
TinyOS Alliance WG Report

http://www.tinyos.net/scoop/special/tinyos_alliance

**David E. Culler,
Alliance WG, Chair**



Alliance Working Group

- **Charter**

- Formulate a legal and organizational framework for an alliance that can facilitate the continued advancement of the open embedded network ecosystem around TinyOS and support the activities, interactions, and development of the worldwide academic and industrial TinyOS community.

- **Members**

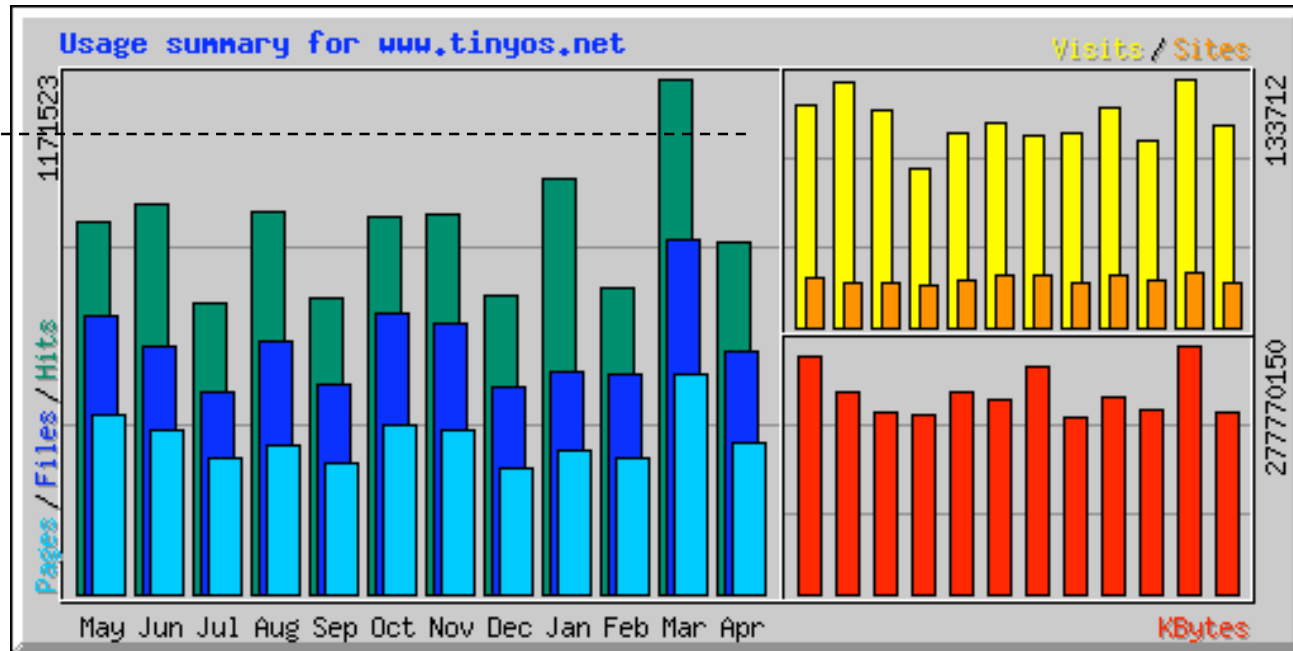
- | | | |
|---------------------|-----------------|--|
| – David Culler (Ch) | - UCB/Arch Rock | culler@cs.berkeley.edu |
| – Ralph Kling | - Crossbow | rkling@xbow.com |
| – Adam Wolisz | - TU Berlin | awo@ieee.org |
| – Philippe Bonnet | - Diku | bonnet.p@gmail.com |
| – Deborah Estrin | - UCLA | destrin@cs.ucla.edu |
| – Matt Welsh | - Harvard | mdw@cs.harvard.edu |
| – Rob Szewczyk | - Moteiv | rob@moteiv.com |
| – Jack Stankovic | - UVA | stankovic@cs.virginia.edu |
| – Ramesh Govindan | - USC | ramesh@usc.edu |
| – Jeonghoon Kang | - KETI | budge@keti.re.kr |
| – Lama Nachman | - Intel | lama.nachman@intel.com |

Outline

- **Quick “Pulse of the Alliance”**
- **Update on Alliance Legal and Organization Structure**
- **TinyOS Enhancement Proposal (TEP) community process**
- **Questions for the Community**
- **Call for participation**

