Internet Administrative Support Activity version 2.0 (IASA2) Retrospective Report

Released by the IETF Administration LLC
29 October 2021

Reason for This Document

BCP 101 / RFC 8711 specifies a requirement to conduct a three-year retrospective of the IETF Administrative Support Activity version 2.0 (IASA2). This requirement is being met in the report below, by extracting requirements and goals from documents developed during the IASA2 process, evaluating each of them, and assessing performance on those requirements and goals.

Timeline

- **12 April 2021:** Proposed an IASA2 Retrospective process and timeline in a blog post.
- **24 June 2021:** Began the consultation process by releasing a first draft for comment and asking a number of specific questions of the community. This was announced in a blog post.
- **June - September 2021:** Regular revision of the assessment based on community input.
- **October 2021:** Wrote a report (this document) for the community on the results of the retrospective, including recommendations for future work.
- **November 2021:** Present the report during the IETF 112 meeting plenary.

Feedback Mechanisms

1. **Email:** send feedback to admin-discuss@ietf.org.
2. **GitHub:** Open an issue or propose a pull request on GitHub.
3. **Live Webinars:** The IETF LLC held two live webinars to take live input and questions on July 12 and August 11, 2021.

4. **IETF 111 Office Hours:** The IETF LLC held open office hours during IETF 111 in July 2021 in Gather.town to take questions and input.

**Note on Text Cited**

Note that in the following, the text of each requirement is generally taken verbatim from each cited document.

**A. BCP 101 / RFC 8711 Requirements**

**Section 4.3 - General IETF Responsibilities**

1. **Requirement:** Operations. The IETF LLC is responsible for supporting the ongoing operations of the IETF, including meetings and non-meeting activities.
   
   **Status:** 🟢 Achieved
   
   **Comments:** The IETF has continued to successfully operate following the implementation of the IASA2 framework.

2. **Requirement:** Finances. The IETF LLC is responsible for managing the IETF’s finances and budget.
   
   **Status:** 🟢 Achieved
   
   **Comments:** See the financial statements page, which includes links to budgets, financial statements and financial audits.

3. **Requirement:** Fundraising. The IETF LLC is responsible for raising money on behalf of the IETF.
   
   **Status:** 🟢 Achieved / On Track
   
   **Comments:** See new ISOC funding agreement with special matching funds (part 1 and part 2), and announcement of recruitment for fundraiser.

4. **Requirement:** Compliance. The IETF LLC is responsible for establishing and enforcing policies to ensure compliance with applicable laws, regulations, and rules.
   
   **Status:** 🟢 Achieved
   
   **Comments:** The IETF LLC publishes its policies and provides a compliance video to assist covered individuals in reading these policies.

**Section 4.4 - IETF Working Principles**

5. **Requirement:** Transparency. The IETF LLC is expected to keep the IETF community informed about its work, subject to reasonable confidentiality
concerns, and to engage with the community to obtain consensus-based community input on key issues and otherwise as needed. The IETF community expects complete visibility into the financial and legal structure of the IETF LLC. This includes information about the IETF LLC annual budget and associated regular financial reports, results of financial and any other independent audits, tax filings, significant contracts, or other significant long-term financial commitments that bind the IETF LLC. Whatever doesn’t have a specific justification for being kept confidential is expected to be made public. The Board is expected to develop and maintain a public list of confidential items, describing the nature of the information and the reason for confidentiality. The Board will also publish its operating procedures.

**Status:** Green - Achieved

**Comments:** The IETF LLC Board meets monthly, with meetings open to the community. The only items kept confidential relate to contract negotiations, contractor reviews, personnel matters or in some cases the exact financial rates in published contracts. The same level of transparency and access applies to the yearly IETF LLC Board strategic meetings. All items are available on the [IETF LLC webpage](#).

6. **Requirement:** Responsiveness to the community. The IETF LLC is expected to act consistently with the documented consensus of the IETF community, to be responsive to the community’s needs, and to adapt its decisions in response to consensus-based community feedback.

**Status:** Green - Achieved

**Comments:** The IETF LLC has focused most of its energy the last three years on executing on the documented consensus of the IETF community based in the formative BCPs and RFCs pertaining to IASA2, covered in this retrospective. The IETF LLC has also conducted extensive community consultations, such as in 2019 for the development of required policies. Since the IETF LLC formed, more than a dozen consultations have been conducted, as well as several surveys of the IETF community. Decisions have also been adapted based on community feedback, such as relating to the IETF’s initial policies, our privacy policy, and fees for online-only meetings. In addition, when suggestions have been made the Board has responded (e.g., creating office hours during IETF meetings).

7. **Requirement:** Diligence. The IETF LLC is expected to act responsibly so as to minimize risks to IETF participants and to the future of the IETF as a whole, such as financial risks.

**Status:** Green - Achieved

**Comments:** The IETF LLC has worked hard to minimize strategic risks to the IETF and participants. To use one recent example, the IETF LLC ensured that during the COVID-19 pandemic the IETF was able to shift to online meetings with effective tools while maintaining the financial viability of the organization—something with which other organizations struggled financially or operationally. However, the IETF was informed of a security vulnerability in
the meeting t-shirt request system which was [announced in April 2021](#) and subsequently mitigated.

8. **Requirement:** Unification. The IETF LLC provides the corporate legal home for the IETF, the Internet Architecture Board (IAB), and the Internet Research Task Force (IRTF), and financial support for the operation of the RFC Editor.

   **Status:** 🟢 Achieved

   **Comments:** This was achieved in the initial set of [legal agreements related to the formation of the IETF LLC](#).

9. **Requirement:** Transfer or Dissolution. Consistent with the IETF LLC Agreement, the IETF LLC subsidiary may be transferred from ISOC to another organization, at the request of either party. Similarly, the IETF LLC may be dissolved if necessary. Should either event occur, the IETF community should be closely involved in any decisions and plans. Any transfer, transition, or dissolution should be conducted carefully and with minimal potential disruption to the IETF.

   **Status:** 🟢 In Place

   **Comments:** The policy framework for such a move is in place, should it need to occur. See Section 12, Transfer of Membership Interest, and Section 13, Dissolution, in the [2018 Limited Liability Company Agreement of IETF Administration LLC](#).

### Section 5.1 - IETF Executive Director and Staff Responsibilities

10. **Requirement:** Developing and refining an annual budget and other strategic financial planning documents at the direction of the Board.

