

Aspects of IP and Internet Law

For HEP Software Developers

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This Talk Will...

- ◆ Give you an introduction to IP Law...
- ◆ Point out where aspects of it are important for HEP Software Developers to know...
- ◆ Distinguish “Property” Law from “Contract” Law (e.g. Copyright ownership from Licenses)
- ◆ Discuss the major issues in Open Source Licenses
- ◆ **NOT make you an IP Expert**, but it should make you aware of the issues so you know when to consult one...
 - Also, in the tradition of such workshops I have too many slides...



Some Brief Remarks on Law In General

- ◆ The purpose of Law is to settle *disputes* between people...
 - ...That even applies to Criminal Laws where courts typically treat “The Government” as a “legal” person, as opposed to a “natural” person.

- ◆ The idea of having Laws is to modify behavior *before* it occurs...
 - Thus it is crucial for Laws to give “Fair Notice” as to what conduct is proscribed...



Intellectual Property

- ◆ IP is *PROPERTY*...
 - All Property Rights come from the Government... [Statutory & Common Law]
 - It may not be legal to own something in one country that it is legal to own in another!
 - Property Rights may be *Assigned*... (i.e. given to others)
 - There are multiple distinct Rights associated with each "piece" of property...
 - One can usually assign these distinct Property Rights separately... (i.e. It's NOT "all or nothing")
 - Property Rights can be both a right you possess to USE the property, and /or the right to EXCLUDE other's use.
 - **Property rights are associated with the property itself and one can never grant better title than one possesses herself in a piece of property...**

...The Law of the Horse?

- ◆ Justice Oliver Wendell Holmes once remarked that “...there is no more a *law of the railway* than there was a *law of the horse*...”
 - ...When people suggested the need for a new Law of the Railway...
- ◆ Judge Easterbrook used the same line in 1995 in referring to the so-called *Law of the Internet*...
- ◆ Is there a Law of the Internet (or of software)?
 - The test is whether or not existing legal principles work when applied to the Internet, or whether they give contrary results

A Brief Civics Lesson On US Law



(...which contrary to most Americans' opinion does not apply everywhere, even though it has great influence...)

- ◆ The U.S. Federal Government is a Government of **LIMITED** Power...
 - Congress May only legislate if the Constitution gives it the express power to do so.
 - ◆ [e.g. No general power to regulate contract law, tort law, most common criminal law (murder, etc.)]
- ◆ State Governments have **PLENARY** Power!
 - States are only limited by the U.S. Constitution (e.g. Bill of Rights, Federal Preemption), and by their own Constitutions...



Classifying IP Law

(& its origins in the US)

- ◆ Patent Law [Federal—Article 1 Cl.8, §8]
 - Inventions (Fully Preempted by Feds)
- ◆ Copyright Law [Federal—Article 1 Cl.8, §8]
 - Creations (Some room for State Law additions)
- ◆ Trademark Law [Federal—Commerce Cl.]
 - Commercial Identity (Some room for State Law)
- ◆ Trade Secret Law [State Law]
 - Employment Agreements
 - Non-Compete Agreements
 - Confidentiality Agreements

IP Law Internationally

- ◆ Virtually all countries have IP Laws:
 - Patent and Trademarks are sometimes called “Industrial Property Rights” All very similar...
 - ◆ Some differences tend to be in what is patentable or in local procedures. (e.g. drugs, software, etc.)
 - ◆ Differences in what can be trademarked or the extent of remedies for infringement.
 - Copyright is almost universal...
 - Trade Secret Laws vary considerably...
 - Database protection is the new issue...
 - ◆ Only implemented in the EU so far...
 - ◆ The first cases were about betting on football...



