The Printer Working Group

PWG November 2020 Face-to-Face Plenary Session

Smith Kennedy, PWG Chair
November 3, 2020

- Administrivia

- PWG Steering Committee Updates

- PWG Workgroup Status [WG Chairs]

- Liaison Status

- Questions / Next Meeting / Any Other Business

Administrivia

- Welcome and Introductions
- Confirm Minutes Taker
- Review PWG Patent Policy
- Agenda

PWG IP Policy

- "This meeting is being held in accordance with the PWG Intellectual Property Policy"
  - https://www.pwg.org/chair/membership_docs/pwg-ip-policy.pdf

- TL;DR: Anything you say in a PWG meeting or email to a PWG address can be used in a PWG standard
  - (but please do read the IP policy above if you haven't done so)

PWG Patent Statement

PWG standards may include the known use of essential patents and patent applications provided the PWG Chair receives assurance from the patent holder or applicant with respect to patents whose infringement is, or in the case of patent applications, potential future infringement the applicant asserts will be, unavoidable in a compliant implementation of either mandatory or optional portions of the standard. This assurance shall be provided without coercion.

PWG Patent Statement

This assurance shall be either:

- A general disclaimer to the effect that the patentee will not enforce any of its present or future patent(s) whose use would be required to implement either mandatory or optional portions of the proposed PWG standard against any person or entity complying with the standard; or

- A statement that a license for such implementation will be made available without compensation or under reasonable rates, with reasonable terms and conditions that are demonstrably free of any unfair discrimination.

PWG Patent Statement

The PWG is not in a position to give authoritative or comprehensive information about evidence, validity or scope of patents or similar rights, but it is desirable that any available information should be disclosed. Therefore, all PWG members shall, from the outset, draw PWG's attention to any relevant patents either their own or of other organizations including their Affiliates that are known to the PWG members or any of their Affiliates, although PWG is unable to verify the validity of any such information.

Inappropriate Topics for PWG Working Group Meetings

Do Not Discuss:

- The validity/essentiality of patents/patent claims
- The cost of specific patent use
- Licensing terms or conditions
- Product pricing, territorial restrictions, or market share
- Don't discuss ongoing litigation or threatened litigation

DO raise an objection if inappropriate topics are discussed

Agenda Overview – Day 1

(All times Eastern Standard Time)

Tuesday, November 3

  10:00 – 11:15   PWG Plenary
  11:15 – 11:30   IPP WG : Status
  11:30 – 12:00   IPP WG : Job Accounting with IPP v1.0
  12:00 – 12:30   Break / Lunch
  12:30 –   1:00   IPP WG : INFRA Cloud Proxy Registration
   1:00 –   1:30   IPP WG : IPP Production Printing Extensions v2.0
   1:30 –   2:00   IPP WG : IPP Everywhere Evolution

Agenda Overview – Day 2

(All times Eastern Standard Time)

Wednesday, November 4

10:00 – 12:00	IDS WG : Hardcopy Device Security Standards Status and Discussion
12:00 – 12:30	Break / Lunch
12:30 – 2:00	IPP WG : IPP Enterprise Printing Extensions v2.0

(All times Eastern Standard Time)

Thursday, November 5

10:00 – 12:00	IPP WG: Driverless Printing Extensions v2.0
12:00 – 12:30	Break / Lunch
12:30 – 1:45	IPP WG: 3D Printing Liaisons: Status & Guidance
1:45 – 2:00	IPP WG: Next Steps

The Printer Working Group

Steering Committee Updates

Officers (2019-2021 Term)

- PWG Chair: Smith Kennedy, HP Inc.

- PWG Vice-Chair: Jeremy Leber, Lexmark

- PWG Secretary: Ira McDonald, High North

Anyone interested in serving in a PWG Officer role? Reach out to chair@pwg.org!

2020 Membership

28 Members

Alan Sukert	Epson	Konica Minolta	Oki Data	Toshiba Business Solutions
Apple Inc.	Fuji Xerox	Kyocera	PaperCut Software	Tykodi Consulting Services LLC
Brother Industries, Ltd.	Google	Lakeside Robotics	Qualcomm	Xerox
Canon	High North, Inc.	Lexmark	Ricoh	YSoft
Danny Brennan	HP Inc.	Meteor Network	Synaptics	
directprint.io	Intel	Microsoft	Technical Interface Consulting	

Thanks to all of you for contributing your time and efforts to the PWG!

