

Guidelines for Working Groups on Intellectual Property Issues
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Abstract

This memo lays out a conceptual framework and rules of thumb useful for working groups dealing with IPR issues. It documents specific examples of how IPR issues have been dealt with in the IETF.

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1. Introduction

This memo lays out a conceptual framework and rules of thumb for working groups dealing with IPR issues. The goal is to achieve a balance between the needs of IPR claimants and the implementers of the Internet which is appropriate to current times. As part of trying to distill out principles for dealing with IPR in IETF working groups, it provides case studies of treatments of IPR issues that have already been worked out. In other words, it documents the running code of the IETF process.

This memo does not describe IPR procedures for document authors or IPR claimants. Those are covered in two other memos, on IPR in the IETF [4] and submitters' rights [5]. Rather, this memo is for working groups that are trying to decide what to do about IPR-protected technology contributions.

2. The Problem

Traditionally the IETF has tried to avoid technologies which were "protected" through IPR claims. However, compromises have been made since before the IETF was born. The "common knowledge" of the IETF, that IPR-protected technology was anathema, has never dealt with the fact that the Internet has run on IPR-protected technologies from the beginning. Nowadays the majority of the useful technologies brought to the IETF have some sort of IPR claim associated with them.

It will always be better for the Internet to develop standards based on technology which can be used without concern about selective or costly licensing. However, increasingly, choosing a technology which is not protected by IPR over an alternative that is may produce a weaker Internet. Sometimes there simply isn't any technology in an area that is not IPR-protected. It is not always the wrong choice to select IPR-protected technology, if the choice is made knowingly, after considering the alternatives and taking the IPR issues into account.

The IETF is not a membership organization. Other standards making bodies may have membership agreements that member organizations must sign and adhere to in order to participate. Membership agreements may include strict procedures for dealing with IPR, or perhaps a requirement that technology must be licensed royalty-free. This is currently not possible in the IETF.

Even if the IETF had membership agreements, they would be difficult to formulate in a way that covered IPR problems, because the IETF's work includes technology from other sources and because the IETF collaborates with organizations that work with different approaches

to intellectual property. The IETF can encounter four different IPR situations, at almost any time during the life of a document:

- o A document submitter notes its IPR claim regarding the contents of the document.
- o An IETF participant claims that the contents of a document are covered by their own IPR.
- o IPR is noted, by the author of a document or by a different IETF participant, that is claimed by an individual or organization with which neither an author of the document nor the participant noting the IPR have an affiliation.
- o An individual or organization that does not participate in the IETF, but that monitors its activities, discovers that a document intersects that individual's or organization's established or pending intellectual property claims. It may come forward right away, or wait and let the IETF work progress.

In working group activities, the IETF does not have detailed rules for each situation. Working groups have essentially only one rule they can invoke -- about individuals not participating in activities related to a technology if they do not disclose known IPR. Beyond that a working group can only make recommendations and requests.

Since every case is unique, and there are close to no general rules, working groups need a great deal of freedom in dealing with IPR issues. However, some amount of consistency is important so that both contributors and users of eventual standards can know what to expect.

3. The Approach

The goal of this memo is not to make rules. It is to give working groups as much information as possible to make informed decisions, and then step out of the way. The other IPR working group memos (see the IPR Working Group charter page [\[1\]](#)) lay out what needs to be done once a particular piece of technology is selected as a working group draft. That doesn't help when a working group is trying to decide whether to select a technology or not in the first place. Thus this third memo. We want to build a conceptual framework, a new set of "common knowledge", to make it easier for working groups to deal with intellectual property issues.

To do so, we first present "case studies" in [Section 4](#) -- real events that have happened in recent years, and how different working groups dealt with them -- plus notes on possible lessons to be learned. In

[Section 5](#), we expand on these lessons and try to extract general principles.

4. Case Studies

The best way to know what works in dealing with IPR is to look at past attempts to do so. The following are selected as cases from which general lessons might be extracted. Other lessons might be extracted from other cases, but the cases below cover all of the important ones.

[4.1](#) IPS WG (IP Storage)

The IPS Working Group evaluated technology developed outside of the working group, "secure remote password" (SRP, [RFC2945](#) [6]). At the time, there was one known IPR claim, and the proposed licensing terms were apparently reasonable. SRP had become a proposed standard without going through any working group, so IETF participants may have been less likely to notice it in order to make statements about IPR. In any case, two more possible IPR claims were uncovered after the IPS working group had already decided to make SRP required. One of the possible IPR claimants did not make a strong IPR claim itself, and did not want to take the time to determine whether it actually had a claim, though it acknowledged it might have a claim. In both cases it was difficult to obtain concrete information on possible licensing terms, even though words like "reasonable" and "non-discriminatory" were used in the IPR statements. Rumors of what they might be like did not sound good. The working group participants took the claims, potential and otherwise, very seriously, and decided not to use SRP after all, even though they had already chosen it based on other criteria.

