Newcomer Orientation: Welcome to IEEE 802

http://ieee802.org

2019-07-04

IEEE 802 ec-19-0098-01-00EC
Contents

- Introduction to IEEE 802
- IEEE 802 process
- IEEE 802 Participation
- Getting more information
IEEE 802 within IEEE and IEEE-SA Structure

IEEE MEMBERS

Board of Directors (BOD)

Exec Director & Staff

Technical Activities:
many technical societies

Publication Activities

IEEE Computer Society

Standards Association (IEEE-SA)

Member & Geographic Activities

Educational Activities

IEEE-SA Board of Governors (BOG)

Corporate Advisory Group (CAG)
Registration Authority Committee (RAC)

Standards Board (SASB)

IEEE 802 LMSC

Administrative Committee (AdCom)
Audit Committee (AudCom)
Industry Connections Committee (IC Com)
New Standards Committee (NesCom)
Patent Committee (PatCom)
Procedures Committee (ProCom)
Standards Review Committee (RevCom)

IEEE 802 LMSC is a standards sponsor of the IEEE-SA and standards committee of the IEEE Computer Society.
IEEE Standards Association (IEEE-SA)

**Vision:** To be a world-class standards-development organization

**Mission:** To provide a high-quality, market-relevant standardization environment, respected worldwide

- 20,000 Standards Developers
- 160+ Countries Involved
- 1200+ Active Standards
- 600+ Standards Under Development

IEEE Standards span a broad spectrum of technologies, such as:

- Aerospace Electronics
- Broadband Over Power Lines
- Broadcast Technology
- Clean Technology
- Cognitive Radio
- Design Automation
- Electromagnetic Compatibility
- Green Technology
- Ethernet/WLAN
- Medical Device Communications
- Nanotechnology
- Organic Components
- Portable Battery Technology
- Power Electronics
- Power & Energy
- Radiation/Nuclear
- Reliability
- Transportation Technology
IEEE 802:
  - LAN/MAN Standards Committee (LMSC)

Develops standards, for
  - Local Area Networks (LAN),
  - Metropolitan Area Networks (MAN),
  - Regional Area Networks (RAN),
  - Personal Area Networks (PAN),
  - Wireless Specialty Networks (WSN), etc.

In operation since March 1980
IEEE 802 standards emphasize the functionality of the lowest two layers of the OSI reference model, and the higher layers as they relate to network management:
- physical layer (PHY, Layer 1)
- data link layer (DLL, Layer 2)

IEEE 802 divides DLL into:
- Medium Access Control (MAC)
  - Multiple specifications
- Common logical link control (LLC)

See details in IEEE Std 802
- “IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture”
IEEE Std 802.1Q specifies interworking among IEEE 802 LANs by bridging at the MAC sublayer.

Interworking can be heterogeneous (across different 802 technologies).

MAC frames are forwarded (or filtered) based on address and Virtual LAN information in the MAC frame.

Relaying and filtering belong entirely within the MAC sublayer.
Key development concepts

- **Project Authorization Request (PAR)**
  - Requesting document that, once approved, authorizes work on a standardization Project
    - Developed as a Request, typically within a WG
    - Reviewed in formal LMSC procedure at a Plenary Session
    - Authorization of the Request is ultimately an SASB decision
    - Authorization assigns the Project to a Sponsor and a WG

- **Working Group (WG)**
  - Responsible for developing standards in an area

- **Task Group (TG) or Task Force (TF)**
  - Subset of WG assigned by WG to develop a project

- **Technical Advisory Group (TAG)**
  - Addresses cross-WG issues; does not develop standards
More terms

- Industry Connections (IC) Activity
  - Activity authorized by IEEE-SA ICCom that may complement, supplement, or be a precursor to IEEE Standards projects, but does not develop IEEE Standards

- Call for Interest (CFI)
  - Meeting used by some WGs to outline a topic and gauge interest in investigating possible project

- Study Group (SG)
  - Group chartered to investigate the initiation of a potential project and draft a PAR if appropriate

- Criteria for Standards Development (CSD)
  - An 802-specific document required to accompany a PAR and more fully describe the project
    - Includes Five Criteria (5C)
      - Broad Market Potential, Compatibility, Distinct Identity, Technical Feasibility, Economic Feasibility
## IEEE 802 Organization