Future Meeting Schedule

- 2021
    - February 9 – 11:Virtual

    - May 4 – 6: (Joint PWG/OpenPrinting) - Virtual?

    - August 24 – 26: Virtual

    - November 8 – 10:Virtual

Contact chair@pwg.org if you are interested in hosting a PWG F2F event

IPP Everywhere™ Certified Printers

- https://www.pwg.org/ipp/everywhere.html

- ~~412~~ **625** printers now certified!
  - Lexmark registered its first 92 IPP Everywhere v1.1 certified products on October 21!
  - HP registered 121 new IPP Everywhere v1.0 certified products September 25-29!
  - https://www.pwg.org/printers/
  - More on the way!

- IPP Everywhere™ Self Certification 1.0 Update 5
  → Released June 2020; approved August 2020
  → Valid for certification until June 30, 2021

- IPP Everywhere™ Self Certification 1.1 Update 2
  → Released Oct 7, 2020; approved October 22, 2020
  → Mandatory for certification starting July 1, 2021

- Planning for IPP Everywhere v2.0 has begun

- Ideas?
  - New Requirements
    - IPv6
    - TLS 1.2 / 1.3
    - Discrete feature definitions?
    - Others???

<u>More discussion later today in this November 2020 F2F</u>

Recently Approved

- Candidate Standards
  - IPP Transaction Based Printing Extensions v1.1 (PWG 5100.16-2020)
    - https://ftp.pwg.org/pub/pwg/candidates/cs-ipptrans11-20200327-5100.16.pdf

  - IPP Everywhere™ v1.1 (PWG 5100.14-2020)
    - http://ftp.pwg.org/pub/pwg/candidates/cs-ippeve11-20200515-5100.14.pdf

  - IPP Everywhere™ Printer Self-Certification Manual v1.1 (PWG 5100.20-2020)
    - http://ftp.pwg.org/pub/pwg/candidates/cs-ippeveselfcert11-20200515-5100.20.pdf

- Registrations
  - System Service Discovery Registration
    - https://ftp.pwg.org/pub/pwg/ipp/registrations/reg-ippsysdisc10-20200604.pdf

Public Relations Efforts

- **Recent Press Releases**
  - INCITS TC / PWG Liaison Announcement
  - Mopria / PWG Liaison Refresh
  - General IPP announcement
    - IPP System Service v1.0
    - IPP Transaction-Based Printing Extensions v1.1
    - IPP Label Printing Extensions v1.0
  - Recently approved 3D related PWG specifications
    - IPP 3D Printing Extensions v1.1
    - PWG Safe G-Code Subset for 3D Printing v1.0