International IP Treaties & Agreements

- ◆ Paris Convention—Industrial Property (Patents and Trademarks...)
- ◆ PCT—Patent Cooperation Treaty
 - Solves the problem of simultaneous filing.
- ◆ Berne Convention—Copyright
 - Includes “Moral Rights”
 - “Continental” approach
 - Generally These Include:
 - ◆ Minimum necessary levels of protection.
 - ◆ “National Treatment”



Patent Law

- ◆ “Manufactures,” Compositions of Matter, Methods, “Man-made” Plants [+ “Designs”]
- ◆ Requires: *Utility, Novelty & Non-Obviousness* [*An Inventive-Step*].
- ◆ Grants: Right to **EXCLUDE** others! NO Express Right to USE...
- ◆ Independent Creation is NOT a Defense to Infringement...
- ◆ Term—20 years from FILING Date.
- ◆ Creates a **STRICT LIABILITY** for Infringement



Patent Law—Subject Matter

- ◆ Cloned Animals Allowed (Harvard Mouse)
- ◆ No pure algorithms, but algorithms associated with machines-OK—Software patents (in the US, but not yet in Europe) must claim the computer, too...
- ◆ Medical Procedures??? Never enforced...
- ◆ Investment Schemes—State “college tuition savings plans”
- ◆ Business Models—“One Click” web-sites...

Patent Law--Utility

- ◆ You MUST recite a USE...
 - It does not have to be better than what exists now, but you have to declare at least one use
- ◆ The Patent is NOT constrained by the cited USE...
 - Coumadin (Warfarin) was patented as Rat Poison!
- ◆ Genome Project is Problematic...
 - Uses generally unknown, and policy regarding "BS" uses (These have been curtailed lately)



Patent Law--Novelty

- ◆ U.S. (& Philippines)—12 months “grace” period after disclosure [by inventors]...
- ◆ The Rest of the World **REQUIRES Absolute Novelty at Filing!**
 - If ANYONE other than the patentee or those under confidentiality restrictions NOT to disclose [e.g. the patent attorney has such a restriction] comes into possession of the “knowledge” the invention is NOT patentable in MOST of the world [e.g. Europe & Japan]
 - Patent Cooperation Treaty solves the simultaneous filing loophole problem.



Patent Law—Patent Structure

- ◆ Patents have 2 parts: A Specification, and a set of Claims
 - Specification—What you GIVE (“Know-How”)
 - ◆ Must be ENABLING to “One Skilled in the Art...”
 - Claims—What you Get (The Right to Exclude)
 - ◆ Claims have “associated elements” (A connected to B connected to C connected to D)
 - ◆ Any entity that incorporates A, B, C & D connected as described in the patent infringes, and the patentee can STOP that entity or method from being *used, sold, offered for sale or imported*.
 - ◆ You do NOT have the specific right to practice A, B, C & D YOURSELF, only to EXCLUDE others!



Patent Law—Blocking Patents

◆ Example:

- Patent #1 claims $A+B+C+D$
- Patent #2 claims $A+B+C+D+E$ (Filed after #1)
- Patentee #1 can BLOCK patentee #2 from practicing her patent... [Because $A+B+C+D$ "Reads On" $A+B+C+D+E$]
- However, Patentee #2 can also prevent Patentee # 1 from using "E" with his patent!
- Solution: "Cross License" ...



Patent Law—Non-Obviousness

- ◆ Innovations that would be “Obvious to One Skilled in the Art,” is Unpatentable...
- ◆ Generally the most common cause for rejection...
- ◆ ...Because, by far the majority of patents are small improvements to existing technology.
- ◆ Known as the “**Inventive Step**” Requirement in most of the rest of the world outside the US & UK
- ◆ Example: Raising one end of a Fourdrinier (paper making) Machine increases output

COPYRIGHT LAW

- ◆ Copyright Protects Creativity ONLY...
 - Independent Creation is EXPLICITLY ALLOWED!
- ◆ Copyright Does NOT Protect Functionality
- ◆ Copyright Does NOT Protect Investment
 - The amount spent to produce something (e.g. a Telephone Book) does NOT have any weight.
- ◆ Copyright Accrues to the “Author” upon creation!
 - No © Notice Requirement
 - ◆ In the US & UK: when “Fixed in a Tangible Medium.” (For evidentiary purposes due to the use of Juries)
 - ◆ Explicit “Work Made for Hire Doctrine.”
 - Continental Europe: No Work Made for Hire Doctrine,” and there is No fixation requirement

"Works Made For Hire"

- ◆ In the US and UK is is explicit in © Law.
 - If the work is *within the course and scope* of your *EMPLOYMENT*, it is automatically the property of your employer (but **NOT** if you are an *INDEPENDENT CONTRACTOR*).
 - The US National Labs all have Users execute assignments (because users are NOT employees of the labs)
- ◆ In Continental Europe and elsewhere there is **NO** explicit Works Made For Hire Doctrine!
 - Typically, employers have their employees execute a blanket assignment to create the same effect.
 - CERN does **NOT** currently require users to execute assignments!
 - Be careful in International collaborative works regarding getting assignments from every contributing author (More about Joint Works later,...)