### EXECUTIVE COMMITTEE (EC)

<table>
<thead>
<tr>
<th>CHAIR</th>
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<tbody>
<tr>
<td>Paul Nikolich</td>
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### Working Groups and TAGs, with Chair

<table>
<thead>
<tr>
<th>WG/Tag</th>
<th>Chair/Leaders</th>
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<tbody>
<tr>
<td>802.1 WG</td>
<td>Higher Layer LAN Protocols</td>
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<tr>
<td></td>
<td>Glenn Parsons</td>
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<td>802.3 WG</td>
<td>Ethernet</td>
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<td></td>
<td>David Law</td>
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<td>802.11 WG</td>
<td>Wireless LAN</td>
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<td></td>
<td>Dorothy Stanley</td>
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<td>802.15 WG</td>
<td>Wireless Specialty Networks</td>
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<td></td>
<td>Bob Heile</td>
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<td>802.18 TAG</td>
<td>Radio Regulatory</td>
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<td></td>
<td>Jay Holcomb</td>
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<td>802.19 WG</td>
<td>Coexistence</td>
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<td></td>
<td>Steve Shellhammer</td>
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<td>802.21 WG</td>
<td>Media Access independent Services</td>
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<td></td>
<td>Subir Das</td>
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<td>802.22 WG</td>
<td>WRAN</td>
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<td></td>
<td>Apurva Mody</td>
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<tr>
<td>802.24 TAG</td>
<td>Vertical Applications</td>
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<tr>
<td></td>
<td>Tim Godfrey</td>
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<tr>
<td>802.16 (non-voting)</td>
<td>WMAN</td>
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<td></td>
<td>Roger Marks</td>
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### Hibernating WG

<table>
<thead>
<tr>
<th>WG</th>
<th>Chair/Leaders</th>
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<tbody>
<tr>
<td>802.2 LLC</td>
<td>802.4 Token Bus</td>
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<td>802.6 DQDB</td>
<td>802.7 Broadband TAG</td>
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<tr>
<td>802.9 ISLAN</td>
<td>802.10 Security</td>
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<tr>
<td>802.14 CATV</td>
<td>802.17 Resilient Packet Ring</td>
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<tr>
<td>802.20 MBWA</td>
<td>802.23 Emergency Services</td>
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### Appointed Officers

<table>
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<tr>
<th>Officer</th>
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<tbody>
<tr>
<td>1st VICE CHAIR</td>
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<tr>
<td>James P.K. Gilb</td>
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<td>2nd VICE CHAIR</td>
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<tr>
<td>Roger Marks</td>
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<tr>
<td>EXECUTIVE SEC.</td>
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<tr>
<td>Jon Rosdahl</td>
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<td>RECORDING SEC.</td>
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<td>John D'Ambrosia</td>
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<td>TREASURER</td>
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<tr>
<td>George Zimmerman</td>
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<tr>
<td>MEMBER EMERITUS</td>
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<td>Treasurer Advisor (non-voting)</td>
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<tr>
<td>Clint Chaplin</td>
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<tr>
<td>MEMBER EMERITUS</td>
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<td>(non-voting)</td>
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<tr>
<td>Geoff Thompson</td>
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IEEE 802 Ombudsman

- Role
  - confidential and informal information resource, communications channel, complaint-handler and dispute-resolver, ...
  - More details in IEEE 802 Ombudsman slide set
    - http://www.ieee802.org/IEEE%20802%20Ombudsman.ppt
- Guido Hiertz serving since June 2019
  - See details at http://ieee802.org/secmail/msg23485.html
- Contact the Ombudsman
  - 802ombudsman@ieee.org
Sessions

- Roughly, a “session” last a few days; a “meeting” lasts a few hours

- IEEE 802 Plenary session
  - All WGs and TAGs
  - Each March, July, November
    - [http://802world.org/plenary/schedule](http://802world.org/plenary/schedule)

- Interim sessions
  - Typically held between Plenary sessions, at discretion of WGs
  - Could include entire WG
  - Could include a set of WGs
    - e.g. Wireless Interim each January, May, September
  - Could include a subset of a WG