Process Updates

- Process v4.0 in development
  - New draft posted
  - Discussions ongoing

- PWG Policy
  - PWG IPP Registry Policy : 2020-05-18
  - PWG Namespace Policy : 2020-07-20
  - PWG Press Release Review Policy: 2020-09-08
  - PWG Roles and Responsibilities Policy : 2020-09-24
  - PWG Officer Elections : Draft in review
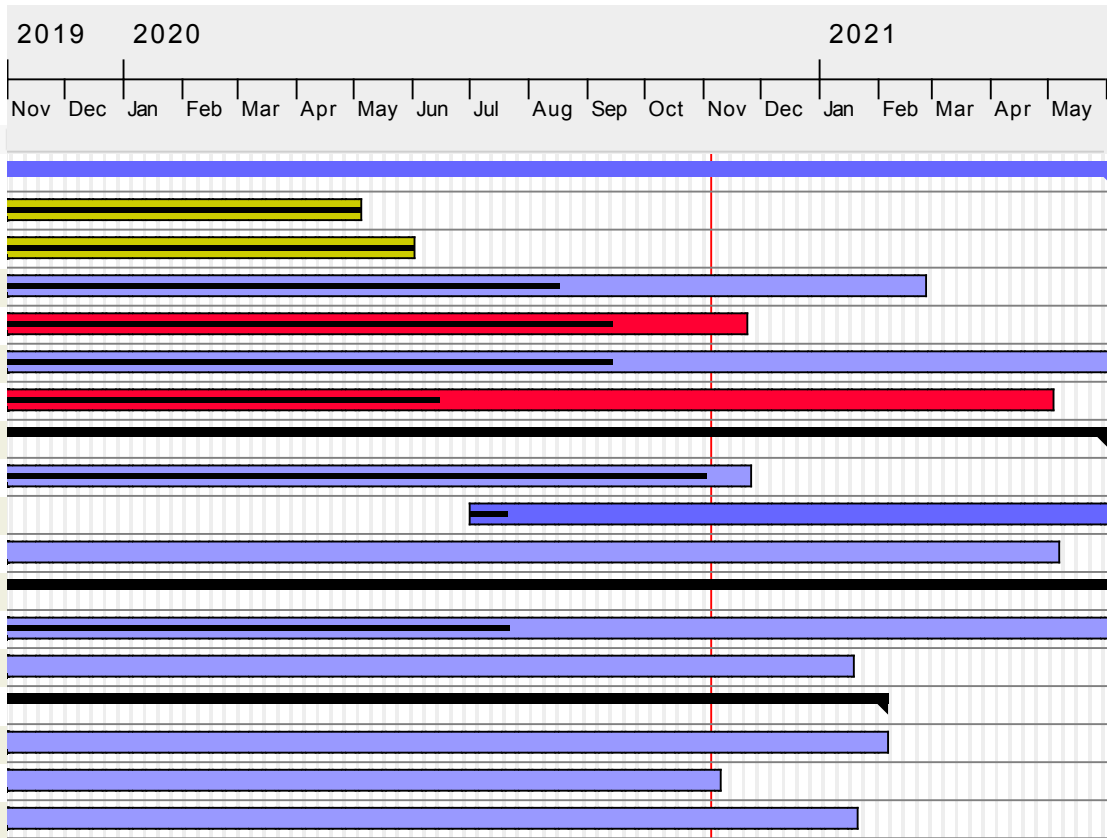 - PWG Network Infrastructure : Draft in review

Projects on GitHub

- PWG on GitHub:
  - https://github.com/istopwg

- IPP Sample
  - https://github.com/istopwg/ippsample

- IPP Everywhere Self Certification Tools
  - https://github.com/istopwg/ippeveselfcert

- IPP Registry
  - https://github.com/istopwg/ippregistry

- PWG Books:
  - https://github.com/istopwg/pwg-books

The Printer Working Group

Workgroup Status

Work In Progress

Name	2019	2020												2021				

Gantt chart rows (Nov 2019 – May 2021):

- IPP Workgroup
  - IPP Everywhere v1.1 — Stable (yellow)
  - IPP Everywhere Printer Self Certification v1.1 — Stable (yellow)
  - IPP Enterprise Printing Extensions v2.0 — Interim
  - IPP Production Printing Extensions v2.0 — Prototype (red)
  - IPP Driverless Printing Extensions v2.0 — Interim
  - IPP Encrypted Jobs and Documents v1.0 — Prototype (red)
  - IPP Registrations / White Papers
    - Job Accounting with IPP v1.0 — Interim
    - INFRA Cloud Proxy Registration v1.0 — Interim
  - Errata Updates — Interim
- IDS Workgroup
  - HCD cPP v1.0 — Interim
  - PWG HCD Security Guidelines v1.0 — Interim
- PWG SC
  - Process 4.0 — Interim
  - New Website — Interim
  - PWG Design Principles — Interim

Planned   **Interim**   **Prototype**   **Prototyped**   **Stable**

IDS Workgroup Status

Alan Sukert

IDS: Original Charter

- Investigate and define standards for addressing general security attributes for imaging devices and services. Our general goals are to:
  - Define standard metrics and protocol bindings to assess the health of Hardcopy Devices to gauge if they should be granted access to a network.
  - Define a set of standard security and policy attributes and values for authorizing Hard Copy Devices, their services and users in a global workspace
  - Provide a general security model for other PWG standards to reference
- Provide a path for vendors to review and contribute to the definition of Common Criteria HCD Protection Profiles

IDS WG: Officers

- IDS WG Chair:
  - Alan Sukert
- IDS WG Vice-Chair
  - TBD
- IDS WG Secretary:
  - Alan Sukert
- IDS WG Document Editors:
  - Ira – HCD Security Guidelines

IDS: Current Status

- IDS Charter updated to reflect development of HCD Security Guidelines by Ira

- Focus now is on Common Criteria HCD Protection Profiles (PPs), HCD Security Guidelines and Hardcopy Device security standards

  - IDS Charter updated to focus the IDS WG on outreach with standards bodies involved in HCD security issues.