Lessons:

- o IPR claims may appear at any time in the standards process.
- o Take impreciseness seriously. Attempt to get clarification on both IPR claims and licensing terms.

[4.2](#) PEM and PKI issues

PEM (Privacy-Enhanced Mail) wanted to use public key technology. In the mid-90s, the basic principles of public key infrastructure had been patented for years. The patent holder had shown a tendency to actively enforce its rights, and to prefer software sales to licensing. This was seen as a significant potential issue, one which could possibly interfere with the easy development of the Internet.

However, there was no alternative technology that came close to its capabilities. Adopting an alternative would have damaged the Internet's health and flexibility even more than adopting a technology with IPR claims. The case was so compelling that the working group participants decided to move forward on standardizing it and even requiring it.

One factor which was noted was that the patents were mature, and would expire within a few years. That meant that although the impact might be significant to start with, it would not be in the long run. This lowered the perceived risk of using the IPR-protected technology.

Lessons:

- o IPR is just one issue in deciding whether to adopt a technology.
- o IPR is not an all or nothing issue. There are different types and levels of IPR protection.
- o The IPR's lifecycle phase can be a consideration.

4.3 CDI WG (Content Distribution Internetworking)

The CDI Working Group laid out an overall architecture and found that a number of included technologies had IPR claims associated with them, based on work done before the working group was started. The working group participants decided there was little chance of producing alternative technologies which were as useful and which did not run up against these IPR claims. As usual, there was no good way to evaluate claims and possible licensing terms until after the technology had been completely specified (at the earliest).

Working group participants generally thought they had a good idea what to expect from each other, and that the ultimate benefits of using the technologies outweighed the IPR issues. The working group participants decided not to consider IPR as an issue at all in determining which technologies to adopt.

Lessons:

- o Past experience can be used as a significant factor in evaluating the possible impact of IPR.

4.4 VRRP (Virtual Router Redundancy Protocol)

The working group was standardizing VRRP based on a protocol developed outside the IETF. The IPR claimant supported that protocol and stated that it would license its IPR for that protocol if it became the standard, but not for the similar protocol the working group was developing. The working group participants decided to go ahead and standardize the protocol developed in the working group anyway. The IPR claimant has only claimed its patent when someone else claimed a patent against it. There is no evidence that the working group participants actually thought about the implications of the IPR claim when it went ahead with its choice of protocol.

Lessons:

- o IPR claims should never be disregarded without good cause. Due diligence should be done to understand the consequences of each claim.

4.5 Secure Shell (SecSH)

This was primarily a trademark issue, not a patent issue, since the patent issue had been worked out outside of the IETF. The holder of a trademark wanted the IETF to stop using "SSH" in the names and bodies of its proposed standards. The working group participants thought through the details of the claims, and possible implications and risks, and decided to go ahead and continue using the names as they are now. This issue is still being worked through.

Lessons:

- o Working group participants can evaluate IPR claims not only for their possible validity, but also for the risk of misjudging that validity. The impact of honoring the IPR claim may be major or minor.

4.6 IDN (Internationalized Domain Name)

The IDN working group dealt with a number of IPR claims. Several were made which did not overlap with the technology -- the IPR claimants said the patents were being announced just in case the working group decided to go that way. In one case, even though a patent was announced as purely defensive, many working group participants investigated the claims themselves. They concluded that it did not overlap.

In one case, an IPR claimer asserted that the working group's documents, and in fact the IETF as a whole, were infringing on its rights. Individual working group participants consulted with their legal advisers, concluded that the claims would not overlap the working group's developing technology, and decided to ignore the claims. This was reflected in the direction the group as a whole decided to take.

In another case, patent claims were asserted that appeared to be derived from WG discussion and impact, rather than vice versa (or independent discovery). The claimants were known to be following the WG's work when the ideas were proposed, and their patent filing was considerably subsequent to that time.