Pulse Check

1 M hits / mo



Mailing List	Membership			
	Feb 2005	Nov 2005	June 2006	April 2007
tinyos	598	779	885	1039
tinyos-help	789	1178	1374	1718

Downloads from www.tinyos.net

TinyOS 2.0 downloads from www.tinyos.net as of April 25 3 pm				
Release date	Version	Windows	Linux	Combined
@ TTX 4	1.1.15	23648	6961	30609
@ TTX 3		9072	2701	11773
since TTX 3	1.1.15	14576	4260	18836
2/9/2007	2.0beta1-3	1658	1583	3241
7/6/2007	2.0beta2-3	6383	1626	8009
11/6/2007	2.0.0-2	1380	389	1769
11/26/2007	2.0.3	10358	3081	13439
4/24/2007	2.0.1-5	223	127	350

- **Does not include SourceForge, CDs, mirrors, vendor offerings.**
 - Unfiltered for bots
- **TOS 2.0 now established**

TinyOS Alliance ...

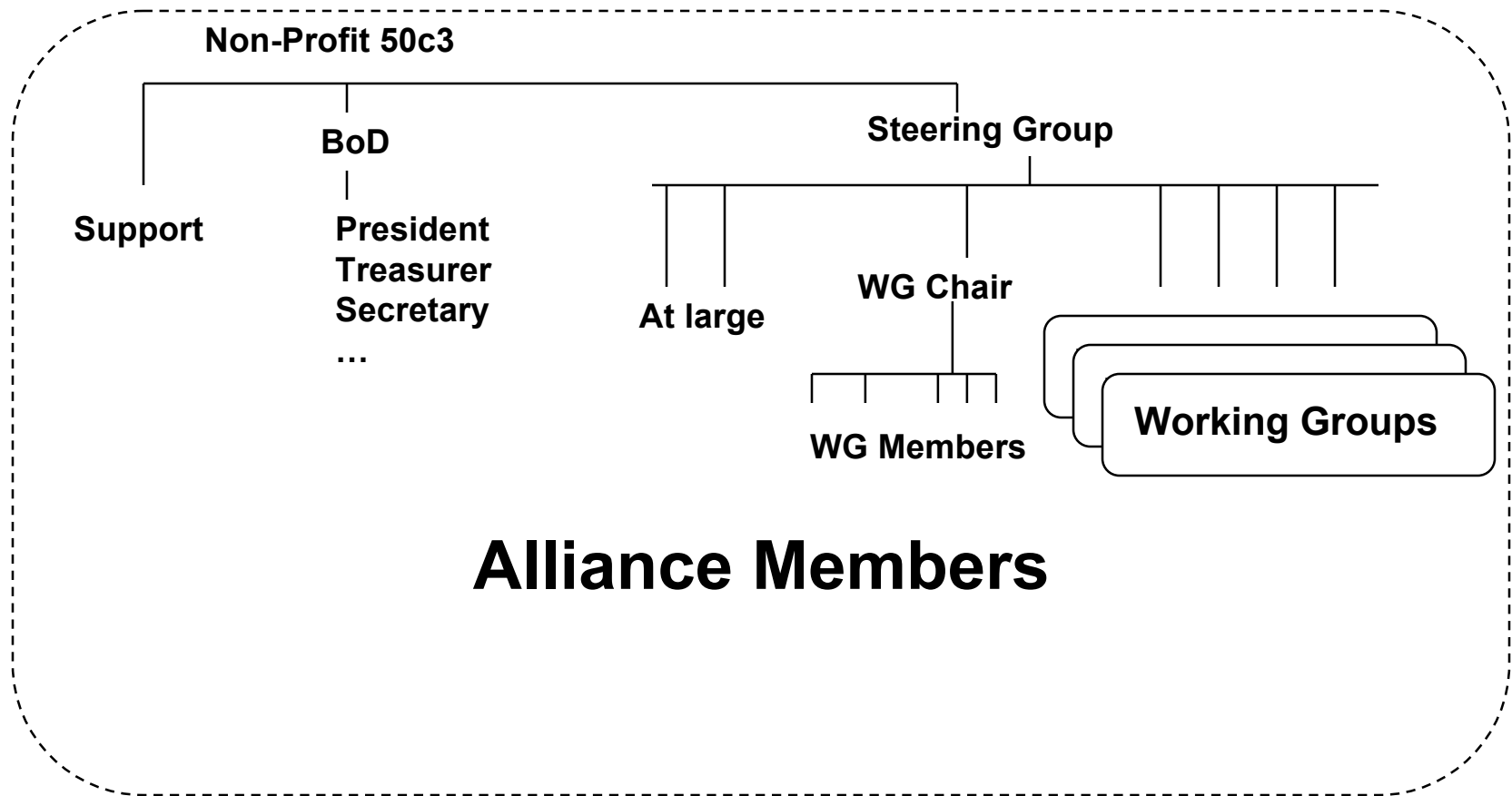
- ***Ultimately is what you make of it...***
- **Alliance WG has developed the legal and organization framework.**
- **Technically focused volunteer-based organization.**
- **Keep legalese to a minimum.**
- **Facilitate technical excellence and community**