    - Monitoring development of Hardcopy Device collaborative PP (cPP) / Supporting Document (SD)

    - Looking at initiating interface with other standards efforts related to hardcopy devices

  - Conference Calls.

    - Reinstated Regular IDS Conference Calls

    - Since last IDS F2F on 8/19/2020, calls held on 9/17, 10/15 and 10/29

    - Next Conference Call tentatively scheduled for 11/12/2020

- Focus now is on Common Criteria HCD Protection Profiles and other HCD-related Security Standards

  - HCD international Technical Committee (iTC) Bi-Weekly Meetings:
    - HCD iTC formally approved by CC Management Committee in Feb 2020
    - Since then have been holding bi-weekly HCD iTC Meetings; goal is to develop, review and publish an HCD cPP/SD v1.0 by 4Q 2021
    - Will discuss the results of the multiple Bi-Weekly HCD iTC Meetings held since last IDS F2F and the current HCD cPP/SD v1.0 status at the IDS F2F Session on Wednesday Nov 4th

  - Will also discuss recent presentation given to INCITS on applying Common Criteria to 3D Printing

- Developing Security Guidelines to provide guidance on current security technology and security issues

  - Will review the latest status at the IDS F2F Session

IDS WG: More Information

- We welcome participation from all interested parties
- IDS Working Group web page
  - https://www.pwg.org/ids/
- Subscribe to the IDS mailing list
  - https://www.pwg.org/mailman/listinfo/ids
- IDS WG holds bi-weekly conference calls via Zoom announced on the IDS mailing list
  - Next conference call is scheduled for Thursday, November 12, 2020 at 3pm ET

The Printer Working Group

IPP Workgroup Status

Paul Tykodi (TCS), Ira McDonald (High North)

Charter

- Current charter:
  - https://ftp.pwg.org/pub/pwg/ipp/charter/ch-ipp-charter-20170615.pdf
- New draft charter:
  - https://ftp.pwg.org/pub/pwg/ipp/wd/wd-ipp-charter-20201009-rev.pdf
- The Internet Printing Protocol (IPP) workgroup is chartered with the maintenance of IPP, the IETF IPP registry, and support for new clients, network architectures (Cloud, SDN), service bindings for MFDs and Imaging Systems, and emerging technologies such as 3D Printing
- In addition, we maintain the IETF Finisher MIB, Job MIB, and Printer MIB registries, the PWG MIBs, and handle synchronization with changes in IPP

Officers

- **IPP WG Co-Chairs:**
  - Paul Tykodi (TCS)
  - Ira McDonald (High North)
- **IPP WG Secretary:**
  - Michael Sweet (Lakeside Robotics)
- **IPP WG Document Editors:**
  - Ira McDonald (High North) - IPP WG Charter
  - Michael Sweet (Lakeside Robotics) – IPP Encrypted Jobs and Documents v1.0, IPP Production Printing Extensions v2.0, Job Accounting with IPP v1.0
  - Smith Kennedy (HP Inc.) – IPP Driverless Printing Extensions v2.0, IPP Encrypted Jobs and Documents v1.0, IPP Enterprise Printing Extensions v2.0

- PWG Specifications in development:
  - IPP Encrypted Jobs and Documents v1.0   - Prototype
  - IPP Enterprise Printing Extensions v2.0   - Interim
  - IPP Driverless Printing Extensions v2.0   - Interim
  - IPP Production Printing Extensions v2.0   - Prototype

- IPP Best Practices/Registrations in development:
  - Job Accounting with IPP v1.0   - Stable, PWG Last Call

- Recently published:
  - IPP Label Printing Extensions v1.0 (registration)
  - IPP System Service Discovery v1.0 (registration)
  - PWG 5100.14-2020: IPP Everywhere v1.1
  - PWG 5100.16-2020: IPP Transaction-Based Printing Extensions v1.1
  - PWG 5100.20-2020: IPP Everywhere Printer Self-Certification Manual v1.1

- Up-to-date pending IANA registrations online:
  - https://www.pwg.org/ipp/ipp-registrations.xml
  - Continue to maintain this in parallel for new specifications
  - Github repository: https://github.com/istopwg/ippregistry

- IPP Everywhere Printer Self-Certifications:
  - https://www.pwg.org/printers
  - ~~412~~ **625** printers currently listed from HP **and Lexmark**
  - 1.0 self-certification tools update 5 in June 2020, approved August 2020
  - 1.1 self-certification tools update 2 **approved October 2020**