In 2000 the IDN working group discovered a patent that some participants thought might apply to one of their main drafts. If it did, it could affect their work profoundly -- to the extent that some suggested that if they could not work out reasonable licensing terms with the IPR claimant they might just disband. As a group and individually, participants corresponded with IPR claimant in order to get an explicit statement of licensing terms, preferably royalty-free. By doing so they gained a better understanding of just which WG activities were seen as infringing on the patent, and at least some understanding of the IPR claimant's intentions and philosophy. Since the patent holder seemed to have an interest in using the patent for profit, the group discussed the issues on its mailing list. They overtly talked about how they could change their proposed technology to avoid having to contest the patent, and the extent to which the patent might be countered by claims of prior art. Meanwhile, individually they were talking to their legal advisors. Gradually, a collective opinion formed that the working group documents did not infringe on the patent. Since then, the patent has been ignored. However, they are keeping a watchful eye out for continuation patents which might have already been submitted.

Lessons:

- o It's sometimes beneficial to push IPR claimants to find out what they think their claims cover and what their licensing terms are.
- o Possibilities of prior art should be considered.
- o It's all right, and sometimes beneficial, to discuss IPR claims and gather information about possible prior art on the group list. The results of such discussion can be considered when deciding whether to develop a technology (but remember that neither the IETF nor any working group takes a stand on such claims as a body, and the group is not the best place to get legal advice).

5. General Principles

Given the case studies above, here are a few principles that working groups can start with in dealing with IPR. Of course every working group needs to follow its own consensus, and actual treatments will vary as much as they have in the past. However, every working group also needs to take IPR seriously, and follow these general principles.

5.1 Types of IPR

A primer on the different types of IPR would be large, unreliable, and redundant with other Working Group documents [2][4][5]. For informal exploration, see those documents and other relevant sources on the web. Readers with more serious concerns should consult their legal advisors. In the United States, briefly:

- o Trademarks indicate the sources of goods. Servicemarks indicate the sources of services. They protect the use of particular marks or similar marks.
- o Copyrights protect the expressions of ideas (not the ideas themselves), in almost any form, and allow "fair use". Copyrights expire but they can be renewed.
- o Patents protect "inventions". They expire (utility patents expire after 20 years), but follow-on patents can cover similar technologies and can have nearly the same implications for use in the Internet as the original patents.

5.2 When to think about IPR

This memo does not describe IPR procedures for document authors or IPR claimants. Rather, this memo is for working groups that are trying to decide what to do about IPR claims related to their work. A working group as a whole needs to think about IPR issues:

- o when examining a technology, and deciding whether to initiate work on it.
- o when deciding whether to adopt a draft as a working group document.
- o when choosing between two or more working group drafts that use different technologies.
- o when deciding whether to depend on a technology developed outside

the working group.

- o when comparing different kinds of IPR protection.

At each of these times, the working group is strongly encouraged to solicit disclosure of IPR claims and licensing terms. A working group's job will be a lot easier if IPR details are discovered early, but it should realize that IPR claims may appear at any time. Working groups should anticipate that an IPR claimant might choose not to participate in the IETF, but instead to monitor from a distance while the relevant technology is being discussed and evaluated. Actual IPR claims may therefore depend upon when a claimant steps forward during the course of a WG's deliberations.

5.3 IPR as a Technology Evaluation Factor

How do you weigh IPR claims against other issues when deciding whether to adopt a technology?

The ultimate goal of the IETF is to promote the overall health, robustness, flexibility and utility of the Internet infrastructure. We base architectural decisions on our long-term extrapolations of requirements by thinking in these terms. When considering a particular technology, we compare it with other technologies not just for its elegance of design in and of itself, but also for how it fits in the bigger picture. This is done at multiple levels. It is examined for how it fits into the overall design of the working group's output, how it fits into the particular Internet infrastructure area, how it fits with work going on in other areas, and how it fits in the long view of the Internet architecture.

Similarly, when evaluating a technology, working group participants consider IPR claims on it (including possible copyright issues with text describing it). The issue is not whether a particular piece of technology is IPR-protected -- we use IPR-protected technology every minute. The question is how much the IPR protection will limit the technology's usefulness in building a robust, highly useful Internet. Thus, the only significant questions are: is the IPR claim relevant, and if so what are the terms under which the technology can be used? When technology is free from IPR protection the answer is easy. When it is IPR-protected, some terms make the IPR issues insignificant compared to the engineering issues. Other terms can make a technology unusable even if it is perfect otherwise.