Copyright Law—Rights

- ◆ To *Copy*
 - Loading a file into RAM on a computer
- ◆ To Make *Derivative Works...*
 - Modify an “Open Source” computer program or Print a web page
- ◆ To *Distribute...*
 - Email a copy (not the URL) of a web page to a friend
- ◆ To *Display Publicly*
 - Put someone else’s Document on your Web-page...
- ◆ To *Publicly Perform...*
- ◆ To *Import...*
- ◆ To *Circumvent* Copyright Protection Technology.
 - This is in the notorious US Digital Millennium Copyright Act!
 - It applies to this conduct even without any other violation!

Copyright Law—Uses

- ◆ Copyright, in principle, does not allow the owner to control the USES of specific copies once sold.
 - First Sale = Extinction of most rights with respect to that copy!
- ◆ Licenses to USE Copyrighted material are CONTRACTS and MAY limit uses...
 - Software is a special case! ...Because you MUST copy software to use it, the copyright owner never sells it! Rather, ALL distributions are generally licensed! ...AND, those licenses have USE restrictions!!! (MORE LATER)



Copyright—Moral Rights

- ◆ Continental (French) Tradition (Not US & UK)
 - Included in the Berne Convention!
- ◆ Protects “Authors” rights to control some disfiguring uses of their works after sale...
 - e.g. Allows author to prohibit modifications.
- ◆ Requires Attribution
 - Plagiarism is not a legal “crime”, even if it is a serious academic one!
- ◆ Rights of Recall in some cases.

Database Protection (NOT ©)

- ◆ Facts are NEVER Protected by ©
- ◆ In the EU there is a NEW (*Sui Generis*) Database Protection Law:
 - It protects INVESTMENT in Databases
 - It creates a Property Right in the factual content of the Database
 - Like ©, Independent Creation is Allowed
 - Evidentiary need to show that the facts in question actually came from the Database
 - ◆ Except Sole Source Databases [Sports Scores]



Life + 75 Years...

- ◆ A Copyright exists for the Life of the Author + 75 years...
 - It used to be Life + 50 years, but Mickey Mouse was getting old...
- ◆ For Works Made For Hire & Pseudonymous Works the term is 75 Years from Publication or 95 years from creation...
- ◆ These terms are very long compared to the 20 year from filing in Patent Law...

Trademark Law

- ◆ Designed to Protect the CONSUMER, not the Trademark holder.
- ◆ Based on a “Likelihood of Confusion” Standard...
 - Confusingly Similar to the average consumer [Frames]
- ◆ Geographic
 - Applies to the Origin as well as to...
 - ◆ [“DKNY” has to have a significant relation to New York]
 - ...The geographic area of coverage...
 - ◆ Unrelated businesses with the same name (e.g. A-1 Plumbing) in many different U.S. Locations... Websites are PROBLEMATIC
 - Restricted to the Product Type
 - ◆ e.g. “Delta” Air Lines & “Delta” Faucets..., EXCEPT for FAMOUS Marks (e.g. Coca Cola, McDonalds, etc. or Cadillac Cat Food, which predated the current law...

Trade Secret Law



- ◆ Must take Reasonable Steps to Keep Secret...
- ◆ Employment Agreements
 - Non-Disclosure
 - IP Assignment
- ◆ Non-Compete Agreements
 - Usually Enforceable (State Law)
 - Must not deprive the party of earning a living
 - Dental Office Partners
- ◆ Encryption Keys
 - DVD Decoding Keys are Trade Secrets.
- ◆ Alternate to © Protection to Software
 - To prevent reverse engineering of object code...

Licenses...

- ◆ A License is a CONTRACT
 - An AGREEMENT: "A Promise for a Promise..."
- ◆ A License GRANTS one party PERMISSION to EXERCISE some specified Property Rights POSSESSED by the other party...
- ◆ An "Exclusive License" to exercise all rights in perpetuity is an "Assignment."
- ◆ Otherwise, there is NO Transfer of OWNERSHIP, Only the granting of the right to EXERCISE the otherwise EXCLUSIVE rights of the owner as specified...