Mission Statement

provide a forum to facilitate:

- the continued growth of a healthy TinyOS developer and user community with support for innovation as well as industry advancement,
- the development and maintenance of a stable, technically-sound base of TinyOS technology and surrounding tools through the creation of standard interfaces and protocols, vetted extensions, open reference implementations, technical documents, testing and verification suites, and educational materials,
- the contribution of innovative technology from a world-wide research community and the maturation and dissemination of these contributions, and
- the promotion of the technology, the community, and the impact of networked embedded systems.

TinyOS Alliance Organization Structure



- Alliance WG currently serving as proto-SG

Legalease Status

- **Zillion issues discussed and debated**
- **WSGR providing pro bono legal work**
- **Articles of Incorporation Done**
- **Bylaws 90% done**
- **Few forms yet to do**

Membership Policy

- **Focused in individuals - like IETF, Apache**
 - rather than corporations – like OSDL, Zigbee, WINA, OSGI
- **Recognizes important role of institutions**
 - Corporate, academic, government, ...
- **Keeps barriers low while recognizing contribution**
- **Avoid heavy legalese around voting rights**

- **Individual Member (no annual dues)**
 - Joins, basic participation, typically as consumer of tech.
- **Contributing Individual Member => Vote**
 - Joins, Attends Meetings, Working Groups, Code, other assets
 - By Request
- **Institutional Member**
 - Joins, appears on material, administrative fee
 - \$500 small or non-profit, \$1000 larger
- **Contributing Institutional Member**
 - \$'s, resources, facilities, technical contributions, intellectual property, marketing support, or other (\$2000 / \$5,000)
 - May appoint CIMs – who vote

Working Groups

- **Long-standing - develop important areas or subsystems**
 - Routing, management, platform, testing
- **Short-term - fixed-mandate**
 - Develop protocol X, establish IP policy, ...
- **Formation**
 - **Grass roots**
 - » Individuals or groups have a preliminary version of something important and want to make it part of TinyOS => propose WG to SG
 - **Chartered**
 - » SC or BoD recognize a need for an important area of development and form a WG to make it happen
- **Output**
 - Typically **technical documentation AND working code**, interface definition or standard proposal
 - » Steering committee engaged in major ratification
 - WGs may be formed to tackle a new challenge
 - WGs may be formed for organizational or marketing goals
- **Participation is key!**
 - Chairs, members, TEP shepherds, TEP reviews, member comments

Current Working Group Status

- **Active**
 - **alliance** [David Culler]
 - **core** [Philip Levis]
 - **testbed** [Matt Welsh]
 - **sim** [Chad Metcalf]
 - **8051** [Martin Leopold]
 - **net2** [Omprakash Gnawali]
- **Chartering**
 - **Storage** [Deepak Ganesan/Prabal Dutta]
 - **Tools** [John Regehr]tinyos.net
 - **Storage**
 - **Documentation**
 - **Community Communication**
 - **Instructional Resources**
- **Completed**
 - **Host Mote** ☺

Steering Group

- **Members: WG chairs + elected members at large**
- **Tenure: two years with opportunity for renewal**
- **Charter: Oversee working groups, maintain architectural coherence, monitor progress**
 - **Working group: policy, creation/extinction, arbitration, resolution**
 - **TEP: review process**
 - **Procedures: membership criteria, selection of venues, oversight of access to code repositories and Alliance web sites, and regular Alliance meetings.**
- **Initially formed from Alliance WG and WG chairs till nomination / election in place.**

TinyOS Enhancement Proposals

- **Individuals author TEP drafts**
 - Associate with a working group
- **WG chair submits TEP to the SG for review.**
- **SG appoints TEP Review Shepherd**
 - contributing member not affiliated with the corresponding WG
 - May or may not be SC member
- **Shepherd**
 - solicit comments from the community at large
 - also thoroughly reviews the submitted TEP.
 - Presents issues to submitting WG
- **WGs**
 - must address any issues/questions brought up either by the reviewer or by other community members.
- **Shepherd**
 - Upon accepting revisions, presents the TEP to the SC for approval by rough consensus.