- Teleconferences, at discretion of WGs

- IEEE 802 Executive Committee (non-members welcome to join)
  - Plenary week:
    - Monday 08:00-10:30
    - Friday 13:00-18:00
  - Teleconferences
    - February, June, October
## Overview of the Plenary week

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<thead>
<tr>
<th></th>
<th>Sun</th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
<th>Fri</th>
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<tbody>
<tr>
<td><strong>A.M</strong></td>
<td>Some TG/TF meetings</td>
<td>Opening EC newcomer orientation</td>
<td>TG/TF meetings</td>
<td>TG/TF meetings</td>
<td>TG/TF meetings</td>
<td>Some WG closing plenaries</td>
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<td></td>
<td>Some organizational meetings</td>
<td>WG opening plenaries (most)</td>
<td>Some WG midweek plenaries</td>
<td>Some WG closing plenaries</td>
<td>Some WG closing plenaries</td>
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<tr>
<td><strong>P.M</strong></td>
<td>Remaining WG opening plenaries</td>
<td>TG/TF meetings</td>
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<td>Closing EC</td>
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<tr>
<td><strong>Eve</strong></td>
<td>IEEE 802 rules review</td>
<td>Tutorials</td>
<td>TG/TF meetings</td>
<td>802 Social reception</td>
<td>Some WG closing plenaries</td>
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Check WG agendas for details
IEEE 802 Process
Five Basic Principles

IEEE standards follow a well-defined path from concept to completion, guided by a set of five basic principles:

1. **Due process** - Having highly visible procedures for standards creation and following them. Procedures are set by the IEEE-SA Standards Board, the IEEE Societies that sponsor standards, and the working groups that actually formulate standards.

2. **Openness** - ensures all interested can participate in the IEEE standards development process

3. **Consensus** - A clearly defined percentage of those in a balloting group vote to approve a draft of the standard (specified as 75%)

4. **Balance** – ensures that balloting groups include all interested parties and avoids an overwhelming influence by any one party.

5. **Right of appeal** - allows anyone to appeal a standards development decision at any point, before or after a standard has been approved.

Per: [http://standards.ieee.org/develop/govern.html](http://standards.ieee.org/develop/govern.html)
IEEE 802 Standards Development Life Cycle – Part 1

Options:
• Call for Interest (CFI)
• Interest Group (IG)
• Topic Interest Group (TIG)
• Industry Connections Activity (ICA)
• Informal WG discussion

Adequate interest?

WG investigates potential project; drafts PAR and CSD if appropriate
• Work could be assigned to Study Group (approved by EC)
• EC Study Group can be assigned for potential work outside existing WG

PAR & CSD drafted

Review of PAR and CSD by EC and other WGs at 802 Plenary

NesCom & Standards Board review of PAR

Standards Board Authorization, with assignment of WG

Working Group starts development of authorized project

If EC approves, forward PAR to NesCom
IEEE 802 Standards Development Life Cycle – Part 2

Review input contributions
- Process is flexible

Material selected?

Create and refine draft
- Process is flexible

Draft complete?

Working Group Ballot

Review ballot comments
Modify draft as needed

Recirculate changes and Disapprove comments

Changes or new Disapprove votes

≥75% approval
No new Disapprove votes
No changes to draft
IEEE 802 Standards Development Life Cycle – Part 3

WG requests EC approval to forward to Sponsor ballot
- PAR & CSD Considered

EC approval?

IEEE-SA Sponsor Ballot

Review ballot comments
Modify draft as needed

Changes or new Disapprove votes

≥75% approval
No new Disapprove votes
No changes to draft

Request EC approval to forward to RevCom

RevCom approval recommendation

SASB approval of submitted draft

Prepare for publication

Published standard
The current Standard is the original base standard or most recent revision, as modified by subsequent corrigenda (corrections) and amendments.

Example base standards: 802.1Q, 802.1AE, 802.3, 802.15.4

Example amendments: 802.1Qbu, 802.1AEcg, 802.3bz, 802.15.4t

- Amendment identified by lower-case initials appended to base.
- Project identifier is the prospective standard identifier, prepended with “P”

Maintaining the Standard

- Keep the standard current by producing amendments and corrigenda.
- Renew the standard by creating revisions
  - incorporating prior amendments and corrigenda
- When the standard is out of date, withdraw it.
Balloting of Drafts

Three levels of review/voting occur in IEEE 802 standards development
- The intention is to improve the draft

- Task Group or Task Group review or ballot
  - Requirements vary; may be informal – consult Working Group.

