

IoT Ecosystem Security

Industry Connections Activity Initiation Document (ICAID)

Version: 1.0, 2 September 2020

IC20-011-01 Approved by the IE&SS SMDC 8 October 2020

Instructions

- Instructions on how to fill out this form are shown in red. It is recommended to leave the instructions in the final document and simply add the requested information where indicated.
- **Shaded Text** indicates a placeholder that should be replaced with information specific to this ICAID, and the shading removed.
- Completed forms, in Word format, or any questions should be sent to the IEEE Standards Association (IEEE-SA) Industry Connections Committee (ICCom) Administrator at the following address: industryconnections@ieee.org.
- The version number above, along with the date, may be used by the submitter to distinguish successive updates of this document. A separate, unique Industry Connections (IC) Activity Number will be assigned when the document is submitted to the ICCom Administrator.

1. Contact

Provide the name and contact information of the primary contact person for this IC activity. Affiliation is any entity that provides the person financial or other substantive support, for which the person may feel an obligation. If necessary, a second/alternate contact person's information may also be provided.

Name: Ashish Mahajan

Email Address: ashish@iotsec.net.au

Employer: lotSec

Affiliation: IoTSec.net.au

IEEE collects personal data on this form, which is made publicly available, to allow communication by materially interested parties and with Activity Oversight Committee and Activity officers who are responsible for IEEE work items.

2. Participation and Voting Model

Specify whether this activity will be entity-based (participants are entities, which may have multiple representatives, one-entity-one-vote), or individual-based (participants represent themselves, one-person-one-vote).

Entity Based

3. Purpose

3.1 Motivation and Goal

Briefly explain the context and motivation for starting this IC activity, and the overall purpose or goal to be accomplished.

Describe the motivation and goal.

By 2025, there will be more than 21 billion IoT devices which means, every sector including Healthcare, Smart Energy, Industrial IoT, Smart Cities and every individual and household will have IoT dependency for improved efficiency, process optimisation or ease. With the IoT growing bigger and ever more complex, the question arises for companies of how to keep pace and without a doubt, technology enabling IoT will become the prime and easy target for Cybercriminals. The motivation behind this IC is to raise awareness at consumer and manufacturers sector and work with regulators to promote secure practices in the IoT ecosystem with a view of IoT as an inextricably linked ecosystem comprised of people, processes, and technology.

3.2 Related Work

- Working group: IEEE P2933, Standard for Clinical Internet of Things (IoT) Data and Device Interoperability with Trust, Identity, Privacy, Protection, Safety, and Security (TIPPSS). This standard establishes the framework with Trust, Identity, Privacy, Protection, Safety, Security principles for Clinical IoT data and device validation and interoperability.

One of the objectives as part of this IC program is also to understand some of the security work that has been done with some of our standards focused around IoT; IEEE P2413-2019 had a focus on "quadruple trust" and hence we'd like to make sure when we are looking into this problem, we are having considerations of work already happening. We might also discover few other IEEE standards as we are looking into some established work. This work is looking at a "top down" approach as we are looking into the IoT Security Framework but this needs to have into consideration some of the bottom up security work happening in a distributed fashion today.

3.3 Previously Published Material

Provide a list of any known previously published material intended for inclusion in the proposed deliverables of this activity.

List the previously published material, if any.

N/A

3.4 Potential Markets Served

This will serve the global market focusing on Critical infrastructure, Consumer IoT, Medical IoT, and Consumer.

Describe the potential markets.

3.5 How will the activity benefit the IEEE?

Global standardization of IoT is the only solution to reduce the overall security risk, ensure interoperability and meet technical, safety, regulatory, societal and market needs. With global reach and dedication to advancing technology for the benefit of humanity, identifying necessary new standards activities (or enhancements to existing standards) for IoT landscape under IEEE's guidelines will have a positive influence on global society.

4. Estimated Timeframe

Indicate approximately how long you expect this activity to operate to achieve its proposed results (e.g., time to completion of all deliverables).

Expected Completion Date: 09/2022

IC activities are chartered for two years at a time. Activities are eligible for extension upon request and review by ICom and the IEEE-SA Standards Board. Should an extension be required, please notify the ICom Administrator prior to the two-year mark.