    **Status:** 🟢 Achieved

    **Comments:** See annual budget, financial statements, audit reports, and other finance-related documents on the relevant IETF LLC web page.

11. **Requirement:** Executing on the annual budget, including reporting to the Board regularly with forecasts and actual performance to budget.

    **Status:** 🟢 Achieved

    **Comments:** See annual budget, financial statements, audit reports, and other finance-related documents on the relevant IETF LLC web page. For regular reports to the Board, see monthly meeting minutes on the Board Minutes and Materials web page.

12. **Requirement:** Hiring and/or contracting the necessary resources to meet their goals, within the defined limits of the IETF Executive Director’s authority and within the approved budget. This includes managing and leading any such resources, including performing regular performance reviews.

    **Status:** 🟢 Achieved
Comments: The IETF Executive Director has brought in resources consistent with this, such as a Director of Communications and Operations, Director of Development, and two Senior Software Development Engineers.

13. Requirement: Following the pre-approval guidelines set forth by the Board for contracts or other decisions that have financial costs that exceed a certain threshold of significance. Such thresholds are expected to be set reasonably high so that the need for such approvals is infrequent and only occurs when something is truly significant or otherwise exceptional. It is expected that the IETF Executive Director is sufficiently empowered to perform the job on a day-to-day basis, being held accountable for meeting high-level goals rather than being micromanaged.

Status: 🟢 Achieved

Comments: This is documented in the Delegated Authorities policy.

14. Requirement: Regularly updating the Board on operations and other notable issues as reasonable and appropriate.

Status: 🟢 Achieved

Comments: The Executive Director has a standing agenda item each Board meeting to present a report, such as in the May 2021 meeting for example. This report is subsequently documented in meeting minutes, such as in the April 2021 meeting minutes for example.

15. Requirement: Ensuring that all staff and/or other resources comply with any applicable policies established or approved by the Board, such as ethics guidelines and/or a code of conduct.

Status: 🟢 Achieved

Comments: The Executive Director ensures that all staff and/or contractors comply with appropriate policies. In addition, the Board established a Whistleblower Policy as one mechanism for people to use if they believe that someone is not following policies.

Section 5.2 - IETF LLC Board Responsibilities

Key IETF LLC Board responsibilities include:

16. Requirement: Setting broad strategic direction for the LLC.

Status: 🟢 Achieved

Comments: The Board has done so in a number of ways, including conducting a strategic plan consultation and releasing a strategic plan. Development of this plan was also informed by the Internet Engineering Steering Group’s (IESG) strategic planning activities, and members of the IESG participated in the IETF LLC strategic planning process.

17. Requirement: Hiring or terminating an IETF Executive Director (or amending the terms of their engagement).
Status: 🟢 Achieved
Comments: Jay Daley was hired into this role and started on 24 October 2019.

18. Requirement: Delegating management of day-to-day activities and related decision-making to staff.
   Status: 🟢 Achieved
   Comments: Completed and documented in the Board/ED Delegated Authorities policy.

   Status: 🟢 Achieved
   Comments: Completed. The Board has mirrored the benefits of the Internet Society (ISOC).

20. Requirement: Consulting the relevant IETF communities on matters related to the LLC, as appropriate.
    Status: 🟢 Achieved
    Comments: As noted in Requirement 6 above, the IETF LLC has conducted extensive community consultations, such as in 2019 for the development of required policies. Since the IETF LLC formed, more than a dozen consultations have been conducted as well as several surveys of the IETF community. Decisions have also been adapted based on community feedback, such as relating to the IETF’s initial policies, our privacy policy, and fees for online-only meetings.

21. Requirement: Approving any changes to the LLC governance structure.
    Status: 🟢 Achieved
    Comments: Other than approving all the LLC's initial policies, no significant changes to the LLC's governance structure have been made.

22. Requirement: Adopting an annual budget and, as necessary, incur any debt.
    Status: 🟢 Achieved
    Comments: See the financial statements page, which includes links to budgets, financial statements, and financial audits. No debt has been incurred and there is no plan or need in the foreseeable future to do so.

23. Requirement: Preparing accurate and timely financial statements for ISOC, in accordance with generally accepted accounting principles.
    Status: 🟢 Achieved
    Comments: See the financial statements page, which includes links to budgets, financial statements, and financial audits.

24. Requirement: Providing assistance to help facilitate ISOC’s tax compliance, including but not limited to assistance related to preparing the Form 990 and
responding to any United States Internal Revenue Service (IRS) questions and audits.

**Status:** 🟢 Achieved

**Comments:** The LLC has provided all necessary tax and financial information to the Internet Society, via their Chief Financial Officer. The LLC’s numbers are included in ISOC’s IRS Form 990 filings.

25. **Requirement:** Approving entering into agreements that meet a significant materiality threshold to be determined by the Board.

**Status:** 🟢 Achieved

**Comments:** The Board has approved any agreements or other decisions that are financially material and documented various materiality thresholds in the Board/ED Delegated Authorities policy.

26. **Requirement:** Limiting its activities to the purposes as set forth in Section 4 of the LLC Agreement, in a manner consistent with ISOC’s charitable purposes.

**Status:** 🟢 Achieved

**Comments:** The LLC has operated in compliance with the entirety of the LLC Agreement, including Section 4. No issues relating to operating consistent with charitable purposes have been raised by the Internet Society, the LLC’s legal counsel, the LLC’s auditors, or other parties.

27. **Requirement:** Establishing an investment policy.

**Status:** 🟢 Achieved

**Comments:** The LLC adopted an Investment Policy on 18 December 2019 and has invested LLC funds consistent with that policy.

28. **Requirement:** Using best efforts to conduct all of its activities in strict compliance with the LLC Agreement and all applicable laws, rules, and regulations.

**Status:** 🟢 Achieved

**Comments:** The LLC has conducted all of its activities in strict compliance with the LLC Agreement and all applicable laws, rules, and regulations. No issues have been raised by the Internet Society, the LLC’s legal counsel, the LLC’s auditors, or other parties.

29. **Requirement:** Ensuring that IETF LLC is run in a manner that is transparent and accountable to the IETF community.