- IPP Sample Code:
  - Github repository:
    - https://github.com/istopwg/ippsample
  - Fork of CUPS code includes ipp3dprinter, ippeveprinter, ippfind, ippproxy, ippserver, ipptool, ipptransform, and ipptransform3d

Status (3/3)

- Pending Errata:
  - PWG 5100.1-2017 (Finishings v2.1): 3 issues
  - PWG 5100.5-2019 (Document Object v1.1): 4 issues
  - PWG 5100.6-2003 (Page Overrides v1.0): 2 issues
  - PWG 5100.7-2019 (Job Extensions v2.0): 5 issues
  - PWG 5100.8-2003 ("-actuals" v1.0): 1 issue
  - PWG 5100.9-2009 (Printer State Extensions v1.0): 2 issues
  - PWG 5100.12-2015 (IPP 2.0, 2.1, and 2.2): 2 issues
  - PWG 5100.15-2014 (FaxOut v1.0): 2 issues
  - PWG 5100.18-2015 (Infrastructure Extensions v1.0): 6 issues
  - PWG 5100.19-2015 (Implementor's Guide v2.0): 6 issues
  - PWG 5100.22-2019 (System Service v1.0): 2 issues
  - PWG 5107.3-2019 (MFD Alerts v1.1): 1 issue
- In-Progress Errata:
  - PWG 5100.3-2001 (Production Printing): 2 issues
  - PWG 5100.11-2010 (JPS2 - Enterprise Printing): 7 issues
  - PWG 5100.13-2012 (JPS3 - Driverless Printing): 15 issues

More Information

- We welcome participation from all interested parties
- IPP Working Group web page
  - https://www.pwg.org/ipp/index.html
- Subscribe to the IPP mailing list
  - https://www.pwg.org/mailman/listinfo/ipp
- IPP WG holds bi-weekly phone conferences announced on the IPP mailing list
  - Next conference calls scheduled for Thursday, November 19, December 3, and December 17, 2020 at 3pm ET

The Printer Working Group

Liaison Status

Trusted Computing Group (TCG)

- **Next TCG Members Meetings**
  - **TCG Virtual F2F – TBD dates February, June, October 2021 – Ira to call in**
- **Trusted Mobility Solutions (TMS) – Ira is co-chair and co-editor**
  - **Formal – GP (TEE, SE), ETSI (NFV/MEC), ATIS (5G Security)**
  - **Informal – 3GPP, GSMA, IETF, ISO, ITU-T, SAE, US NIST**
  - *TCG TMS Use Cases v2 – published September 2018*
- **Mobile Platform (MPWG) – Ira is co-editor**
  - **Formal – GP (TEE, SE), ETSI (NFV/MEC), ATIS (5G Security)**
  - *TCG Runtime Integrity Preservation for Mobile Devices – Nov 2019*
  - *TCG Mobile Reference Architecture v2 – work-in-progress*
  - *TCG TPM 2.0 Mobile Common Profile – work-in-progress*
  - *GP Trusted Platform Services Client API – work-in-progress w/ TCG*
- **Recent Specifications**
  - **http://www.trustedcomputinggroup.org/resources**
  - *TCG PC Client Platform Firmware Profile – review October 2020*
  - *TCG TPM 2.0 Keys for Device Identity Attestation – review October 2020*
  - *TCG DICE Attestation Architecture – review October 2020*
  - *TCG DICE Layering Architecture – July 2020*
  - *TCG Algorithm Registry r1.32 – June 2020*
  - *TCG TSS 2.0 Feature API (FAPI) – June 2020*

