

Non-fungible Tokens and Intellectual Property Law: Key Considerations

A Practical Guidance® Article by Daniel J. Barsky, Holland & Knight LLP



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This article discusses some of the novel legal issues that non-fungible tokens (NFTs) raise in the area of intellectual property law, including key issues in NFT marketplace user agreements, licenses, and copyright ownership considerations. The article also provides an overview of NFT technology and discusses the major NFT marketplace types and how they function, as well as the types of works that have been minted into NFTs.

Overview of NFT Technology

NFTs have existed since at least 2017 but exploded in popularity in 2021. An NFT is a unique, one-of-a-kind crypto token that is managed on a blockchain (a type of decentralized ledger that, like a bank ledger, records transactions between the various users of the blockchain). In the NFT context, the blockchain tracks and reports the ownership and transfer history of NFTs.

There is a critical difference between NFTs and the other types of tokens, such as cryptocurrency, that exist on blockchains. While traditional cryptocurrency is fungible (e.g., one bitcoin is fundamentally the same as any other bitcoin), NFTs are non-fungible. This means that each and every NFT is, in some way, different from each and every other NFT.

NFTs can exist on any blockchain that has a defined NFT standard, such as:

- Ethereum
- Flowchain
- Wax

[Ethereum and its ERC-721 standard](#) is the most common and popular.

NFTs are created in a process known as “minting” where the unique token is formed in compliance with the standards set on the blockchain used. There are various publicly available programs (such as MintBot and Enjin) that allow a user to mint an NFT. Most major NFT marketplaces also support minting, sometimes for a fee. For more information on these marketplaces, see [NFT Marketplaces and How They Function](#) below.

NFTs contain, at a minimum:

- A unique identifier
- Metadata
- Code (also known as a smart contract) that handles properties such as transferability and ownership

Beyond these fundamentals, an NFT can be programmed in an almost limitless variety of ways, so long as it complies with the standard under which it is created. For instance, an NFT might link to a piece of art and incorporate contractual rights that provide the original artist a commission on all future sales of that piece of art.

It is equally important for practitioners to also understand what an NFT is not. NFTs are not:

- **The underlying asset itself.** Think of an NFT like a record of a deed for real property, not the real property itself. The recorded deed shows the world who owns the real property (ownership), the chain of title for the real property (transfer history), and can include additional language such as restrictions, easements, and future conveyances (akin to smart contract language). But the recorded deed is not the real property itself, just like an NFT is not the underlying asset itself.
- **Limited in number.** While NFTs are non-fungible, they are not limited in number like some cryptocurrencies, such as bitcoin. The only limits on NFT creation are the creativity of individuals and the computational limitations of a chosen blockchain.
- **Representative of a unique asset.** Each NFT itself may be unique but the underlying asset an NFT represents may not be unique. For instance, outside the technical limitations of a chosen blockchain, there is nothing to prevent an artist from creating one million NFTs representing one million copies of the same piece of art.

NFT Marketplaces and How They Function

Because it would be extremely inefficient for users to find buyers and sellers of NFTs on an ad hoc basis, NFT marketplaces have become the overwhelming choice for transacting NFTs. Marketplaces are almost as diverse as NFTs themselves. They:

- Exist on different blockchains
- Can specialize in specific types of assets or be generalized
- Charge different types and amounts of fees
- Can restrict access or be open
- Have different use agreements, licenses, and rules

Marketplaces may or may not require users to create accounts to utilize the marketplace. They will, however, require a user to link his or her “blockchain wallet,” which has the effect of linking the user’s “blockchain account” to the marketplace. These terms are briefly discussed below, along with some examples of common NFT marketplaces.

Blockchain Accounts

A blockchain account is essentially an address on the blockchain. It allows the blockchain ledger to associate a specific token—such as cryptocurrency, an NFT, or another type of crypto token—with a specific user.