**Status:** 🟢 Achieved

**Comments:** See also Requirement 5 above. The IETF LLC Board meets monthly, with meetings open to the community. The only items kept confidential relate to contract negotiations, contractor reviews, personnel matters or in some cases the exact financial rates in published contracts. All items are available on the IETF LLC webpage. The IETF LLC has also conducted extensive community consultations, such as in 2019 for the development of
required policies. Since the IETF LLC formed, more than a dozen consultations have been conducted as well as several surveys of the IETF community. Decisions have also been adapted based on community feedback, such as relating to the IETF’s initial policies, our privacy policy, and fees for online-only meetings.

30. **Requirement:** Developing policies, including those noted in Section 8, procedures, and a compliance program.

   **Status:** 🟢 Achieved

   **Comments:** The LLC developed a number of policies and procedures, as well as a compliance program. This includes a Code of Conduct, Conflict of Interest Policy, Records Retention and Management Policy, Travel & Expense Reimbursement Policy, Whistleblower Policy, Endowment Policy, Community Engagement Policy, Board Electronic Voting Procedures, Board Minutes Approval Policy, Investment Policy, Board/ED Delegated Authorities Policy, Accounting Policy, Objectively False IPR Disclosure Policy, Records Retention Schedule, Charitable Contribution Acceptance Policy, and OFAC Compliance Policy.

31. **Requirement:** Obtaining Commercial General Liability and other appropriate insurance policies, with agreed-upon coverage limits.

   **Status:** 🟢 Achieved

   **Comments:** The LLC has obtained all necessary and recommended insurance policies, following a review of existing policies and their coverage limits to ensure appropriate levels of insurance. This includes insurance for Business Liability, Electronic Liability, Employee Benefits Liability, Employment Practices Liability, Employers Liability Coverage, Worker Compensation, Property Insurance, General Liability, Commercial Liability, Media Liability, Accidental Death, Kidnap and Extortion, Directors and Officers, Fraud Coverage, Inland Marine, Cyber Liability, and Event Cancellation. The LLC has also made an insurance claim pertaining to IETF-107, which was canceled due to COVID-19 and has subsequently received a payment on this claim. However, increasing the insurance for the IETF Trust has proven problematic as noted in Requirement 63 below.

32. **Requirement:** Recruiting new Directors for consideration in all of the various appointment processes.

   **Status:** 🟢 Achieved

   **Comments:** This requirement is more fully explained in Section 6.3 of RFC 8711. The LLC’s interim Board and inaugural Board have both complied with this requirement. The interim Board worked to recruit candidates to meet various requirements and a mix of skills, experience, and independence from the IETF. From the inaugural Board to the current Board, the Board has

   a. appointed a liaison to each of the three IETF Nominating Committees (NomComs) since the creation of the LLC and
Section 5.3 - Board Design Goals

33. **Requirement**: Meet the following goals:

- Balance the need for the IETF LLC to be accountable to the IETF community with the need for this Board to have the expertise necessary to oversee a small non-profit company.
- Focus on the limited set of strategic responsibilities as noted in Section 5.2 of RFC 8711 (enumerated here in Requirements 16 - 32).
- Overcome the challenges described in Section 3.1.4 of the IASA 2.0 Design Team Recommendations concerning oversight.
- Operate transparently to address issues noted in Section 3.3 of the IASA 2.0 Design Team Recommendations.

**Status**: 🟢 Achieved

**Comments**: The LLC has operated in a manner that meets this requirement. In particular, it has met the oversight requirement by hiring two staff members as well as contractors to fulfill functions previously provided by the Internet Society and the LLC Board, with the LLC Executive Director now having direct oversight of those people to meet this requirement. As well, the transparency requirements have been met as noted in the response to Requirement 5 above. In addition, the Board has adopted policies to ensure accountability to the IETF (as noted earlier in this document) and has operated consistent with those policies. Finally, the current Board has demonstrated that it has the expertise necessary to oversee a small non-profit company and the mechanisms for populating the Board have worked.

Section 6.1 - Board Composition

34. **Requirement**: There is a minimum of 5 Directors, which is expandable to 6 or 7:

- 1 IETF Chair or delegate selected by the IESG
- 1 Appointed by the ISOC Board of Trustees
- 3 Selected by the IETF Nominating Committee (NomCom), confirmed by the IESG
- Up to 2 Appointed by the IETF LLC Board itself, on an as-needed basis, confirmed by the IESG

**Status**: 🟢 Achieved
Comments: The Board has not exceeded 5 Directors since the inaugural Board was formed. The Board has so far not found it necessary to appoint additional Board members and has found that keeping the number of Board members to 5 has served as a natural limiter of Board attention, meaning it has kept the Board focused on the most important and strategic issues rather than getting into a level of detail that is best performed by staff, contractors, or volunteers. It remains to be seen whether in the future the Board will find it useful to appoint up to two additional Directors on an as-needed basis, though having the option to do so appears to remain a valuable attribute of the IASA2 structure.

In addition, despite the debate during the IASA2 WG process over whether the IETF NomCom process was well-suited to assess non-technical and non-IETF-related expertise, such as management, budget and fundraising experience, it appears that the NomCom process has worked successfully. However, in conferring with past NomCom chairs, there appears to be some potential ambiguity. That ambiguity was raised during this retrospective process and several discussion questions were raised by the IETF LLC.

This discussion concluded that IETF LLC should run an annual process in advance of the start of annual NomCom nominations (typically late August) for the community to comment on the requirements that will be sent to the NomCom for IETF LLC director roles. There was sufficient consensus that this was the best path forward even during the IASA2 retrospective process, so the IETF LLC started the process for the 2021 NomCom cycle, as announced here, running from 2 August 2021 to 15 August 2021.

The discussion also concluded that the correct body to perform this consultation was indeed the IETF LLC and not the IETF NomCom, particularly since that would require potentially significant changes to the IETF NomCom’s responsibilities as specified in RFC 8713. In addition, discussion also concluded that there should not be an explicit goal of a certain number of “independent” Directors, as this provides more flexibility in adapting to the changing needs of the IETF, because this can be called out in the annual IETF NomCom requirements for IETF LLC Director roles, and because the IETF LLC Board can appoint additional Directors as needed.

Section 7.1 - Financial Statements

35. Requirement: File an annual IRS Form 990, report on a regular basis to the IETF community on the current and future annual budget, budget forecasts vs. actuals over the course of a fiscal year, and on other significant projects as needed. This regular reporting to the IETF community is expected to be reported in the form of standard financial statements that reflect the income, expenses, assets, and liabilities of the IETF LLC.