- **Next IETF Members Meetings**
  - **IETF 109 Virtual F2F – 16-20 November 2020 – Ira to call in**
  - **IETF 110 Virtual F2F – 8-12 March 2021 – Ira to call in**
- **Transport Layer Security (TLS)**
  - **TLS 1.3 Extension Cert-Based Auth w/ Ext PSK – RFC 8773 – March 2020**
    https://tools.ietf.org/html/rfc8773
  - **Applying GREASE to TLS Extensibility – RFC 8701 – January 2020**
    https://tools.ietf.org/html/rfc8701
  - **TLS/1.3 – RFC 8446 – August 2018**
    https://tools.ietf.org/html/rfc8446
  - **TLS/1.3 – draft-00 – October 2020**
    https://datatracker.ietf.org/doc/draft-ietf-tls-rfc8446bis/
  - **TLS Encrypted Client Hello – draft-08- October 2020**
    https://datatracker.ietf.org/doc/draft-ietf-tls-esni/
  - **Hybrid key exchange in TLS 1.3 – draft-01 – October 2020**
    https://datatracker.ietf.org/doc/draft-ietf-tls-hybrid-design/
  - **Deprecating TLSv1.0 and TLSv1.1 – draft-08 – October 2020 – IETF LC**
    https://datatracker.ietf.org/doc/draft-ietf-tls-oldversions-deprecate/
  - **Deprecating MD5 and SHA-1 in TLS 1.2 – draft-04 – October 2020 – IETF LC**
    https://datatracker.ietf.org/doc/draft-ietf-tls-md5-sha1-deprecate/
  - **Flags Extension for TLS 1.3 – July 2020**
    https://datatracker.ietf.org/doc/draft-ietf-tls-tlsflags/
  - **DTLS/1.3 – draft-38 – May 2020 – IETF LC**
    https://datatracker.ietf.org/doc/draft-ietf-tls-dtls13/

- **Security Automation and Continuous Monitoring (SACM)**
  - **SACM Architecture – draft-07 – September 2020**
    https://datatracker.ietf.org/doc/draft-ietf-sacm-arch/
  - **Concise Software Identifiers – draft-15 – May 2020 – to IETF LC**
    https://datatracker.ietf.org/doc/draft-ietf-sacm-coswid/
  - **Endpoint Posture Collection Profile – draft-01 – February 2020 – to IETF LC**
    https://datatracker.ietf.org/doc/draft-ietf-sacm-epcp/
- **Concise Binary Object Representation (CBOR)**
  - **CBOR Tags for Typed Arrays – RFC 8746 – February 2020**
    https://tools.ietf.org/html/rfc8746
  - **CBOR Sequences – RFC 8742 – February 2020**
    https://tools.ietf.org/html/rfc8742
  - **Concise Data Definition Language (CDDL) – RFC 8610 – June 2019**
    https://tools.ietf.org/html/rfc8610 - JSON/CBOR schema
  - **CBORbis – draft-16 – September 2020 – RFC Editor**
    https://datatracker.ietf.org/doc/draft-ietf-cbor-7049bis/
  - **CBOR Tags for Date – draft-07 – September 2020 – RFC Editor**
    https://datatracker.ietf.org/doc/draft-ietf-cbor-date-tag/
  - **CBOR Tags for OIDs – draft-01 – September 2020**
    https://datatracker.ietf.org/doc/draft-ietf-cbor-tags-oid/
  - **Packed CBOR – draft-00 – September 2020**
    https://datatracker.ietf.org/doc/draft-ietf-cbor-packed/
  - **Additional Control Operators for CDDL – draft-00 – September 2020**
    https://datatracker.ietf.org/doc/draft-ietf-cbor-cddl-control/

- **Remote ATtestation ProcedureS (RATS)**
  - **RATS Architecture – draft-07 – October 2020**
    https://datatracker.ietf.org/doc/draft-ietf-rats-architecture/
  - **Reference Interaction Models for RATS – draft-01 – October 2020**
    https://datatracker.ietf.org/doc/draft-ietf-rats-reference-interaction-models/
  - **Attestation Event Stream Subscription – draft-01 – October 2020**
    https://datatracker.ietf.org/doc/draft-birkholz-rats-network-device-subscription/
  - **YANG Data Model for CHARRA using TPMs – draft-03 – September 2020**
    https://datatracker.ietf.org/doc/draft-ietf-rats-yang-tpm-charra/
  - **TPM-based Network Device RIV – draft-04 – September 2020**
    https://datatracker.ietf.org/doc/draft-ietf-rats-tpm-based-network-device-attest/
  - **Entity Attestation Token (EAT) – draft-04 – August 2020**
    https://datatracker.ietf.org/doc/draft-ietf-rats-eat/
  - **Trustworthiness Vectors for SUIT Workflow Model – draft-00 – July 2020**
    https://datatracker.ietf.org/doc/draft-birkholz-rats-suit-claims/
  - **Time-Based Uni-Directional Attestation – draft-03 – July 2020**
    https://datatracker.ietf.org/doc/draft-birkholz-rats-tuda/
  - **CBOR Tag for Unprotected CWT Claims Sets – draft-01 – June 2020**
    https://datatracker.ietf.org/doc/draft-birkholz-rats-uccs/
  - **Trusted Path Routing – draft-00 – June 2020**
    https://datatracker.ietf.org/doc/draft-voit-rats-trustworthy-path-routing/
  - **MUD-Based RATS Resources Discovery – draft-00 – March 2020**
    https://datatracker.ietf.org/doc/draft-birkholz-rats-mud/