Blockchain accounts are anonymous. For instance, an Ethereum account number starts with the prefix “0x,” which is followed by a 40-digit alphanumeric code; there is no personally identifying information. Users can, however, choose to publicly associate themselves with their blockchain accounts, thereby removing anonymity.

Blockchain Wallets

Because the blockchain is a ledger containing millions of entries (Ethereum currently processes over one million transactions daily) between 40-digit account numbers, it is practically impossible for a user to read the blockchain. Blockchain wallets are computer code and programs that read the blockchain and display for the user the assets listed as owned by the user’s blockchain account. The wallet also allows the user to conduct transactions.

Blockchain wallets do not hold any crypto tokens. Rather, if a blockchain account is like a bank account (a number on a ledger), a blockchain wallet is like a bank’s application on a smartphone (giving the user access to see what is in the account).

Common NFT Marketplaces

Some common NFT marketplaces are:

- **OpenSea.** The largest NFT marketplace. It is considered a “catch all” marketplace, as it does not focus on any specific class of underlying asset.
- **Rarible.** Issues the RARI token—conveying a form of “ownership” in the platform—to active users of the platform, allowing those users to vote on certain issues. Rarible does not require a user account to utilize the marketplace. It also connects to OpenSea to broaden its reach.
- **NiftyGateway.** Markets itself as a platform for artists to sell digital works via timed “drops” that allow the creator to collect a royalty on subsequent resales of the original work.
- **NBA TopShot.** Offers officially licensed collectibles in the form of video clips, or “moments,” of NBA players.
- **Digital Trading Cards.** Curates listings from OpenSea for NFTs in the collectibles and trading card spaces.

Types of Works Being Minted into NFTs

When creating [ERC-721](#) in 2018, the standard’s creators stated that NFTs are “also known as deeds,” that their rationale for creating the standard was “tracking distinguishable assets,” and that future uses “include

tracking real-world assets, like real-estate.” While real estate transactions have not yet been turned into NFTs, a wide variety of items have been minted into NFTs, such as:

- Music
- Sneakers and shoes
- Digital art
- Physical art
- Videogame assets (such as unique swords and player skins)
- Virtual real estate

There is almost no limit as to what can be minted into an NFT. If the minimum technical requirements of the NFT standard being used are satisfied, an NFT can be minted.

Key Issues in NFT Marketplace Licenses and User Agreements

When counseling clients who wish to create or use an NFT marketplace, key issues to consider include:

- The relevant blockchain and associated NFT standard
- Gas fees for minting NFTs
- Transaction fees
- Setup fees
- Withdrawal fees and limitations
- Relevant rules and regulations
- Continuing royalties for creators
- Infringement and counterfeiting issues

Each is discussed below.

Relevant Blockchain and NFT Standard

NFT marketplaces exist on different blockchains which, in turn, have different NFT standards, which are not interchangeable. While it is possible to move an NFT from one blockchain to another, it may not necessarily be easy. Thus, when counseling clients who wish to create or use an NFT marketplace, be sure to:

- Identify the blockchain and associated NFT standard (while the Ethereum blockchain and its [ERC-721 standard](#) is the most common and popular, there are other blockchains, standards, and sub-standards, each with its own advantages and disadvantages)

- Analyze their various capabilities, restrictions, and costs, such as:
 - Transaction costs (e.g., the Bitcoin (BTC) blockchain can technically mint NFTs but transaction costs on the BTC chain create a strong financial disincentive to do so)
 - The overall number of users buying and selling NFTs on a particular blockchain (the more users, the more liquidity in a marketplace)

You should work with the client’s technical team when undertaking this review, as it implicates technical requirements along with financial and legal considerations.

Gas Fees for Minting NFTs

Due to the nature of current blockchains, there will always be fees (known as “gas” fees) for minting an NFT, which requires computing power and other resources such as energy. When advising clients, you must determine how much those fees are and who—the marketplace or the user—will be responsible for paying them.