Status: 🟢 Achieved

Comments: As noted in Requirement 22 above, see the financial statements page, which includes links to budgets, financial statements and financial
Section 7.2 - Bank and Investment Accounts

36. **Requirement**: The IETF LLC maintains its own bank account, separate and distinct from ISOC. The IETF LLC may at its discretion create additional accounts as needed. Similarly, the IETF LLC may create investment accounts in support of its financial goals and objectives as needed.

    **Status**: 🟢 Achieved

    **Comments**: The IETF LLC has established bank and investment accounts that are independent of the Internet Society.

Section 7.3 - Investment Accounts

37. **Requirement**: The IETF LLC is expected to retain and work with an independent auditor. Reports from the auditor are expected to be shared with the IETF community and other groups and organizations as needed or as required by law.

    **Status**: 🟢 Achieved

    **Comments**: As noted in Requirement 22 above, see the financial statements page, which includes links to budgets, financial statements and financial audits. In addition, as noted in Requirement 24, the LLC has provided all necessary tax and financial information to the Internet Society, via their Chief Financial Officer. The LLC's numbers are included in ISOC's IRS Form 990 filings.

Section 7.4 - ISOC Financial Support

38. **Requirement**: ISOC currently provides significant financial support to the IETF LLC. Exhibit B of the IETF LLC Agreement summarizes the financial support from ISOC for the foreseeable future. It is expected that this support will be periodically reviewed and revised, via a cooperative assessment process between ISOC and the IETF LLC.

    **Status**: 🟢 Achieved

    **Comments**: A new agreement with ISOC was announced on 30 November 2020. The executed 16 November 2020 agreement is posted, as is a brief amendment from 22 December 2020.

Section 7.5 - IETF Meeting Revenues

39. **Requirement**: Meeting revenues are another important source of funding that supports the IETF, coming mainly from the fees paid by IETF meeting
participants. The IETF Executive Director sets those meeting fees, in consultation with other IETF LLC staff and the IETF community, with approval by the IETF LLC Board. Setting these fees and projecting the number of participants at future meetings is a key part of the annual budget process.

**Status:** 🟢 Achieved / On Track with Caveat

**Comments:** The only change to meeting fees was the introduction of an online meeting fee, which was necessary as a result of the COVID-19 pandemic forcing the IETF to temporarily shift away from in-person meetings. In this case, fees were proposed and adjusted based on community feedback and in a manner to ensure the continued financial stability of the IETF.

*In retrospect, there should have been earlier consultation on the fees and specifically the fee waiver system.* While the Board initially assessed that the fee waiver system already in place for regular meetings should apply to online meetings too (including the need to motivate a fee waiver request), this was rejected strongly by the community. In summary, it is our assessment that while the LLC mis-stepped initially, it rapidly adjusted the plans for IETF-108 based on community feedback and quickly reached consensus on its final plans.

Initial signs of health issues that would affect IETF-107 taking place in March 2020 in Vancouver led to an advisory concerning travel restrictions on 2 February 2020 and a note that the IETF was continuing to monitor the situation and would offer refunds on 12 February 2020. This was followed by an update on 24 February 2020 that the LLC was monitoring events and potential issues that may prevent meeting in person in March 2020 and a further update on 4 March 2020. This culminated in an announcement on 10 March 2020 that IETF-107 would not take place in person, refunds would be processed, and that a short virtual meeting would instead be held. The LLC also announced a process to analyze the financial impacts of the need to hold meetings exclusively online for some period and an intent to explore a potential insurance claim resulting from cancellation of IETF-107 (which was later successfully paid in the amount of $426,118).

A change to meeting fees was motivated in response to the events that followed the World Health Organization’s pandemic declaration on 11 March 2020, which confirmed the LLC’s concern that meetings would need to move entirely online for the foreseeable future. In the remaining weeks of March 2020, countries around the world began to implement travel restrictions and bans, as well as stay-at-home orders - initially fairly short-term in nature. The world’s understanding of the nature, potential severity, and likely long duration further developed through late March and early April 2020. The IETF LLC meeting fee assessment process began with an initial consultation concerning the move to online meetings on 16 April 2020, then a survey on 29 April 2020, a survey reminder on 4 May 2020, announced decision-making framework on 7 May 2020, posted decision-making framework and next steps on 7 May 2020, announced survey results on 12 May 2020, announced shift to an online meeting for IETF 108 on 14 May 2020, analysis of survey results on 21
May 2020, assessment of financial impacts and costs on 27 May 2020, draft fee structure announced on 28 May 2020, announcement of first online-only meeting registration on 8 June 2020 which included a fee waiver program based on community feedback, proposed change to and consultation on the fee waiver program based on community feedback, and finalization of the fee waiver program for IETF-108 on 19 June 2020.

The adjusted budgets, based around reduced fees and reduced sponsorship levels, have proven sufficiently accurate with all online meetings making a small surplus/loss, as budgeted.

While the LLC at the time identified an area of improvement to the fee consultation process, in retrospect we believe that in the bigger picture the shift to online meetings was executed successfully in the face of an unprecedented global crisis, in the short period of time necessitated by these unforeseen external events, and with minimal financial impact to the organization, preserving a key revenue stream and ensuring the ongoing financial stability of the IETF. Our reforecast 2020 budget and 2020 Audited Financials provide further details.

See also an associated recommendation in Section E below.

Section 7.6 - Sponsorships and Donations to the IETF LLC

40. Requirement: Sponsorships and donations are an essential component of the financial support for the IETF. Within the general bounds noted in Section 7.8, the IETF LLC is responsible for fundraising activities in order to establish, maintain, and grow a strong foundation of donation revenues. This can and does include both direct financial contributions as well as in-kind contributions, such as equipment, software licenses, and services.

Sponsorships and donations to the IETF LLC do not (and must not) convey to sponsors and donors any special oversight or direct influence over the IETF’s technical work or other activities of the IETF or IETF LLC. This helps ensure that no undue influence may be ascribed to those from whom funds are raised, and so helps to maintain an open and consensus-based IETF standards process.

To the extent that the IETF LLC needs to undertake any significant special projects for the IETF, the IETF LLC may need to fund-raise distinctly for those special projects. As a result, the IETF LLC may conduct fundraising to support the IETF in general as well as one or more special fundraising efforts (which may also be accounted for distinctly and be held in a separate bank account or investment, as needed).

