The Amazing World of the IETF

Everything You Always Wanted To Know About The IETF
But Were Afraid To Ask

April 2016, SEE5, Matthijs Mekking, Dyn
About IETF

The Internet Engineering Task Force (IETF) is a large open, loosely self-organized, international community concerned with the evolution of the Internet architecture and the smooth operation of the Internet.

Its mission is to make the Internet work better by producing high quality, relevant technical documents (RFCs).
About Me

- Dutch software engineer working at Dyn
- Started IETF work in 2006 when starting research project at NLnet Labs
## World of Acronyms

<table>
<thead>
<tr>
<th>IETF</th>
<th>ISOC</th>
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<td>IASA</td>
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<td>BOF</td>
<td>BCP</td>
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Today’s Presentation

IETF Organizational Architecture
Creating some structure in the Acronym Jungle

The Document Lifecycle
How do I get an RFC published?

Personal Experiences
Theory versus Practice
Resources and Acknowledgements

● IETF TAO [rfc 4677]
  ○ https://www.ietf.org/tao.html
● Influential people
  ○ Jelte Jansen, Jan Žorž, Désirée Miloshevic
IETF Organizational Architecture
IETF Mission

"The IETF exists to solve problems on the Internet
Not to write RFCs"

#IETF95
IETF Mission [rfc 3935]

- To make the Internet work better
  - By publishing relevant documents
  - Through the following principles
    - Open process
    - Volunteer core
    - Technical competence
    - Rough consensus and running code
    - Protocol ownership
The IETF is not

- The IETF is not a corporation
- The IETF has no board of directors
- The IETF does not run the Internet
  - Makes standards, does not patrol
- There is no membership to the IETF

*No organization can be successful without at least having some sort of structure*
Basic Organizational Architecture

ISO/ IAB

IETF
Advanced Organizational Architecture

IETF
- IESG
  - AD
  - AD
  - AD
  - ...
  - WG
  - WG
  - WG
  - BOF
  - IETF Secretariat
- IETF Trust

IRTF
- IRSG
- RG
- RG

IAB
- IANA
- ICANN
- RFC Editor
- NOMCOM

IASA

ISOC

IAD

IAOC
Internet Society (ISOC)

International, non-profit organization

Facilitates open development of Internet standards, protocols

IETF

IESG

IAB

ISOC

IRTF

$
Internet Architecture Board

IAB advises ISOC

IAB

Responsible for RFC’s and numbers

ISOC

IANA

RFC Editor

NOMCOM

IETF

IESG

IRTF

Focuses on long-term strategy
# Internet Assigned Numbers Authority

**IAB** | **IANA** | **ICANN** | $  
---|---|---|---

*The core registrar for IETF for Internet numbers*

<table>
<thead>
<tr>
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<th>Description</th>
<th>RFC Reference</th>
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</tr>
<tr>
<td>2</td>
<td>ServFail</td>
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</tr>
<tr>
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<td>NXDomain</td>
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<tr>
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<td>NotImp</td>
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<tr>
<td>5</td>
<td>Refused</td>
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<tr>
<td>6</td>
<td>YXDomain</td>
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<td>NotAuth</td>
<td></td>
</tr>
<tr>
<td>11-15</td>
<td>Unassigned</td>
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</tbody>
</table>

- No Error ([RFC1035](https://tools.ietf.org/html/rfc1035))
- Format Error ([RFC1035](https://tools.ietf.org/html/rfc1035))
- Server Failure ([RFC1035](https://tools.ietf.org/html/rfc1035))
- Non-Existent Domain ([RFC1035](https://tools.ietf.org/html/rfc1035))
- Not Implemented ([RFC1035](https://tools.ietf.org/html/rfc1035))
- Query Refused ([RFC1035](https://tools.ietf.org/html/rfc1035))
- Name Exists when it should not ([RFC2136](https://tools.ietf.org/html/rfc2136))
- RR Set Exists when it should not ([RFC2136](https://tools.ietf.org/html/rfc2136))
- RR Set that should exist does not ([RFC2136](https://tools.ietf.org/html/rfc2136))
- Server Not Authoritative for zone ([RFC2136](https://tools.ietf.org/html/rfc2136))
- Not Authorized ([RFC2845](https://tools.ietf.org/html/rfc2845))
- Name not contained in zone ([RFC2136](https://tools.ietf.org/html/rfc2136))
The RFC Editor edits, formats, and publishes Internet-Drafts as RFCs
Internet Engineering Steering Group

IAB

NOMCOM

IETF

IESG

AD

AD

AD

...

WG

WG

WG

BOF

Responsible for technical management of IETF activities and the Internet Standards process
Area Directors

IETF

IAB

IESG

ART GEN INT OPS RAI RTG SEC TSV

NOMCOM

AD AD AD ...

WG WG BOF

WG WG
Working Groups

Most WGs are started after a Birds of Feather (BOF)

There are 100+ active WGs...
Internet Research Task Force

There are 100+ active WGs...  ...and 11 RGs
IETF Administrative Support Activity

ISOC
IANA
IAOC
IAAD

IASA

RFC Editor

IETF

IETF Secretariat
IETF Trust
IETF Secretariat and Trust

IASA

IAOC

IAD

IETF

IETF Secretariat

IETF Trust
Quick Recap

ISOC | IAB

IETF

IESG

AD | AD | AD

WG | WG | WG

IRTF
Getting an RFC Published
Getting an RFC published

● Every RFC starts out as an Internet-Draft (I-D)
● Several document streams
  ○ IETF
    ■ WG
    ■ Individual
  ○ IRTF
  ○ IAB
  ○ Independent
Getting an RFC published

● Not All RFCs are Standards
  ○ Standards Track
    ■ Proposed, Draft, and Internet Standards
  ○ Best Current Practices
  ○ Informational
  ○ Experimental
  ○ Historic
Getting an RFC published

● Pick a good name:
  ○ Example: `draft-fujiwara-dnsop-nsec-aggressiveuse`

● Editor tools:
  ○ xml2rfc and many others (pandoc2rfc)
  ○ ID-Nits
  ○ See https://tools.ietf.org

● Submit using the I-D Submission tool:
  ○ https://datatracker.ietf.org/submit/
IETF Document Lifecycle

- WG / Individual
- IESG
- IETF
- RFC Editor
- AUTH48
Congratulations! Your doc is now RFC

- A published RFC can never change
  - Its Category can
- Error in RFCs: Reporting Errata
My Personal Experiences
IETF Meetings

- The very first IETF:
  - IETF 1: San Diego, 1986
- My first IETF: Taking the plunge

TAO: “The IETF meeting is a gathering of the tribes”
Getting an RFC published

● RFC 6781: DNSSEC Operational Practices (Version 2)
● RFC 7129: Authenticated Denial of Existence in DNS
● RFC 7583: DNSSEC Key Rollover Timing

“Every RFC starts out as an (Internet) Draft”
Should you go to an IETF?

- Networking hardware/software vendors
  - Very relevant, in fact you probably already attend
  - Engineers/developers
- Operators
  - Many of the best operations documents come from real-world operators
- Academics
  - Great place for information on networking research
  - IRTF
Should you go to an IETF?

IETF meetings are of little interest to sales and marketing folks, but of high interest to engineers and operators.

There is no exposition hall, few tutorials, and no big-name industry talks.

Instead there is lots of work, as well as a fair amount of time for socializing for many participants.
Questions?