The problem with IPR as a technology evaluation factor is that it is unlikely that a working group, as an entity, can ever claim to have reached consensus on most IPR issues. The IETF as a whole, and a working group as a whole, takes no stance on the validity of any IPR

claim. It would be inappropriate for a working group chair to declare that consensus had been reached that, for example, a company's patent was invalid. Individual participants will need to use whatever legal advice resources they have access to to form their own individual opinions. Discussions about the validity of IPR can take place under the auspices of the working group, in particular about relative risks of technology choices. Individual participants can take these discussions into account. The working group as a body may not take a stance on validity, but it may make choices based on perceived risk.

5.4 Patents versus Pending Patents Applied For

The IETF does not (cannot) expect IPR claimants to tell a working group specifically how they think a particular patent applies. If a patent has already been granted, the IETF can reasonably expect disclosure of the patent number and possibly the relevant document sections, which will allow working group participants to explore details of the claims. If a patent has not yet been granted (or if knowledge of the patent is restricted, e.g. for security reasons), significantly less information is available. In most countries patent applications are published 18 months after they are filed, but in the USA that can be avoided if the applicant does not also file outside the USA. In some countries applications are a matter of public record, but details of pending claims can be modified at any time by the claim submitter before the patent is granted. It is not known before then what rights will actually be granted. Finally, rights can be contested in court, and nothing is final until the courts decide -- perhaps not even then. All the IETF can expect regarding a pending patent is disclosure that it exists, the related documents, and possibly specific section numbers and some statement about licensing terms.

5.5 Applicability: It's Hard to Prove a Negative

Working group participants must make their own decisions about what level of confidence they need as to whether IPR is applicable. However, perfect knowledge is not a worthwhile goal.

In general, a working group should strive to find out about all IPR claims related to technologies it is considering, and at least the general facts about licensing terms for each case -- for example whether the terms will be royalty-free, or perhaps "reasonable and non-discriminatory". Working group participants should also investigate possibilities of prior art which would counter the IPR claims. However, even if the working group participants do exhaustive searches, both externally and internally to their employers, it is impossible to prove that a particular technology is

not covered by a particular IPR claim, let alone proving that it is not covered by any IPR claim. Anything a working group adopts may, in the future, turn out to be IPR-protected, although the IPR claim may not be discovered until years later. Claims are open to interpretation even after rights are granted. Drafts can be very fluid, even up to the time of last call, and IPR issues may unknowingly be taken on at any time. Absolute certainty about IPR claims is extremely rare.

However, the level of confidence needed to consider IPR when evaluating a technology is often not hard to get to. There are cases where risk is high (e.g. where licensing terms may be onerous) and thus a high level of confidence about applicability is needed, but history shows that most of the time "rough" confidence is good enough. In any case, perfect confidence is usually impossible.

In all cases, licensing terms are a more significant consideration than the validity of the IPR claims. Often, licensing terms are reasonable and do not limit the usefulness of the technology. It is difficult to be sure about the validity of IPR claims. If the licensing terms can be determined to be reasonable, then the IPR claims become much less important.

5.6 Licensing Terms

Licensing terms vary across a range from no license required at all to prohibitive. In general, working groups show a preference for technologies with IPR considerations in approximately the following order. This list does not constitute a rule, and every working group needs to take its own circumstances into account.

- o Technology which has been publicly disclosed for more than one year, with no known IPR claims.
- o Technology which has been publicly disclosed, with no known IPR claims.
- o IPR disclosed and licensed with no restrictions.
- o IPR licensed with no material restrictions, e.g. no trademark license required.
- o IPR licensed for a particular field of use but no other material restrictions, e.g. licensed solely for implementations complying with a standard.
- o IPR licensed under openly-specified reasonable and non-discriminatory restrictions. This may include payment of a

royalty.

- o IPR which is otherwise licensable.
- o IPR which is not licensable, i.e. which is only available as an implementation.
- o IPR which is not available under any conditions.

Many IPR claimants do not like to publish specific terms under which they will issue licenses. They may use standard terms for many licensees, but they prefer to negotiate terms for some. Therefore, do not expect any IPR disclosure statement to lay out detailed blanket terms for licensing.

If an IPR disclosure statement lists only vague terms, that doesn't mean the terms that will be offered in individual licenses will be any worse than those offered in an IPR disclosure that makes very specific statements. Obviously, if an IPR claimant refuses to suggest any terms at all, the working group is going to have trouble evaluating the future utility of the technology.

There is class of restriction which involves "reciprocity", in which the technology may be used as long as the licensee allows the IPR claimant to use the licensee's technology in the same area under comparable terms. A requirement for general reciprocity is also possible, under which the technology is made available for free as long as the licensee does not enforce any IPR claims against the licensor.