- **IRTF Crypto Forum Research Group (CFRG) – future algorithms**
    - **Randomness for Security Protocols – RFC 8937 – October 2020**
      https://datatracker.ietf.org/doc/rfc8937/
    - **Hybrid Public Key Encryption – draft-06 – October 2020 – RG LC**
      https://datatracker.ietf.org/doc/draft-irtf-cfrg-hpke/
    - **Hashing to Elliptic Curves – draft-10 – October 2020**
      https://datatracker.ietf.org/doc/draft-irtf-cfrg-hash-to-curve/
    - **The ristretto255 and decaf448 Groups – draft-00 – October 2020**
      https://datatracker.ietf.org/doc/draft-irtf-cfrg-ristretto255-decaf448/
    - **Pairing-Friendly Curves – draft-08 – September 2020**
      https://datatracker.ietf.org/doc/draft-irtf-cfrg-pairing-friendly-curves/
    - **OPAQUE Asymmetric PAKE Protocol – draft-00 – September 2020**
      https://datatracker.ietf.org/doc/draft-irtf-cfrg-opaque/
    - **KangarooTwelve – draft-04 – September 2020 – RG LC**
      https://datatracker.ietf.org/doc/draft-irtf-cfrg-kangarootwelve/
    - **Usage Limits on AEAD Algorithms – draft-01 – September 2020**
      https://datatracker.ietf.org/doc/draft-irtf-cfrg-aead-limits/
    - **SPAKE2, a PAKE – draft-13 – September 2020**
      https://datatracker.ietf.org/doc/draft-irtf-cfrg-spake2/
    - **Memory-hard Argon2 Password Hash – draft-12 – September 2020**
      https://datatracker.ietf.org/doc/draft-irtf-cfrg-argon2/
    - **Cpace Balanced Composable PAKE – draft-00 – July 2020**
      https://datatracker.ietf.org/doc/draft-irtf-cfrg-cpace/
    - **Oblivious Pseudorandom Functions (OPRFs) – draft-04 – July 2020**
      https://datatracker.ietf.org/doc/draft-irtf-cfrg-voprf/
    - **Transition from Classical to Post-Quantum Crypto – draft-07 – May 2020**
      https://datatracker.ietf.org/doc/draft-hoffman-c2pq/

Linux Foundation OpenPrinting

- **Linux Foundation OP Google Summer of Code 2020**
  - **https://developers.google.com/open-source/gsoc**
  - **GSoC 2020 coding completed on 31 August 2020**
- **Linux Foundation OP Google Season of Docs 2020**
  - **https://developers.google.com/season-of-docs**
  - **GSoD 2020 documentation projects in progress**
- **Linux Foundation OP Mentorship Program 2020**
  - **https://communitybridge.org/**
  - **LFMP 2020 IPP Scan and IPP FaxOut projects in progress**
- **Linux Foundation OP New Website**
  - **https://openprinting.github.io/**
  - **https://openprinting.github.io/news/**
  - **Driverless Printing pages w/ PWG IPP Everywhere™ logo https://openprinting.github.io/driverless/01-standards-and-their-pdls/**
  - **OP website issues page https://github.com/OpenPrinting/openprinting.github.io/issues**

Mopria

- Mopria liaison to PWG : Michael Rhines (Qualcomm)

- New 2-year liaison agreement signed April 3, 2020

- PWG Chair to present at the November 2020 Mopria Member Meeting
  - Currently scheduled for Nov. 12, 2020

- PWG / INCITS TC Liaison established April 15, 2020

- Paul Tykodi will represent the PWG in INCITS TC activities

- INCITS Digital Manufacturing Technical Committee
  - The IEEE-ISTO Printer Working Group has established a liaison relationship with INCITS Digital Manufacturing Technical Committee https://www.businesswire.com/news/home/20200505006085/en/InterNational-Committee-Information-Technology-Standards-INCITS-IEEE-ISTO.
    - The INCITS Digital Manufacturing Technical Committee meets monthly (third Tuesday of the month from12 pm to 2 pm EDT).