Gas fees can be extremely expensive and vary widely. For instance, the gas cost to mint an NFT on Ethereum started at only a dollar or two but has since increased and can exceed hundreds of dollars per NFT. This is because pricing for gas is dynamic—the busier a blockchain is (such as Ethereum), the higher the gas fees (in other words, you need to pay more to ensure your transaction gets processed). Additionally, gas is paid in the subject blockchain’s cryptocurrency, which is subject to exchange rate fluctuations against traditional currencies (such as the dollar).

Many marketplaces require the user to pay for the gas, but others (such as OpenSea) do not. This is usually done in one of two ways:

- By using a sidechain
- Lazy minting

A sidechain is a different but compatible blockchain that operates alongside of, but distinct from, the main blockchain. NFTs can be transferred from the sidechain to the main chain such that a marketplace is not forced to operate on a single chain.

There are various benefits and potential drawbacks of using a sidechain for an NFT marketplace:

- **Benefits.** Benefits of sidechains include:
 - Less traffic than the main blockchain
 - Potentially lower creation and transfer costs

- o Faster transaction processing
- **Drawbacks.** Potential drawbacks of sidechains include:
 - o Additional steps that can result in friction and added complexity
 - o Users utilizing multiple marketplaces may not have a seamless experience across marketplaces
 - o Possible messaging and public relations issues

Lazy minting refers to the practice of not minting an NFT until there is a recorded sale, at which point the NFT is both minted and transferred. While the minting may appear to be “free,” note that the cost of minting may actually be included in the transaction fee charged by the marketplace.

Also bear in mind that larger NFTs, such as those that incorporate digital artwork with large file sizes, will cost more in gas fees to mint than smaller NFTs. To reduce NFT size (and minting costs), many users mint NFTs that do not themselves contain the asset being transferred but instead contain only a link or other access right to the asset, which is stored elsewhere. However, if storing the asset outside of the NFT, you must address a host of other issues, such as:

- Where the asset is stored
- How it is stored
- How access is granted
- How security is maintained

Transaction Fees

Marketplaces can elect to charge fees for transactions. Fees can be charged to the seller, the buyer, or both. Fees can be charged upfront (such as a listing fee) or taken from the proceeds of the transaction.

Setup Fees

Some marketplaces charge a setup fee or otherwise restrict who can join the marketplace to applicants only (such as NiftyGateway and SuperRare, which require creators to apply to create NFTs on their marketplaces). These marketplaces are often trying to curate the NFTs offered for sale to increase quality and reduce potential scams.

Withdrawal Fees and Limitations

Some marketplaces (such as NBA TopShot) place restrictions on the ability of users to withdraw the proceeds of sales of NFTs. For instance, they might charge withdrawal fees and/or restrict the timing and amounts of withdrawals.

Relevant Rules and Regulations

Somewhat related to withdrawal fees and withdrawal limitations are the financial regulatory and tax considerations.

Many states regulate the use of cryptocurrencies. Thus, you will need to ensure you are in full compliance with the laws of every state that may affect your client. For guidance on such laws, see [Virtual Currency State Law Survey](#).

For clients that are considering operating a marketplace, you will also need to review federal rules and regulations regarding transfers of money. Restrictions related to compliance need to be included in user agreements.

Continuing Royalties for Creators

Proponents of NFTs regularly argue that continuing royalties for creators of works is a substantial benefit of NFTs. Note, however, that such royalties may not always be part of an agreement. You will need to determine whether continuing royalty payments exist and, if so:

- Who pays the royalties
- Whether a given marketplace will also take a commission on royalty payments

Infringement and Counterfeiting Issues

Marketplaces may be liable for indirect infringement of copyrights and trademarks. If your client is considering operating a marketplace, you will need to put in place policies and procedures for handling Digital Millennium Copyright Act (DMCA) takedown notices and other infringement allegations. These should address, among other things, whether and how user accounts and/or allegedly infringing NFTs will be restricted (such as prohibitions on displaying an infringing NFT).