Status: 🔴Achieved / On Track

Comments: The new 2020 agreement with the Internet Society created a new fundraising matching funds program, designed to help create a strong foundation from which to accelerate new fundraising.
A revised sponsorship program was then announced on 2 March 2021. In the new structure, most opportunities are presented as annual or multi-year commitments with benefits that extend across and beyond meetings. In addition, there are new values-based categories to support running code, diversity and inclusion, and sustainability. These include programs such as IETF Hackathons, meeting registration fee waivers, and initiatives designed to reduce our impact on the environment. Meeting-focused opportunities remain a part of the mix. An organization may host a meeting not already supported by a Global Host. Likewise, separate welcome reception sponsorship opportunities remain, and organizations local to an in-person meeting may be a sponsor for that meeting. Equipment and services sponsors will continue to be recognized for the support they provide our community’s ongoing operations.

Finally, the hiring of a Director of Development was announced on 8 June 2021 and that person is in charge of leading fundraising for the IETF. Their hiring reflects the priority that the LLC places on this critical activity.

Section 7.7 - Focus of Funding Support

41. **Requirement**: The IETF LLC exists to support the IETF, IAB, and IRTF. Therefore, the IETF LLC’s funding and all revenues, in-kind contributions, and other income that comprise that funding shall be used solely to support activities related to the IETF, IAB, IRTF, and RFC Editor, and for no other purposes.

   **Status**: 🟢 Achieved

   **Comments**: The LLC does not fund programs or groups beyond those specified in this requirement, which also includes the IETF Trust. In addition, the LLC develops the IETF’s annual budget in a bottoms-up manner, based on the cost estimates and plans provided by these programs and groups.

Section 7.8 - Charitable Fundraising Practices

42. **Requirement**: When the IETF LLC conducts fundraising, it substantiates charitable contributions on behalf of ISOC – meaning that according to United States tax law, the IETF LLC must send a written acknowledgment of contributions to donors. The IETF LLC evaluates and facilitates state, federal, and other applicable law and regulatory compliance for ISOC and/or the LLC with respect to such fundraising activities. In addition, the IETF LLC ensures that all fundraising activities are conducted in compliance with any policies developed by the IETF LLC, including but not limited to those noted in Section 8.

   **Status**: 🟢 Achieved

   **Comments**: As noted in Requirement 24, the LLC has provided all necessary tax and financial information to the Internet Society, via their Chief Financial Officer. The LLC’s numbers are included in ISOC’s IRS Form 990 filings. This
fundraising is done consistent with various IETF LLC policies, such as the OFAC Compliance Policy and Charitable Contribution Acceptance Policy.

Section 7.9 - Operating Reserves

43. Requirement: An initial target operating reserve has been specified in Exhibit B of the IETF LLC Agreement. It says that the IETF LLC should maintain an operating reserve equal to the IETF LLC’s budgeted Net Loss for 2019 multiplied times three. The IETF LLC, in cooperation with ISOC, may regularly review the financial target for this reserve fund, as noted in the IETF LLC Agreement or as otherwise necessary.

Should the IETF LLC generate an annual budget surplus, it may choose to direct all or part of the surplus towards the growth of the operating reserve.

Status: 🟢 Achieved / With Suggested Action Items

Comments: The LLC continued to maintain an operating reserve fund. As of June 2021, the operating reserve balance is over $5,200,000. The LLC believes this reserve is sufficient at this time, based on the organization’s projected expenses.

In addition, we propose two financial-related actions that should be made a part of the IETF LLC’s annual budget process. First, the LLC should annually update and specify the financial target for reserve-related funds. Second, the LLC should annually review all reserve-related funds and the Investment Policy, and update these as necessary. These reviews would be best timed to coincide with the annual budget process.

Section 7.10 - Annual Budget Process

44. Requirement: As noted in Section 4.3, the IETF LLC is responsible for managing the IETF’s finances and budget. A key part of this responsibility is establishing, maintaining, and successfully meeting an annual budget. This is essential to the continued operation and vibrancy of the IETF’s technical activities and establishes trust with ISOC, sponsors, and donors that funds are being appropriately spent, and that financial oversight is being conducted properly. This is also essential to the IETF LLC meeting applicable legal and tax requirements and is a core part of the Board’s fiduciary responsibilities.

As explained in Section 5.1, the IETF Executive Director is expected to develop, execute, and report on the annual budget. Regular reporting is expected to include forecast vs. budget statements, including updated projections of income and expenses for the full fiscal year.

The Board, as explained in Section 5.2, is expected to review and approve the budget, as well as to provide ongoing oversight of the budget and of any other significant financial matters.

The annual budget is expected to be developed in an open, transparent, and collaborative manner, in accordance with Section 4.4. The specific timeline for
the development, review, and approval of the IETF LLC annual budget is established by the Board and may be revised as needed.

**Status:** 🟢 Achieved

**Comments:** The LLC and the IETF Executive Director have followed this process for developing an annual budget and reporting financial results. As noted in Requirement 22 above, see the financial statements page, which includes links to budgets, financial statements, and financial audits.

To use fiscal year 2020 as an example of this in practice, the budget was developed in a bottom-up manner that led to the draft budget narrative and request for feedback on 11 November 2020. This was followed by publication of a draft 2020 budget for comment, announced by email on 13 November 2019, and a final 2020 budget on 16 January 2020.

As a result of the COVID-19 pandemic forcing a shift to online meetings and upending the LLC’s budget, IETF-107 was canceled and this led to the LLC immediately discussing a revised budget to reflect a new operating model for the IETF if this might also impact IETF-108 or subsequent meetings. Those financial discussions were originally recorded in the minutes of the 12 March 2020 Board meeting, followed by discussions recorded in the minutes of meetings on 26 March 2020, 9 April 2020, and 14 May 2020. An update on the 2020 budget reforecast was noted in minutes from the 11 June 2020 board meeting with the goal to complete the reforecast by the end of June 2020. In the 9 July 2020 board meeting, the budget reforecast was approved. This was also announced on 29 July 2020 during the plenary session of IETF-108. The LLC’s financial statements reflected this new budget beginning with the July 2020 financial statement and continuing for the remainder of the financial year. The 2020 fiscal year audit report has also now been published.

**Section 8 - IETF LLC Policies**

45. **Requirement:** The Board is expected to maintain policies as necessary to achieve the goals of the IETF LLC, meet transparency expectations of the community, comply with applicable laws or regulations, or for other reasons as appropriate. All policies are expected to be developed with input from the IETF community. Some policies provided by ISOC and past policies developed by the previous IAOC may provide a useful starting point for the Board to consider.

