



The Printer Working Group

PWG April 2019 Face-to-Face
Plenary Session

Smith Kennedy, PWG Chair
April 16, 2019



Plenary Agenda

- Administrivia
- PWG Steering Committee Updates
- PWG Workgroup Status [WG Chairs]
 - Imaging Device Security (IDS)
 - Internet Printing Protocol (IPP)
- Liaison Status
 - Trusted Computing Group (TCG)
 - Internet Engineering Task Force (IETF)
 - Linux Foundation OpenPrinting
 - Mopria
 - 3MF Consortium
 - 3D Printing / Additive Manufacturing Liaisons
- Next Meetings

Administrivia



- Welcome and Introductions
- Confirm Minutes Taker
- Review PWG Patent Policy
- Agenda for the Week
- Future PWG Meeting Schedule
- 2019 Membership
- PWG Officers



- "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 Daylight Time)

Tuesday, April 16

9:00 – 10:15	PWG Plenary
10:15 – 10:30	Break
10:30 – 11:00	OpenPrinting: Plenary
11:00 – 12:00	OpenPrinting: CUPS Plenary
12:00 – 1:00	Lunch
1:00 – 2:00	OpenPrinting: Project Updates 2019
2:00 – 3:00	OpenPrinting: Printing in Chrome OS
3:00 – 3:15	Break
3:15 – 4:00	OpenPrinting: cups-filters and ippusbxd
4:00 – 5:00	OpenPrinting: Ghostscript and MuPDF Status

Agenda Overview – Day 2



(All times Eastern Daylight Time)

Wednesday, April 17

9:00 – 9:30	IPP WG : Status
9:30 – 10:15	3D Printing Topics
10:15 – 10:30	Break
10:30 – 12:00	IPP WG: System Service
12:00 – 1:00	Lunch
1:00 – 2:00	IPP WG: IPP Everywhere v1.1 · IPP Everywhere Self Certification v1.1 · Demo
2:00 – 3:30	IPP WG: Job Extensions v2.0 · Enterprise Printing Extensions v1.0
3:30 – 3:45	Break
3:45 – 5:00	Job Accounting BoF



Agenda Overview – Day 3

(All times Eastern Daylight Time)

Thursday, April 18

9:00 – 11:00	IDS WG: Status and Discussion
11:00 – 12:15	Encrypted Jobs and Documents
12:15 – 12:30	IPP WG: Next Steps
12:30 – 1:30	Lunch



Future PWG Meeting Schedule

- 2019
 - August 28-29: Virtual
 - November 13-14 : Virtual
- 2020
 - February XX-YY: Virtual?
 - May XX-YY: Sunnyvale? Lexington? Tahiti?

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

2019 Membership



25 Members

 Apple Inc.	 Epson	 Intel	 Microsoft	Technical Interface Consulting
 Brother Industries, Ltd.	 Fuji Xerox	 Konica Minolta	 MPI Tech	 Toshiba America Business Solutions
 Canon	 Google	 Kyocera Document Solutions Inc.	 Oki Data	 Tykodi Consulting Services LLC
 Conexant Systems	 High North Inc.	 Lexmark	 Qualcomm	 Xerox
Danny Brennan	 HP Inc.	 Meteor Network	 Ricoh	YSoft

Welcome Google!



PWG Officers (2017-2019 Term)

- PWG Chair: Smith Kennedy, HP Inc.
- PWG Vice-Chair: Alan Sukert, Xerox
- PWG Secretary: Ira McDonald, High North

2019 is a PWG Officers election year. Selection of officers begins in Fall 2019. Those interested in serving in PWG Officer roles should contact chair@pwg.org.