- Working Group Ballot (“WG Letter Ballot”)  
  - Formal requirements set by LMSC
  - 75% approval threshold
  - comment response and recirculation requirements
  - WG Members have a responsibility to participate

- Sponsor Ballot
  - Formal requirements set by IEEE-SA
  - 75% approval threshold
  - comment response and recirculation requirements
  - Open (no cost) to all interested parties, via IEEE SA-membership
    - IEEE-SA balloting tool is entitled “myBallot”
    - To be in the ballot pool and receive an invitation, must indicate interest
    - To participate in ballot group, must respond to invitation in advance
  - 60-day public review runs concurrently
IEEE 802 Participation
Individual Method

IEEE-SA supports two types of standardization development
- Individual: participants are human beings
- Entity: participants are organizations, such as companies

IEEE 802 is entirely Individual-based
- human beings participate as members and in other roles
- companies and other organizations do not participate directly
IEEE 802 Participation Slide

- Will be reviewed during IEEE-SA standards development meetings.
- Explains that participation in any IEEE 802 meeting is on an individual basis.
- Familiarize yourself with next slide, available at:
  - https://mentor.ieee.org/802-ec/dcn/17/ec-17-0093.ppt
Participation in IEEE 802 Meetings

Participation in any IEEE 802 meeting (Sponsor, Sponsor subgroup, Working Group, Working Group subgroup, etc.) is on an individual basis

- Participants in the IEEE standards development individual process shall act based on their qualifications and experience. (https://standards.ieee.org/develop/policies/bylaws/sb_bylaws.pdf section 5.2.1)

- IEEE 802 Working Group membership is by individual; “Working Group members shall participate in the consensus process in a manner consistent with their professional expert opinion as individuals, and not as organizational representatives”. (subclause 4.2.1 “Establishment”, of the IEEE 802 LMSC Working Group Policies and Procedures)

- Participants have an obligation to act and vote as an individual and not under the direction of any other individual or group. A Participant’s obligation to act and vote as an individual applies in all cases, regardless of any external commitments, agreements, contracts, or orders.

- Participants shall not direct the actions or votes of any other member of an IEEE 802 Working Group or retaliate against any other member for their actions or votes within IEEE 802 Working Group meetings, see https://standards.ieee.org/develop/policies/bylaws/sb_bylaws.pdf section 5.2.1.3 and the IEEE 802 LMSC Working Group Policies and Procedures, subclause 3.4.1 “Chair”, list item x.

By participating in IEEE 802 meetings, you accept these requirements. If you do not agree to these policies then you shall not participate.

Disclosure of affiliation is required

- An affiliation, as defined in the IEEE-SA Standards Board Bylaws, 5.2.1.5, is an individual deemed "affiliated" with an individual or entity that has been, or will be, financially or materially supporting that individual's participation in a particular IEEE standards activity. This includes, but is not limited to, his or her employer and any individual or entity that has or will have, either directly or indirectly, requested, paid for, or otherwise sponsored his or her participation.

- Disclosed as part of attendance process (inc. IEEE Attendance tool ["IMAT"])

- Typically stated on written contributions, noted in meetings, and declared for office holders

See IEEE-SA FAQs: Disclosures of Affiliation (https://standards.ieee.org/faqs/affiliation.html)
Acquiring WG membership

- WG members' rights are itemized in IEEE 802 LMSC Working Group Policies and Procedures
  - Includes right to vote
- “Participation” at a WG session means at least 75% presence.
  - Web-based IEEE Attendance Tool [“IMAT”] tool tracks attendance per meeting to calculate participation in a session.
    - See IMAT info under “More Resources” at end of this slide set.
    - Attendance in a meeting of one WG does not generally count toward participation in another WG, though it can in special cases.
- For a new Working Group, persons participating in the initial session become members.
- For an existing Working Group, membership starts when attending a Plenary Session having participated in that WG in 2 of the last 4 Plenary Sessions
  - Can substitute 1 intervening Interim Session for a Plenary Session.
  - Depending on Working Group, may require a declaration of intent.
  - Details in IEEE 802 LMSC Working Group Policies and Procedures.
Retaining WG Membership

- Participate in 2 of the last 4 Plenary Sessions.
  - An interim may substitute for 1 of the 2.