5. Proposed Deliverables

1. Draft white Paper and report on IoT Security Framework which identifies current architectures and the need to address secure practices in the IoT ecosystem; This paper will also include identification of other communities (working groups) within IEEE SA who are focused on IoT and other ecosystem players addressing security issues as part of the overall landscape (Q3 2021)
2. Gap analysis w.r.t. existing standards (Dec 2021)
3. Develop recommendations for best practice standard/guidelines which will be proposed as new projects to the IEEE SA (March 2022); proposal will be planned to be submitted to IEEE SA as and when they are identified
4. Workshops, conferences for awareness on IoT Security and Best practices, upcoming challenges (Q3 2021) – plan to do one in 2021 and a followup workshop in 2022
5. Final version of the white paper and report (April 2022)

Outline the anticipated deliverables and output from this IC activity, such as documents (e.g., white papers, reports), proposals for standards, conferences and workshops, databases, computer code, etc., and indicate the expected timeframe for each.

Specify the deliverables for this IC activity, please be specific.

5.1 Open Source Software Development

Indicate whether this IC Activity will develop or incorporate open source software in the deliverables. All contributions of open source software for use in Industry Connections activities shall be accompanied by an approved IEEE Contributor License Agreement (CLA) appropriate for the open source license under which the Work Product will be made available. CLAs, once accepted, are irrevocable.

Will the activity develop or incorporate open source software (either normatively or informatively) in the deliverables?:

6. Funding Requirements

Outline any contracted services or other expenses that are currently anticipated, beyond the basic support services provided to all IC activities. Indicate how those funds are expected to be obtained (e.g., through participant fees, sponsorships, government or other grants, etc.). Activities needing substantial funding may require additional reviews and approvals beyond ICom.

No additional funding requests are anticipated beyond the basic IC support services provided by IEEE

7. Management and Procedures

7.1 Activity Oversight Committee

Indicate whether an IEEE committee of some form (e.g., a Standards committee) has agreed to oversee this activity and its procedures.

Has an IEEE committee agreed to oversee this activity?: No

If yes, indicate the IEEE committee's name and its chair's contact information.

IEEE Committee Name: Committee Name

Chair's Name: Full Name

Chair's Email Address: who@where

Additional IEEE committee information, if any. Please indicate if you are including a letter of support from the IEEE Committee that will oversee this activity.

IEEE collects personal data on this form, which is made publicly available, to allow communication by materially interested parties and with Activity Oversight Committee and Activity officers who are responsible for IEEE work items.

7.2 Activity Management

If no Activity Oversight Committee has been identified in 7.1 above, indicate how this activity will manage itself on a day-to-day basis (e.g., executive committee, officers, etc).

The activity will be managed by the leadership of the working group from IoTSec

The group would establish a chair, vice-chair and other officers as needed; officers will be elected to manage the day to day operations of the group

7.3 Procedures

Indicate what documented procedures will be used to guide the operations of this activity; either (a) modified baseline *Industry Connections Activity Policies and Procedures*, (b) Standards Committee policies and procedures accepted by the IEEE-SA Standards

Board, or (c) Working Group policies and procedures accepted by the Working Group's Standards Committee. If option (a) is chosen, then ICCOM review and approval of the P&P is required. If option (b) or (c) is chosen, then ICCOM approval of the use of the P&P is required.

"Industry Connections Activity Modified Baseline Policies and Procedures".

8. Participants

8.1 Stakeholder Communities

Indicate the stakeholder communities (the types of companies or other entities, or the different groups of individuals) that are expected to be interested in this IC activity, and will be invited to participate.

Industrial IoT Industry (Device Manufacturers, System Integrators), Consumer IoT ecosystem, Regulatory Bodies, Healthcare providers, Entities focused on critical infrastructure

Specify types of entities or groups of individuals.

8.2 Expected Number of Participants

Indicate the approximate number of entities (if entity-based) or individuals (if individual-based) expected to be actively involved in this activity.

5-10 entities

Number of entities or number of individuals.

8.3 Initial Participants

Provide a number of the entities or individuals that will be participating from the outset. It is recommended there be at least three initial participants for an entity-based activity, or five initial participants (each with a different affiliation) for an individual-based activity.

Use the following table for an entity-based activity:

Entity	Primary Contact	Additional Representatives
IoTSec	Ashish Mahajan	Lani Refiti
GeoWan	Tim Cara	
Griffith Univeristy	Prof Ernest Foo	
Azcende	Alok Patel	
RIOT Solutions		

Use the following table for an individual-based activity:

Individual		Employer	Affiliation
Name			