IPP Everywhere™ Certified Printers



- <https://www.pwg.org/ipp/everywhere.html>
- IPP Everywhere™ Self Certification 1.0 Update 3
 - Current certification toolset available on PWG website
 - Released November 2018
- **365** printers now certified!
 - <https://www.pwg.org/dynamo/eveprinters.php>
 - More on the way
- More to come
 - IPP Everywhere™ v1.1 – Q3 2019
 - IPP Everywhere™ Self Certification 1.1 – Q3 2019



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

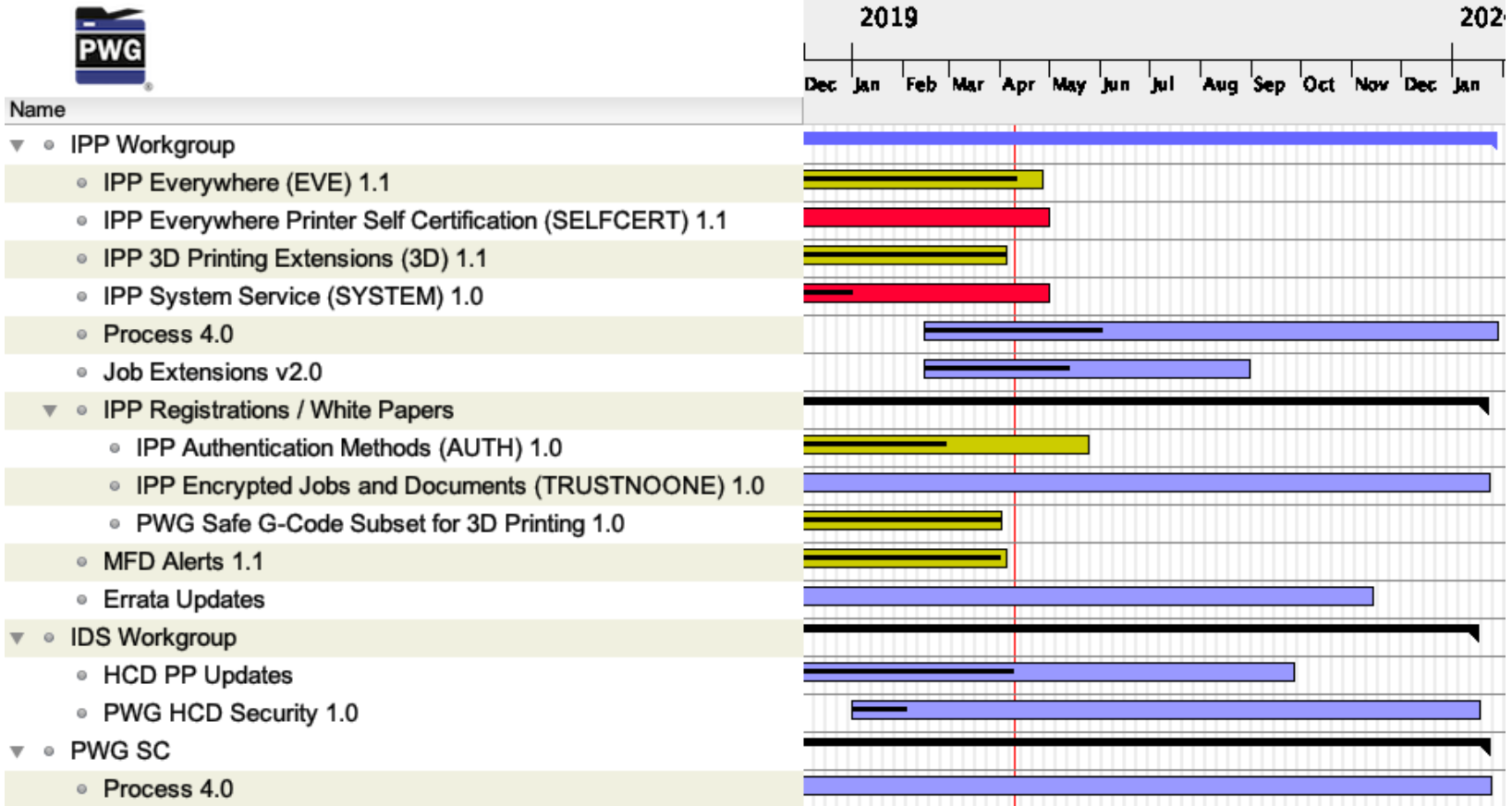


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PWG Workgroup Status

Work In Progress



Planned

Interim

Prototype

Prototyped

Stable



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IDS Workgroup Status

Alan Sukert (Xerox)