Words such as "reasonable", "fair", and "non-discriminatory" have no objective legal or financial definition. The actual licensing terms can vary tremendously. Also, IPR claimants have occasionally asserted that there were already sufficient licenses for a particular technology to meet "reasonable" multisource and competitiveness requirements and, hence, that refusing to grant any licenses to new applicants was both fair and nondiscriminatory. The best way to find out what an IPR claimant really means by those terms is to ask, explicitly. It also helps to gather knowledge about licenses actually issued, for that technology or for others, and about other experiences with the IPR claimant.

Despite the fact that IPR claimants often don't like to publish explicit terms, there are levels of vagueness, and individuals and even working groups can sometimes successfully push an IPR claimant toward less vagueness. Many employers of IETF participants know that that IETF prefers explicit terms, and do feel pressure to produce them.

If working group participants are dissatisfied with the confidence level they can obtain directly about licensing terms for a particular technology, they can possibly extrapolate from history. In order for licensed technology to become a draft standard, at least two independent licenses need to have been issued. If the IPR claimant for the technology the working group is considering has licensed other technology in the past, there is a record of the sorts of terms they are willing to grant, at least in those two specific cases. This sort of thing is weak but everything counts, and it may be of some help.

5.7 Third Party Disclosure

Formal procedures for third party disclosures are the same as those outlined in [\[4\]](#). However, anyone considering such a disclosure is encouraged to engage in some preliminary exploration with the affected working group(s) beforehand (see [Section 5.7.1](#)). Third party disclosure is a potential denial of service threat to the working group, and therefore it is good form to proceed slowly.

Working group participants should be aware that third party disclosure can be used, knowingly or unknowingly, to defocus and distract the working group and hinder its progress. They should evaluate 3rd party disclosures accordingly. WG chairs should be willing and able to discipline those they think are using the third party disclosure system inappropriately. Those who think they are being unfairly blocked may take the matter up with the Area Directors and/or the IESG.

All of the criteria for evaluating IPR claims discussed in the sections above apply in the case of third party disclosures as well, to the extent they can be practiced.

5.7.1 Third Party Disclosure Advice

This subsection provides advice to those considering making third party disclosures. While not strictly required, the actions described here are encouraged to aid working groups in dealing with the possible implications of third party disclosures. In evaluating what (if anything) to do in response to a third party disclosure, a WG may consider the extent to which the discloser has followed this advice (for example, in considering whether a disclosure is intended primarily to defocus and distract the WG).

In general a potential discloser should exchange mail with the working group chair(s) first, to open the way for discussion. Also, if the potential discloser is not sure if the IPR claim applies, this is the time to reach some kind of agreement with the working group

chairs before saying anything publicly. After discussion with the working group chairs, they should bring the issue to the attention of the working group, and to the attention of the IPR claimant if doing so is not too difficult. Such discussion should help the potential discloser to become more sure, one way or the other. If they are sure the discovered IPR claim applies, and the IPR claimant does not submit a first party disclosure itself, then they are encouraged to submit a third party disclosure.

Intellectual property often applies to more than one working group. A person thinking of third party disclosure should consider what other working groups might be affected, and communicate with them in the same manner.

Don't bring up IPR issues that are unrelated to the areas where the WG is focusing at that time. Don't bring claims to the WG's attention just in case it might go there in a few months, only if it has implications for current work. Messages to the working group list should be substantive and a single message should focus on a specific issue. They can reference multiple claims or patents related to that issue.

6. Security Considerations

This memo relates to IETF process, not any particular technology. There are security considerations when adopting any technology, whether IPR-protected or not. A working group should take those security considerations into account as one part of evaluating the technology, just as IPR is one part, but they are not issues of security with IPR procedures.

Normative References

- [1] IETF, "IPR Working Group web page", 2002, <<http://www.ietf.org/html.charters/ipr-charter.html>>.
- [2] Bradner, S., "The Internet Standards Process -- Revision 3", [BCP 9](#), [RFC 2026](#), October 1996.
- [3] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [4] Bradner, S., "Intellectual Property Rights in IETF Technology", [draft-ietf-ipr-technology-rights-01](#) (work in progress), February 2003.
- [5] Bradner, S., "IETF Rights in Submissions", [draft-ietf-ipr-submission-rights-01](#) (work in progress), February

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Informative References

- [6] Wu, T., "The SRP Authentication and Key Exchange System", [RFC 2945](#), September 2000.

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