- Participate in Working Group Letter Ballots
  - membership may be lost if two of the last three Working Group letter ballots are not returned, or are returned with an abstention for other than “lack of technical expertise”

- Details in IEEE 802 LMSC Working Group Policies and Procedures

- Membership notes:
  - Independent of IEEE-SA membership.
  - Independent of affiliation or changes of affiliation.
Behavioral guidelines

- Respect others
- NO product pitches
- NO corporate pitches
- NO prices
- Silence electronics
- NO restrictive notices
  - on presentations and communications (including email); material must be openly available and distributable
- NO photographs or recordings: strict prohibition
  - IEEE-SA Standards Board Operations Manual: “Restrictions include, but are not limited to, the usage of audio recording, video recording, and photography by participants or observers. Recording of the proceedings ..., in part or in whole, via any means, is prohibited.” [limited exceptions for recording of minutes]
IEEE-SA Patent Policy

- Will not be reviewed in this newcomer presentation.
- Will be reviewed during IEEE-SA standards development meetings.
- Familiarize yourself with the policy:
  - https://standards.ieee.org/about/sasb/patcom/materials.html
- Review particularly:
  - Patent Slides for Standards Development Meetings
    - includes Call for Potentially Essential Patents
  - Patent Slides for Pre-PAR Meetings
- Slides include coverage of some non-patent guidelines, including antitrust and competition issues.
Document Resources

- “Mentor” document server
  - Main repository for input contributions and group documents for EC and most WGs and TAGs
  - Registration and acknowledgement required to upload
    - [https://mentor.ieee.org/802/bp/StartPage](https://mentor.ieee.org/802/bp/StartPage)

- Published IEEE 802 standards
  - Download at no cost, starting 6 months past publication
    - [https://ieeexplore.ieee.org/browse/standards/get-program/page/series?id=68](https://ieeexplore.ieee.org/browse/standards/get-program/page/series?id=68)

- IEEE 802 draft standards
  - These are copyrighted by IEEE and not publicly available for free
    - Shared to the WG members and participants at no cost
    - Consult WG for details
    - May be available for sale to the public
IEEE 802 Procedural Documents

- “IEEE 802 Policies & Procedures and other documents related to standards development”
  - Key documents:
    - IEEE 802 Policies & Procedures
    - IEEE 802 Operations Manual
    - IEEE 802 Working Group Policies and Procedures
    - IEEE 802 LMSC Chair's Guidelines
Getting more information

- IEEE 802 home page: key starting point
  - http://ieee802.org

- Contact EC members for more information or help
  - In particular, IEEE 802 Second Vice Chair is responsible to lead mentoring and training
    - Roger Marks <roger@ethair.net>
Email Reflectors

- Email lists, known in IEEE 802 as “reflectors,” are essentially venues for EC and Working Groups.
- Many lists are open to subscription; others require WG membership or other WG status.
- In most cases, archives are available.
- See WG web pages.
- IEEE 802 EC Reflector
  - See http://ieee802.org
- IEEE 802 ALL (mainly Plenary Session planning announcements)
  - See https://listserv.ieee.org/cgi-bin/wa?SUBED1=STDS-802-ALL
- Other advertised reflectors (search for 802)
  - See https://listserv.ieee.org/cgi-bin/wa?REPORT&z=3&s=0&9=0
More Resources

- IEEE 802 orientation, including these slides

- Session plans, including WG interims
  - http://ieee802.org/meeting

- Tutorials

- EC Members
  - http://ieee802.org/wgchairs.shtml

- IEEE Attendance Tool ("IMAT")
  - https://imat.ieee.org/attendance
  - See instructions: https://mentor.ieee.org/etools_documentation/bp/Attendance_Tool

- IEEE-SA Sponsor Balloting
Please complete the survey

- Please help us to improve this presentation and show your appreciation for the presenter by participating in this brief on-line survey regarding the “Welcome to IEEE 802” Newcomer Orientation:
  - https://www.surveymonkey.com/r/JJ3CK3L