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 (Xerox)
- IDS WG Vice-Chair
 - Brian Smithson (Ricoh)
- IDS WG Secretary:
 - Alan Sukert (Xerox)
- IDS WG Document Editors:
 - Ira McDonald, High North – HCD Security Guide



IDS: Current Status

- Focus now is on Common Criteria HCD Protection Profiles
 - IDS Charter updated to focus the IDS WG on outreach with other standards bodies involved in HCD security issues.
 - Looking at initiating interface with TCG Joint Work Group
 - Conference Calls.
 - Reinitiated Regular IDS Conference Calls
 - Calls held on 1/24/19, 3/7/19, 3/21/19 and 4/4/19.
 - Next Conference Call Schedule for 5/16/19

IDS: Current Status



- Focus now is on Common Criteria HCD Protection Profiles
 - HCD Technical Committee (TC) Conference Call/Meetings:
 - Regular HCD TC Conference Calls - calls held on 1/10/19, 2/11/19, 2/25/19, 3/4/19. 3/11/19, 3/25/19
 - Status of the HCD TC, HCD PP Version 1.1, the effort to form an HCD international TC (iTC) and potential contents of an HCD cPP v1.0 were discussed at the IDS WG Face-to-Face Session on Wednesday, Apr 10th
 - Will discuss the results of 3/10/19 HCD TC Meeting at the IDS F2F Session Thursday (4/18)
 - Also looking into establishing possible liaison with TCG and with ISO JTC 1/SC 28 to follow additional standards efforts related to the security of image devices
 - Working on a general HCD Security Guide



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IPP Workgroup Status

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

IPP WG: Charter



- Current charter:
 - <http://ftp.pwg.org/pub/pwg/ipp/charter/ch-ipp-charter-20170615.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, and handle synchronization with changes in IPP

IPP WG: Officers



- IPP WG Co-Chairs:
 - Paul Tykodi (TCS)
 - Ira McDonald (High North)
- IPP WG Secretary:
 - Michael Sweet (Apple)
- IPP WG Document Editors:
 - Ira McDonald (High North) – IPP System Service, MFD Alerts v1.1
 - Michael Sweet (Apple) – IPP Encrypted Jobs and Documents, IPP Everywhere v1.1, IPP Everywhere Printer Self-Certification Manual v1.1, IPP Job Extensions v2.0, IPP System Service
 - Smith Kennedy (HP Inc.) – IPP Encrypted Jobs and Documents, IPP Enterprise Printing Extensions v1.0 (EPX)

IPP WG: Status (1/2)



- PWG Specifications in development:
 - IPP Everywhere v1.1 - Stable Draft
 - IPP Everywhere Printer Self-Certification Manual v1.1 - Prototype Draft
 - IPP Job Extensions v2.0 - Prototype Draft
 - IPP Enterprise Printing Extensions v1.0 - Initial Draft
 - IPP System Service v1.0 - Stable Draft
 - MFD Alerts v1.1 - Stable Draft
- IPP Best Practice in development:
 - IPP Encrypted Jobs and Documents - Interim Draft



IPP WG: Status (2/2)

- Up-to-date pending IANA registrations online:
 - <http://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>
 - 365 printers currently listed
 - Second 1.0 self-certification tools update released in October 2017
 - Third 1.0 self-certification tools update released in November 2018
- IPP Sample Code:
 - Github repository:
 - <https://github.com/istopwg/ippsample>
 - Fork of CUPS code includes ipppfind, ippproxy, ipppserver, ippptool, ippptransform, and ippptransform3d



IPP WG: 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, April 25, 2019 and May 9, 2019 at 3pm ET



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Liaison Status



Trusted Computing Group (TCG)

- **Next TCG Members Meetings**

- 10-13 June 2019 – Warsaw, Poland – conflict w/ ESCAR USA 12-13 June – Ira to call in?
- 14-17 October 2019 – Toronto, ON – Ira to call in

- **Trusted Mobility Solutions (TMS)** – Ira is co-chair and co-editor

- Scope: mobile phones, telecom networks, enterprise/financial BYOD
- Formal liaisons – [ATIS](#) (5G Security), ETSI (NFV/MEC), Global Platform (TEE and SE)
- [GP/TCG collaboration – Remote Attestation in IETF RATS WG](#)
- Informal liaisons – 3GPP, ITU-T, GSMA, SAE, IETF TLS, IETF SACM, US NIST
- [TCG TMS Use Cases v2 – published September 2018](#)

