMB/AG) on Smart Cities report is due by June for TMB review in September.
 - The IEC Systems Evaluation Group – Smart Cities (SEG 1) report is due April 25. SMB reviews report in June, finalize decision in Oct.

Smart Cities Work Plan

- **Int'l Work Plan** (meet twice in-person, w/ monthly telecons)
 - Teleconferences: Jan 28, April 29, May 27, June 24, July 29, Sep 15
 - F2F Meetings: Mar 4-6 (Beijing), Sep 2-4 (Montreal)
- **US Plan** (hold monthly prep meetings to participate in int'l meetings)
 - George Percivall/OGC (US-based consortium) is now a co-editor
 - Identify potential NWIPs

Thank you