TEPs that affect the organizational structure of the Alliance must also be approved by the BoD.

Current TEP Review Status

Number	Status	Title
TEP 1	Community Review	TEP Structure and Keywords
TEP 2	Sent to SC	Hardware Abstraction Architecture
TEP 101	Finalized	Analog-to-Digital Converters (ADCs)
TEP 102	Author response	Timers
TEP 103	Finalized	Permanent Data Storage (Flash)
TEP 106	Finalized	Schedulers and Tasks
TEP 107	Finalized	TinyOS 2.x Boot Sequence
TEP 108	Finalized	Resource Arbitration
TEP 109	Community Review	Sensors and Sensor Boards
TEP 111	Finalized	message_t
TEP 112	Community Review	Microcontroller Power Management
TEP 113	Sent to SC	Serial Communication
TEP 114	Community Review	SIDs: Source and Sink Independent Drivers
TEP 115	Sent to SC	Power Management of Non-Virtualised Devices
TEP 116	Sent to SC	Packet Protocols
TEP 117	Author Response	Low-Level I/O
TEP 120	ready	TinyOS Alliance Organizational Structure
TEP 121		TEP Review Process

Source License (for TinyOS code)

- **Today**
 - Several variants of academic and industrial BSD license
- **Alliance**
 - preferred source license template based on the BSD framework
 - small set of accepted licenses (incl. grandfathered code)
- **Submissions use one of these or (rarely) requests acceptance of addition**
- **Copyright**
 - Retained with Author Institution as today (unlike Apache)
- **Accreditation**
 - Provided by tools, demanded by alliance code of conduct
 - Terms of membership, rather than legal term of license
- **Tool chain maintained separate with separate SLA**

Intellectual Property

- **Follow IETF model**
 - Promote the use of non-proprietary policy, eyes open
 - rely on disclosure of known IP of relevance, an open process, and a code of conduct
 - No members-only IP pool (Zigbee, W3C)
 - No complete IP inventory required of institutions
- **Meetings are non-confidential**
- **Members required to disclose “known IP” in making proposals to working groups, drafts, interfaces, TEPs, etc.**
- **Working groups seek approaches that do not require the use of proprietary IP**
 - Multiple implementations without accusation
- **Code must conform to source licensing terms**
- **Mechanism for contributing IP to the Alliance**

Question to the community

- **Contribution IP notification in TEPS and Meetings**

<http://www.ietf.org/overview.html>

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- the IESG or any member thereof on behalf of the IESG,
- the IAB or any member thereof on behalf of the IAB,
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Call for participation

- **Officers**
- **Directors**
- **WG Chairs**
- **At-large Steering Group members**
- **TEP Shepherds**
- **TEP Reviewers**
- **Volunteers for various functions**
- **Helping hands**

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Backup

Articles of Incorporation...

- **The purpose of the corporation is to facilitate the continued advancement of open embedded network technology and applications by developing and promoting the TinyOS ecosystem within a worldwide academic and industrial embedded sensor network community.**
- **The corporation achieves this purpose by supporting processes for the development of technologies with technical excellence, fostering the exchange of technical ideas and education.**

Board of Directors

- **Corporate governance for the non-profit**
 - “trustees” in IETF
- **Max: 15, Term: 3 year,**
- **Turn-over: staggered, Max 2 successive terms**
- **Demography - diverse**
 - industry, educational, nonprofit, and government
 - International
 - Areas of specialization
- **Affirmative Actions: 2/3 majority of BoD**
 - Appointments, Articles,
 - Bylaws requires 4/5s
- **Quorum: Majority**
- **Action: Majority Attending**
- **Forms Committees, Appoints Officers (annual)**

- **Volunteers and Suggestions Welcome**