- **Mobile Platform (MPWG)** – Ira is co-editor

- Scope: mobile phones, tablets, etc.
- Formal liaisons – [ATIS](#) (5G Security), ETSI (NFV/MEC), Global Platform (TEE),
- [TCG Runtime Integrity Preservation – public review in Q2 2019?](#)
- [TCG/GP collaboration – Integrating GP and TCG Security Technologies](#)

- **Recent Specifications**

- <http://www.trustedcomputinggroup.org/resources>
- [TCG TSS 2.0 TAB and Resource Manager – published April 2019](#)
- [TCG TSS 2.0 TPM Command Transmission Interface \(TCTI\) – published April 2019](#)
- TCG TSS 2.0 System Level API (SAPI) – public review April 2019
- TCG TSS 2.0 Enhanced System Level API (ESAPI) – public review April 2019
- TCG PC Client Device Driver Design Principles for TPM 2.0 – public review February 2019
- TCG Platform Certificate Profile – public review February 2019
- [TCG TPM 2.0 r1.50 – public review January 2019](#)
- TCG TSS 2.0 Response Code API – public review January 2019
- [TCG Trusted Attestation Protocol \(TAP\) Information Model – public review January 2019](#)



Internet Engineering Task Force (IETF)

- **Next IETF Members Meetings**
 - IETF 105 – 20-26 July 2019 – Montreal, Canada – Ira to call in
 - IETF 106 – 16-22 November 2019 – Singapore – Ira to call in
- **Transport Layer Security (TLS)**
 - TLS/1.3 – RFC 8446 – August 2018
<https://tools.ietf.org/html/rfc8446>
 - DTLS/1.3 – draft-31 – March 2019 – waiting for interoperability reports
<https://datatracker.ietf.org/doc/draft-ietf-tls-dtls13/>
- **Security Automation and Continuous Monitoring (SACM)**
 - SACM Endpoint Posture Collection Profile – draft-04 – February 2019
<https://datatracker.ietf.org/doc/draft-ietf-sacm-ecp/>
 - SACM Architecture – draft-01 – February 2019
<https://datatracker.ietf.org/doc/draft-ietf-sacm-arch/>
 - Concise Software Identifiers – draft-07 – October 2018
<https://datatracker.ietf.org/doc/draft-ietf-sacm-coswid/>
- **Concise Binary Object Representation (CBOR)**
 - Concise Binary Object Representation (CBOR) – draft-05 – January 2019
<https://datatracker.ietf.org/doc/draft-ietf-cbor-7049bis/>
 - Concise Data Definition Language (CDDL) – draft-08 – March 2019 – in RFC Editor’s queue
<https://datatracker.ietf.org/doc/draft-ietf-cbor-cddl> - JSON/CBOR schema
- **Remote ATtestation ProcedureS (RATS)**
 - Architecture and Reference Terminology for RATS – draft-01 – March 2019
<https://datatracker.ietf.org/doc/draft-birkholz-rats-architecture/>
 - Time-Based Uni-Directional Attestation – draft-00 – March 2019
<https://datatracker.ietf.org/doc/draft-birkholz-rats-tuda/>
- **IRTF Crypto Forum Research Group (CFRG) – future algorithms**
 - Re-keying Mechanisms for Symmetric Keys – draft-15 – March 2019 – fundamental
<https://datatracker.ietf.org/doc/draft-irtf-cfrg-re-keying/>
 - Randomness Improvements for Security Protocols – draft-04 – March 2019 – fundamental
<https://datatracker.ietf.org/doc/draft-irtf-cfrg-randomness-improvements/>