- ## INCITS Digital Manufacturing Technical Committee
  - Alan Sukert (chair of the PWG IDS Working Group) provided a presentation to the INCITS TC at their October 20th, 2020 monthly meeting covering a historical overview of how common criteria profiles had been developed for 2D printing equipment and some potential benefits to consider in possibly developing common criteria profiles for 3D printing equipment as well

  - Paul Tykodi attended a virtual workshop mentioned on the INCITS TC mailing list: NIST - ASM International Virtual Additive Manufacturing Data Management Workshop on October 27-28, 2020
  https://connect.asminternational.org/nist-asmdatamanagementworkshop/aboutus

  - The INCITS Digital Manufacturing TC is the current US TAG for ISO/IEC JTC 1 WG 12 (3D Printing and Scanning). The Printer Working Group is monitoring the activities of JTC 1 WG 12 via the INCITS liaison relationship
    - ISO/IEC JTC 1 WG 12 3D Printing and Scanning eCommittee - https://www.web3d.org/sites/default/files/attachment/node/2326/edit/06_ByoungNamLee_JTC1_WG12_report_3D_Printing_and_ScanningSeoulJanuary2019.pdf

3D / Additive Manufacturing Liaisons

- America Makes & ANSI Additive Manufacturing Standardization Collaborative (AMSC) -
  - https://www.ansi.org/standards_activities/standards_boards_panels/amsc/America-Makes-and-ANSI-AMSC-Overview. The IEEE-ISTO Printer Working Group is participating in the AMSC initiative.

- ASTM Committee F42 on Additive Manufacturing Technologies - https://www.astm.org/COMMITTEE/F42.htm
  - The IEEE-ISTO Printer Working Group standardization efforts intersect with the activities of at least two ASTM F42 subcommittees.
    - Subcommittee F42.08 Data
    - Subcommittee F42.91 Terminology
  - The purpose of the liaison agreement is to keep the standardization efforts of ASTM F42 and the IEEE-ISTO PWG synchronized in areas where both organizations are actively working.

- 3MF Consortium
  - https://www.3mf.io

Possible Future 3D / Additive Manufacturing Liaisons

- ## PDF Association
  - Paul Tykodi has been asked by the 3D PDF Consortium and PDF Association to chair an ad hoc for ISO TC171 SC2. The purpose of the ad hoc is to investigate how PDF files support 3D content stored within them and to make possible recommendations for enhancing future ISO 32000 (PDF standard) support for metadata describing 3D content placed into a PDF file.
  - The PDF Association has taken over the role of US TAG for ISO TC171 SC2 from the 3D PDF Consortium. Paul Tykodi was asked to join the PDF Consortium as a member, in order to be allowed to create a PDF Association liaison working group, in support of the information gathering needs of the ad hoc. Once the ad hoc completes its efforts, the longer-term strategy for the PWG would likely be to create a liaison with the PDF Association.

- ## ISO TC171 SC2 WG12 (PDF Metadata) - https://www.iso.org/committee/53674.html
  - The IEEE-ISTO Printer Working Group has been asked to form a Category C liaison with ISO TC171 SC2 in order to participate in a new foundational metadata for 3D content contained in a PDF file standardization effort to be undertaken by WG12. This request is currently on hold pending the outcome of the research to be performed by the ad hoc described above.

- ## Society of Manufacturing Engineers (iRAMP)
  - Interactive Rapid Additive Manufacturing Portal – www.sme.org/iramp/

# Possible Future 3D / Additive Manufacturing Liaisons

- ## America Makes - AMNOW
  - Press Release – Nov 2019
    https://www.americamakes.us/ncdmm-and-catalyst-connection-announce-next-phase-of-amnow-program-to-support-additive-manufacturing-technology-insertion-into-the-u-s-army-supply-chain/

  - AMNOW initiative working on piloting 3D Printers as "Blackbox" devices. Possible opportunity to develop IPP 2.2 device capability for the IPP 3D Specification as part of AMNOW activities.

Other Questions / Comments
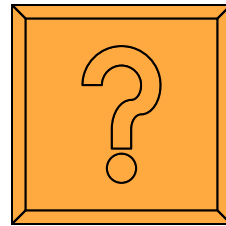
Next PWG Face-to-Face Meeting

February 9 – 11: Virtual

Monitor pwg-announce@pwg.org or the [PWG meeting page](#) for more info.