**Status:** 🟢 Achieved

**Comments:** See Policies & Procedures on the LLC website. These policies were developed based on an extensive community consultation that occurred over a period of months. The framework and timing of the consultation was announced on 11 June 2019. This included creation of a new mailing list, a project on GitHub where the draft documents were maintained and people could open issues or propose changes directly (via pull request), a live webinar with Q&A (available for playback for those unable to attend live), and a further
revision of the draft policies. This was followed by finalization of the initial policies on 7 November 2020.

The LLC remains open to suggested changes to existing policies or the creation of new policies. One example of a policy being updated based on a community request was the updated LLC Meeting Minutes Policy.

Section 8.1 - Conflict of Interest Policy

46. Requirement: The Board is expected to maintain a Conflict of Interest policy for the IETF LLC.

Status:Achieved

Comments: Published here

Section 8.2 - Other Policies

47. Requirement: The Board is expected to maintain additional policies for the IETF LLC as necessary, covering Directors, employees, and contractors, concerning issues such as:

- Acceptance of gifts and other non-cash compensation
- Travel and expense reimbursement
- Anti-bribery
- Code of conduct
- Anti-harassment
- Non-discrimination
- Whistleblower
- Document retention
- Export controls
- Anti-terrorism sanctions
- Data protection and privacy
- Social media

Status: Achieved

Comments: Published here for each one:

- Acceptance of gifts and other non-cash compensation - Section 9 of the Code of Conduct
- Travel and expense reimbursement - See policy
- Anti-bribery - Section 10 of the Code of Conduct
- Code of conduct - See policy
- Anti-harassment - Section 6 of the Code of Conduct
- Non-discrimination - Section 5 of the Code of Conduct
- Whistleblower - See policy
- Document retention - See policy
- Export controls - Section 11 of the Code of Conduct and OFAC Compliance Policy
- Anti-terrorism sanctions - Section 11 of the Code of Conduct and OFAC Compliance Policy
• Data protection and privacy - See privacy statement and related policies
• Social media - Section 8 of the Code of Conduct

Section 8.3 - Compliance

48. Requirement: The IETF LLC is expected to implement a compliance program to ensure its compliance with all applicable laws, rules, and regulations, including without limitation laws governing bribery, anti-terrorism sanctions, export controls, data protection/privacy, as well as other applicable policies noted in Section 8. In addition, actions and activities of the IETF LLC must be consistent with 501(c)(3) purposes.

The IETF LLC is expected to report to ISOC and the IETF community on the implementation of its compliance plan on an annual basis.

Status: 🟢 Achieved

Comments: Compliance reports have been published on the LLC Reports page.
B. **IASA 2.0 Design Team Recommendations**

Comment on this section: This expired draft is not authoritative, as BCP 101 or other BCPs/RFCs are. However, we felt it may be useful to include (we’d encourage comment on that), as we have found that it can sometimes provide additional context and motivation for the goals and requirements that did end up in the authoritative documents.

**Section 4 - Goals**

(See also Section 6.1)

49. **Requirement**: Protect the IETF’s Culture and Technical Work: Ensure that the future IASA organizational structure and processes preserve and protect the IETF’s unique culture of individual contribution, clear separation of financial support from technical work, as well as the “rough consensus and running code” approach to the development of open Internet standards.

   **Status**: 🔴 Achieved

   **Comments**: The IETF’s culture and technical work continues along the same path it was on prior to the IASA2 changes.

50. **Requirement**: Improve the IETF’s Technical Environment. Undertake changes to better enable technical contributors to focus more on that technical work and less on administrative work or support activities. This could for example mean directing more financial resources towards the creation of new or improvement of existing tools, which might be produced by contractors rather than solely by volunteers. As a result, volunteers could instead focus on developing the standards themselves. Thus, if the core competency of IETF attendees and their reason for participating in the IETF is to develop standards, then create an environment where they can focus exclusively on that activity and delegate to contractors, staff, or other resources the responsibility for creating and maintaining tools and processes to support this activity.

   **Status**: 🔴 In Progress

   **Comments**: This remains a key focus for the LLC, as there continues to be technical debt that needs to be addressed, and the IETF wishes to move towards more modern software architecture, systems architecture, software development practices and user-centered design. The current short-term focus is migrating core services off of tools.ietf.org onto managed IETF servers with a mix of like-for-like services, switching to new services (such as from Trac to GitHub) and replacing existing services with enhanced functionality. Resourcing continues to be a limiting factor and the LLC has increased the use of existing contractors, cultivated new contractors, and employed two new Senior Software Development Engineers to address this limitation, thus providing more capacity to take on a greater volume of technical work.
We also observed that tension arose in the process of working towards meeting this requirement, as the LLC attempted (as required) to better define roles, responsibilities, and accountability between contractors and volunteers - especially when an individual was simultaneously both a contractor and a volunteer in a specific context. This appears to have been resolved and as the technical platforms of the IETF evolve it appears that roles, responsibilities, and accountabilities are becoming more clear-cut and easier to understand.

51. **Requirement**: Clearly Define the IETF-ISOC Relationship: Define the roles of IETF and ISOC in a way that helps the above structure be as clear as possible, in terms of who does what, how are things accounted for, and who is in charge of adjustments and control (e.g., staff resources). This also includes consideration of a new funding model that takes into account the historical responsibility for the IETF that ISOC has had since its inception.

**Status**: 🟢 Achieved

**Comments**: As documented in RFC 8712 and noted in Requirement 38, a new agreement with ISOC was announced on 30 November 2020. The executed 16 November 2020 agreement is posted, as is a brief amendment from 22 December 2020. Successfully establishing the IETF LLC legally and in operation has contributed to the clarity sought in the Design Team draft.

52. **Requirement**: Support a Re-Envisioned Funding Model: Provide the staff support and resources needed to adapt the funding model of the IETF to changes in the industry, participation, and expenses. The structure should also allow for and be able to support new funding streams or changes to the proportion of funds from various Sources.

**Status**: 🟢 Achieved / On Track

**Comments**: As noted in Requirement 38, a new agreement with ISOC was announced on 30 November 2020, which includes a novel new matching funds component. The executed 16 November 2020 agreement is posted, as is a brief amendment from 22 December 2020. In addition, as noted previously, there is now a fee structure in place for online meetings to react to pandemic-driven changes in how we can meet, a revised sponsorship program, and a new Director of Development on staff. The LLC anticipates that over the next 5 to 10 years that the funding sources will diversify as a result of these changes and investments.