"Privity"

- ◆ A contract usually only affects the agreeing parties. That is, if you are not "in privity" of contract, you are not bound by the contract.
- ◆ Shrink-wrap License Example:
 - If you buy software in a "shrink-wrapped" box, and the license is contained on the disc inside, you are still bound by its terms if the box says that the license is inside and if you can return the software for a refund after reading it.
 - The License can say that you may not access the non-copyrightable data without using the software provided...
 - However, what if you throw the disk in the trash, and someone else finds it and mounts it raw, transferring only non-copyrightable data, What happens?



Property Rights DO NOT Require Privity...

- ◆ Because property rights are attached to the property itself, and...
- ◆ Because a thief cannot assign greater title to property than he actually owns...
- ◆ If someone steals your hat and sells it to an innocent third party, you can recover your hat even though you personally have had no legal relationship with the current possessor...

Misuse

- ◆ Normally, CONTRACTS are enforceable (unless some provision of the law makes them unenforceable)
 - e.g. a contract to commit a crime is unenforceable
- ◆ Contracts that extend statutory granted IP rights are MISUSE, and can result in loss of the the IP...
 - e.g. A contract to pay royalties beyond the term of a patent is MISUSE...



Software Licenses

- ◆ Software is Unique in the copyright world because **YOU MUST COPY IT TO USE IT!**
- ◆ Courts have held that copying a file from one medium to another is copying, including if it is being copied from your disc to memory.
- ◆ That anomaly means that you can control the **USE** of software by employing your copyright.
- ◆ You can, for example require as a condition of the license that the user must wear a Red Hat while using it...

The Power of the Software Licensor

- ◆ Remember, the Licensor can directly give a license to exercise one or more of the © owner's rights under copyright.
 - One of those rights must always be to do the copying necessary to run the software, but it can also address other rights such as the "distribution" right and the right to make "derivative works."
- ◆ However, because this is a contract, the Licensor may include **Use Limitations** (e.g. no commercial use), and **Other Requirements** (e.g. You may not burn any additional physical copies of the disc).
 - It is this power that gives the copyright owner almost total control over their software.

Some Common © Provisions of (Open Source & Other) Software Licenses



- ◆ Copying (beyond the necessary grant needed to run the software...):
 - The right to make a limited number of archival copies.
 - The right to make unlimited copies...
 - The right to Reverse Engineer (when it is not Open Source)
- ◆ The Distribution Right:
 - The right to give copies to other users.
 - The right to have the software installed simultaneously on more than one machine in more than one physical location.
- ◆ The Right to make Derivative Works:
 - The right to incorporate some or all of the software in a new work. (This is the most important aspect for developers...)
- ◆ The Right to Import Copies (across national boundaries)

...And the Common Limitations and Use Restrictions...



- ◆ *Attribution* (Always giving notice that the software is included), and/or *Integrity* (No changes allowed)
- ◆ Use restrictions on the original software.
 - e.g. No commercial use, or a limit to the number of simultaneous processes that can be running...
- ◆ How Derivative Works are treated (this is the essence of the difference between the various Open Source Licenses).
 - Grant back requirements
 - The right to modify the software
 - The “infectiousness” of the present license (e.g. the “Viral” quality of the GNU GPL v. the much more liberal BSD License).
 - Restrictions on Commercial or other uses of Derivative Works.

Infringement

- ◆ A License is a DEFENSE to the charge of INFRINGEMENT.
 - The License must grant permission to exercise the rights claimed to be infringed...
- ◆ Remedies:
 - Monetary Damages
 - Statutory Damages (e.g. Copyright)
 - Potential Criminal Charges for Knowing Acts...
 - Permanent Injunctions...

The "Fair Use" Defense

- ◆ There are some Uses which are protected by copyright law itself. Known as "Fair Uses" they operate as an absolute defense to a charge of Infringement...
 - Copying for "Interoperability" are protected in some Jurisdictions. (e.g. Jon Johansson's Reverse Engineering of WinDVD)
 - Face to Face classroom instruction...
 - Legitimate news stories.
 - Google's use of "thumbnails."