Linux Foundation OpenPrinting

- Linux Foundation OP Google Summer of Code 2018
 - Lots of good work and contributions to PWG's GitHub projects
 - Close reading of a number of PWG specs revealed additional errata – now in progress for several PWG specs
 - Thanks to Linux OpenPrinting coordinators, mentors, and all the students for your hard work and contributions!
- Linux Foundation OP Website Renovation – ongoing
 - Aveek and Till found GSoC 2017/2018 students to do the work
 - Changed from WordPress to Jekyll (used by Mike for years)
 - Driverless Printing page describes IPP Everywhere™ and displays the PWG IPP Everywhere™ logo
- Linux Foundation OP Google Summer of Code 2019 – tasks
 - Test scripts for ipptool for IPP System Service
 - Test scripts for ipptool for IPP Errata specs
 - Generic Framework: Printer Application from Legacy Driver
 - Improve the pdftoraster filter
 - Turn scp-dbus-service of system-config-printer into C



- Mopria liaison to the PWG : Jeremy Reitz (Xerox)
- Mopria Alliance 2018 Overview Presentation
 - <https://ftp.pwg.org/pub/pwg/liaison/mopria/Mopria-Alliance-October-2018.pdf>
- Engaged with PWG in discussions on the fate of the IPP "document-format-details" attribute
- No other updates.

3MF Consortium



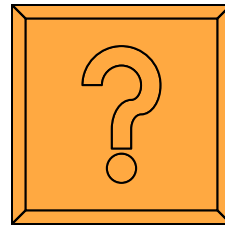
- PWG / 3MF Consortium Liaison signed March 26, 2019
- Coordinated joint press release pending
- Discussing further collaboration



3D / Additive Manufacturing Liaisons

- America Makes & ANSI Additive Manufacturing Standardization Collaborative (AMSC) -
 - www.ansi.org/standards_activities/standards_boards_panels/amsc/Default?menuid=3. The IEEE-ISTO Printer Working Group is participating in the AMSC initiative.
- ISO/IEC JTC 1 WG 12 3D Printing and Scanning eCommittee
 - <https://isotc.iso.org/livelink/livelink?func=ll&objId=19905763&objAction=browse&viewType=1> The IEEE-ISTO Printer Working Group is participating in the ISO initiative via the INCITS Ad Hoc.
- Society of Manufacturing Engineers (iRAMP)
 - Interactive Rapid Additive Manufacturing Portal – www.sme.org/iramp/
- 3D PDF Consortium
 - www.3dpdfconsortium.org

Other Questions / Comments



Next PWG Face-to-Face Meeting



August 28-29: Virtual

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

Any companies willing to host, please contact chair@pwg.org



The Printer Working Group

Backup



PWG Design Principles Whitepaper

- Purpose:
 - A document that describes the PWG's core tenets and design principles that guide the design and creation of its IPP, Semantic Model, MIBs, and other technologies
- Scope / Topics to be Covered:
 - IPP
 - Late binding principle
 - Intent vs. process for Job fidelity
 - Value of separating Job attributes from Document content
 - IPP attribute types and design patterns
 - Printer Status vs. Printer Description
 - xxx / xxx-supported / xxx-default vs. xxx / xxx-configured / xxx-supported
 - Collections vs. textual encoding of MIB sequences ("printer-finisher")
 - Semantic Model
 - Creates comprehensible view of the elements in an Imaging System, allowing better communication with other standards organizations dealing with related matters.
 - Presents the basic features necessary in communicating with imaging services, independent of the protocols used in that communication
 - Allows exploitation of the inherent parallelism between different types of imaging services (Print, Scan, Fax, etc.)



- Original notion: Update existing Process 3.0 to merge in subsequently published PWG process documents
 - [pwg-policy-call-for-obj-last-call-formal-vote-draft-2.txt](#) (draft)
 - [ipp-registry-policy.txt](#)
 - [pwg-billing-policy-20141001.txt](#)
 - [pwg-white-policy-20140505.txt](#)
 - [pwg-charter-policy-20140407.txt](#)
 - [pwg-prototype-policy-20121029.txt](#)
 - [pwg-namespace-policy-20160820.txt](#) (new updated draft)
- Revised notion: Refactor the Process document to describe the processes of the PWG to make them simple and obvious to the uninitiated reader:
 - Proposing new work to the PWG
 - Approving new work and assigning to a PWG work group
 - PWG approval for various document types
 - whitepaper
 - standard
 - etc.