53. **Requirement**: Provide Clarity About the IETF-ISOC Financial Arrangements: A redesign needs to clear up ambiguities in the financial arrangements between IETF and ISOC. It must also be clear to people outside the IETF and ISOC organizations (e.g., sponsors) what the arrangements are and what their contributions affect and do not affect.

**Status**: 🟢 Achieved

**Comments**: As documented in RFC 8712 and noted in Requirement 38, a new agreement with ISOC was announced on 30 November 2020. The executed 16
November 2020 agreement is posted, as is a brief amendment from 22 December 2020.

54. **Requirement:** Clarify Overall Roles and Responsibilities: Ensure that all staff, contractor, and volunteer roles are clearly documented. This necessarily includes documenting how each of these parties may interact or interface with one another in order to conduct and support the business of the IETF. This also includes documenting key work processes, decision-making processes and authority (such as pertaining to meeting venue selection), etc. A key objective is to minimize ambiguity and uncertainty so that it is clear who is responsible for what and who has the power to make certain decisions.

There also needs to be a clear definition of what issues belong to the IESG vs. the IASA organization or staff. In many cases that is not clear today.

**Status:** 🟢 Achieved

**Comments:** The LLC believes that this was achieved via the various RFCs from the IASA2 working group and the associated contracts and formative documents that initially created the LLC, as well as initial policies, contractor agreements, and delegated authorities policy. Recently, an additional effort has also started to consider the potential need for and form of an anti-trust policy as noted in an Internet-Draft and mailing list discussion. However, in attempting to meet this requirement the LLC experienced some challenges in clarifying roles and responsibilities in cases when an individual may be both a contractor as well as a volunteer (see also the response to Requirement 50 above).

55. **Requirement:** Define Support Staff Roles and Responsibilities: Clearly define the roles of the oversight entities and staff/contractors to match the expanded work scope facing the IETF. Ensure that any changes create a structure that can adapt flexibly to future growth and other changes (including changes in IETF community expectations, such as increased transparency or more rapid decision-making).

**Status:** 🟢 Achieved

**Comments:** This was achieved via the various RFCs from the IASA2 working group and the associated contracts and formative documents that initially created the LLC. See also the response above to Requirement 50. In addition, while the initial steps taken to increase transparency were a big step in the right direction, the LLC continues to work to strengthen and improve engagement and feedback processes with the IETF community (noting the challenge in how that community is defined and the wide range of mechanisms for feedback, as well as a first IETF-wide community survey). We also acknowledge that the pandemic has made it impossible to have the informal hallway, break time, or meal time interactions that so often provide an additional channel for feedback. We believe once face-to-face meetings return that being able to resume these informal interactions will further improve the LLC’s ability to receive and act on feedback.
56. **Requirement**: Re-define the Role of the IETF Community in relation to Administrative Activities: As the roles and responsibilities for support staff and volunteer roles are clarified more precisely, the role of the IETF community in relation to those staff and volunteer roles must be better defined. This should acknowledge the limited time and availability of IETF volunteers, better defining expectations around oversight of and involvement in strategic, operational, and execution tasks within the administrative efforts.

The new design needs to ensure that volunteers are not overloaded in such things as low level operational decisions, which can be delegated to and handled by staff, and can instead focus on strategic changes, critical decisions, and so on. In particular, this should focus on clearly documenting the lines between responsibility, representation, authority, and oversight.

**Status**: 🟢 Achieved

**Comments**: This was achieved via the various RFCs from the IASA2 working group and the associated contracts and formative documents that initially created the LLC. See also the response above to Requirement 50.

57. **Requirement**: Define Improved Transparency Requirements: The general level of operational transparency and information-sharing between IETF administrative staff and groups to the IETF community must be kept at an acceptable level and improved where it makes sense in the future. This includes ensuring the timeliness of sharing of information and decisions, as well as seeking comment on prospective decisions. At the same time, we need to reset expectations around delegated authority so that once staff or an administrative support organization has been delegated certain authority it is clear that they are empowered to proceed in a particular area, so as to improve organizational efficiency, reduce friction, and improve the pace of work and decision-making. However, it is clear that enabling a group or staff to act within their delegated authority depends upon a clearer definition of roles and responsibilities, on improved transparency, on improved communications, and on trust (which is built upon all of those things over time).

**Status**: 🟢 Achieved

**Comments**: This was achieved via the various RFCs from the IASA2 working group and the associated contracts and formative documents that initially created the LLC. See also the Board/ED Delegated Authorities policy and the Community Engagement Policy. See also the response to Requirement 55 above.

58. **Requirement**: Define a Transition Plan: Determine what new IASA structure we need and define a transition plan from the model the IETF has today to the new structure.

**Status**: 🟢 Achieved

**Comments**: This requirement was met and documented in this transition plan.
Section 5.3.1 - Board Selection

59. **Requirement**: Experience with selection for the IAOC and the ISOC Board shows the difficulty of using the NomCom process to select a board with the kind of business skills necessary to supervise an operation like IETFAdminOrg. These skills are not common – though also not non-existent – within the IETF community, which makes it hard to find candidates as well as reducing the chance that NomCom members will have the personal contacts to identify external candidates with the appropriate skills. For this reason, the design team does not believe that direct NomCom selection of the whole board will be successful. In the ISOC Subsidiary model, ISOC might also nominate some board members. Below we present two alternative mechanisms for selecting the remaining board members, though there are others that would perhaps be successful. Regardless of the nomination mechanism, the entire board should be subject to confirmation by the IETF Leadership.

   **Status**: 🔴 Achieved

   **Comments**: See Requirement 34 above.

Section 5.5 - Staff Structure

60. **Requirement**: The design team believes that staff resources need to increase and/or be reorganized in order to move from one director to a few more specialized roles.

   **Status**: 🔴 Achieved

   **Comments**: The organizational changes have been made and staff hired.

Section 5.6.2 - Funding Sources and Stability

61. **Requirement**: See the several paragraphs in the IASA2 Design Team Recommendations document, which concludes with a main point:

   ...developing a sustainable funding plan for the IETF will be a key project during the early months and years post-IASA 2.0. Ultimately a healthier funding model will require raising more funds from the organizations that benefit from IETF standards and whose employees participate in the IETF, and may result in less reliance on ISOC funds. Such a model might incorporate meeting-based sponsorships as we have traditionally had, other kinds of sponsorships, a fully funded endowment, a different registration fee structure, or other funding vehicles.