Joint Ownership of IP

- ◆ Each Owner has and UNDIVIDED Joint Interest...
 - Any of the Joint Owners can Assign Away All Rights to the Jointly Owned IP. [Like a Joint Bank Account]
- ◆ Solution: Consolidate Ownership in a Single Entity...
 - Create or Use an Existing Entity (Company or Organization) as a proxy for all of the Joint Owners... [i.e. Assign ALL Rights to the Entity for a piece of the control of that entity...]

Collaborative Projects = Joint Ownership



- ◆ Collaborative Projects are by definition situations where under both Patent and Copyright Law all contributors are Joint Owners...
- ◆ Patents—Anyone who contributes materially to any single element of even a single claim is an inventor—and a Joint Owner...
- ◆ Copyrights—When the project contains inseparable contributions from multiple individuals, each is a Joint Owner in the whole project. Even contributing a single line of code can confer Joint Ownership. The collaborators must have intended that their works be combined when they created them...

Oh Yes, And The There's The INTERNET...



- ◆ You Potentially Subject Yourself to Every Jurisdiction in the World...
- ◆ Increasingly you are responsible for collecting VAT & Sales Taxes if you sell over the Internet...
- ◆ Patent Prior Art is available worldwide...
- ◆ You have to Worry about your use not Infringing anyone else's © (Don't print web-page graphics)
- ◆ Increasingly, there are PROFESSIONAL [e.g. Lawyer's, Health Care Professional, etc.] Restrictions on Web-Site Content.
- ◆ Privacy Issues WRT Web Site Content...



Thanks for your attention

- ◆ ...And remember that there are dangers lurking for the uninformed...
- ◆ Any Questions???

Issues of Special Interest in Research



- ◆ Conflicting Individual “Employment” Agreements
 - All National Labs and most Universities require employees and visiting researchers to assign “Course & Scope” IP Rights...
- ◆ Baye-Dole Act (...and *U.S. Universities...*)
 - Releases U.S. Gov. Rights to Universities for Gov. Sponsored Research.
- ◆ Collaborations Between Individuals From Different Institutions...
- ◆ “Inevitable Disclosure” as a Back-Door Non-Compete Provision....
- ◆ Contributory Infringement
 - “Guilt by Enablement” (Allowing use of the Xerox machine, or of the University’s network to download music...)



It's A Cruel World Out There

- ◆ There are FOR PROFIT Companies that go around looking for “DEEP POCKETS.”
 - So, “Deep Pocket” Entities have to be sure that they get INDEMNITY when they License IP.
 - In other words, if you want to exploit your IP by Licensing it to one of the “Deep Pockets,” They will insist on evidence that YOU have ALL the Rights to Assign to them...



How Much Does It Cost \$\$\$

- ◆ © is CHEAP...
 - It Accrues FREE upon Creation
 - U.S. Citizens get some benefits from Registration if they need to Sue for Infringement, BUT you just have to Register [\$25] your IP before you Sue...

- ◆ Patents are EXPENSIVE
 - \$350 - \$700 for Examination Fee (20 Claims)
 - \$ Thousands for a Patent Attorney (\$250-\$500/hr)... [IN EACH COUNTRY...]
 - \$100's of Thousands to Enforce...



Ah Yes... Privacy

- ◆ For Example, How Does the new U.S. HIPAA Play on the Internet?
 - the individual's past, present or future physical or mental health or condition,
 - the provision of health care to the individual, or
 - the past, present, or future payment for the provision of health care to the individual,
 - and that identifies the individual or for which there is a reasonable basis to believe can be used to identify the individual. Individually identifiable health information includes many common identifiers (e.g., name, address, birth date, Social Security Number). [+ **Email Address**]
 - De-Identified Data CANNOT specify the EMPLOYER (Unless Certified by a "Qualified Statistician")
 - STANDARDS to govern Electronic Transmission are being developed...
- ◆ Posting Grades in Academia
 - Generally Prohibited without Individual Password Protection.
- ◆ EMAIL is NOT U.S. MAIL nor any official government protected mail (some laws are starting to appear, but they are inconsistent)
 - No Mail Tampering Protection. Email laws in one country do not constrain acts in other countries...