   **Status**: 🔴 Partly Achieved / In Progress

   **Comments**: During the IASA2 transition and bootstrapping process, we are pleased that pre-existing sponsors and funding was maintained. In addition, a new funding agreement with a novel matching program has been agreed upon with ISOC. There is also a revised sponsorship program that is successfully attracting interest and incremental funding, a revised
endowment policy, a structure for online-only meeting registration fees, and a newly hired Director of Development to lead the IETF’s fundraising efforts. These are all long-term efforts that will take time to bear fruit.

However, one area for action is determining what the meeting registration structure should look like for a post-COVID-19 era of hybrid meetings. On 30 August 2021, the IETF LLC opened a consultation on this question and associated issues. In addition, the IESG is in the process of rechartering the SHMOO working group to expand its focus from online meetings to hybrid meetings. This will now be the subject of an upcoming IETF LLC-IESG-IAB-IRTF leadership workshop in 2021. Finally, it is expected that IETF-113 in March 2022 may be the first hybrid IETF meeting.

See also an associated recommendation in Section E below.

Section 5.6.3 - Funding Level

62. Requirement: See the several paragraphs in the linked document, which includes the key requirements to: improve the accounting of IETF-related costs, ensure realism in the budget, [maintain] ISOC as a funder and backstop, [maintain an] appropriate funding level.

Status:🟢 Achieved

Comments: See the responses to many of the Requirements above, including numbers 2, 10, 11, 12, 22, 23, 31, 35, 36, 37, 39, 41, 43, and 44. In addition, looking specifically at the past and future funding levels from ISOC, the first two years were specified at the time the LLC was formed, while the new agreement in 2020 specifies six additional years, as graphically represented here:
C. Other RFCs

Other RFCs were published in the IASA2 series. These are cited here for completeness but did not have specific and actionable requirements for the IETF LLC per se. As a result, no requirements are enumerated for these RFCs and the IETF LLC is in compliance with each one as necessary.

- **RFC 8712** - The IETF-ISOC Relationship
- **RFC 8713** - IAB, IESG, IETF Trust, and IETF LLC Selection, Confirmation, and Recall Process: Operation of the IETF Nominating and Recall Committees
- **RFC 8714** - Update to the Process for Selection of Trustees for the IETF Trust
- **RFC 8715** - IETF Administrative Support Activity 2.0: Update to the Process for Selection of Trustees for the IETF Trust
- **RFC 8716** - Update to the IETF Anti-Harassment Procedures for the Replacement of the IETF Administrative Oversight Committee (IAOC) with the IETF Administration LLC
- **RFC 8717** - IETF Administrative Support Activity 2.0: Consolidated Updates to IETF Administrative Terminology
- **RFC 8721** - Advice to the Trustees of the IETF Trust on Rights to Be Granted in IETF Documents

63. **Requirement:** Comply with these additional IASA2-related RFCs as necessary

**Status:** 🟢 Achieved

**Comments:** Before IASA2, the same people were members of the IAOC and the IETF Trust. A side effect of the IASA2 change was that different people serve in the IETF LLC and IETF Trust, potentially creating some distance where there was none before while also bringing the benefit of more specialized legal knowledge & experience for those people serving the IETF Trust. At the same time, the unusual structure of the IETF Trust makes those that serve in the IETF Trust personally financially liable for the IETF Trust. This has historically been mitigated by obtaining liability insurance for members of the IETF Trust, but it has in the past few years become impossible to further increase that insurance.

As a result, it seems beneficial for the IETF community to explore potential changes to the legal structure of the IETF Trust. There are at least two major options for achieving this, if not more. We suggest that the IETF Trust should conduct a community consultation concerning this issue and potential future changes in legal structure for the IETF Trust that would better protect those experts that serve the IETF Trust while also maintaining close alignment with the IETF.
D. Other Gaps

The IETF LLC also asked an open-ended question of the IETF community, seeking suggestions on any additional administrative, financial, legal, or operational gaps; areas of improvement; and any areas of under-specification or over-specification in IASA2 documents that the IETF LLC Board, IETF Secretariat, IETF Executive Director, or the IETF community perceive that have not already been addressed in prior sections of this document. No comments were received in this area that have not already been addressed in prior sections of this document.

Finally, the IETF LLC specifically asked whether retrospectives like this should be performed in the future and the feedback was that this did have value. The associated action item for that has been noted below in Section E.
E. Recommendations for Future Work

1. The IETF LLC should conduct a regular assessment of the IASA structure and IETF LLC every three years, with a report to the IETF community in the final IETF meeting of each of those years. Based on this IASA2 retrospective being completed in 2021, the next IASA assessments should occur in 2024, 2027, 2030, 2033, and so on.

   The point of performing a regular assessment is that the IETF’s way of working and its needs will continue to evolve, while the external environment will also change. Thus, periodically checking in to see whether there are structural, process, financial, operational, legal, or other administrative adaptations are needed makes sense. As well, by making small changes on an incremental basis, the risks associated with each change is likely to be smaller because the changes are correspondingly smaller, and there is a regular check-in every three years at which point the IETF can assess the effectiveness of any change so that modest course corrections can be made. Finally, keeping up with internal and external changes may also potentially help the IETF avoid large once-a-decade administrative structure changes that are multi-year efforts like IASA2 - and this is not only a time-saver but also lets IETF leaders and participants remain more focused on the core standards work of the IETF.

   In addition, as the IETF evolves how the organization wishes to work and meet in a post-COVID world, such as potentially changing meeting frequency, reducing in-person venue size requirements, shifting to hybrid meetings, and so on, the IETF LLC will need to adapt to provide the necessary administrative, operational, legal, financial, and other support to meet the changing needs of the IETF.

2. As noted in the comments part of Requirement 43, we recommend two financial-related actions that should be made a part of the IETF LLC’s annual budget process. First, the LLC should annually update and specify the financial target for reserve-related funds. Second, the LLC should annually review all reserve-related funds and the Investment Policy, and update these as necessary. These reviews would be best timed to coincide with the annual budget process.

3. As noted in the comments part of Requirement 63, we recommend that the IETF Trust initiate a community consultation concerning improvements in their legal structure.
Notes