For a sample policy, see [Website Copyright Policy](#). For more information on the DMCA, see [DMCA Compliance and Enforcement](#) and [DMCA Safe Harbor for User-Generated Content](#).

Copyright Ownership Considerations

Another key consideration is who owns the intellectual property rights for assets that are minted into NFTs. For copyrightable works, except in the case of a work made for hire, the author of a work owns the copyright. See [Copyright Fundamentals](#) and [Works Made for Hire](#). However, because a copyright is distinct and separate from the underlying work, a sale of the work does not necessarily transfer ownership from the owner to a subsequent purchaser, absent an assignment or exclusive license. See [Transfers of Copyright Ownership](#) and [Assignments of Copyrights](#). For instance, a person who purchases a painting would generally own the painting itself (and would be able to sell or dispose of the

painting under copyright's first sale doctrine) but would not own the copyright in the painting. In this circumstance, if the purchaser minted an NFT of the painting, such act would likely constitute infringement.

Given the above, you should review an NFT to determine:

- Which copyright(s), if any, are implicated by the NFT
- Whether the party transferring the NFT owns the copyright(s)
- Whether the transferor (if the lawful owner) wishes to transfer copyright ownership with the NFT

If there are no ownership or infringement issues and the transferor wishes to transfer copyright ownership along with the NFT, they might wish to divide the various rights associated with a copyright (known as exclusive rights) and parcel them out to different holders. These rights include the rights of:

- Reproduction
- Distribution
- Adaptation
- Performance
- Display

See [Exclusive Rights of Copyright Owners](#).

For example, with respect to music minted into an NFT, you could draft the associated smart contract with provisions that provide performance rights only to the purchaser of the NFT while retaining all other rights for the artist, who could then sell one of those other rights (such as the synch rights) to a different purchaser of a separate NFT. The open nature of the blockchain means it is relatively easy to track these various rights as they pass from party to party and makes tracking any associated royalty streams relatively easy compared to current standards. For more on music contracts, see [Music Contracts](#).

Lastly, note that NFTs themselves are likely not copyrightable, given that U.S. law requires works of authorship to be “fixed in any tangible medium of expression” to be eligible for copyright protection. See 17 U.S.C. § 102(a). NFTs themselves are intangible and are therefore likely outside the scope of U.S. copyright law.

Related Content

Practice Notes

- [Virtual Currency, Bitcoin, and Cryptocurrency Resource Kit](#)
- [Virtual Currency State Law Survey](#)
- [DMCA Compliance and Enforcement](#)
- [DMCA Safe Harbor for User-Generated Content](#)
- [Copyright Fundamentals](#)
- [Works Made for Hire](#)
- [Transfers of Copyright Ownership](#)
- [Assignments of Copyrights](#)
- [Exclusive Rights of Copyright Owners](#)
- [Music Contracts](#)

Annotated Forms

- [Website Copyright Policy](#)
- [DMCA Take-Down Notice](#)
- [Copyright Assignment](#)

Checklists

- [Work Made for Hire Checklist](#)
- [Copyright Assignment Checklist](#)
- [DMCA Pre-Notice Investigation Checklist](#)

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Daniel Barsky is an intellectual property attorney in Holland & Knight's Miami office. Mr. Barsky regularly represents clients in intellectual property (IP), information technology (IT) and data-related licensing and transactional matters, including mergers and acquisitions (M&A), private equity transactions, joint ventures, and multilateral and multinational licensing agreements.

Mr. Barsky's clients call upon him to navigate complex transactions involving IP, IT and data assets. He assists and advises clients with navigating the complexities of transactions involving intangible assets such as patents, trademarks, copyrights, trade secrets and data, brand licensing and distribution agreements, blockchain technology such as cryptocurrency and non-fungible tokens (NFTs), software and technology licensing agreements, and transition services agreements.

Post-closing, Mr. Barsky assists clients with the maintenance and enforcement of their IP and IT portfolios with an eye towards leveraging those portfolios to drive revenue and growth. Mr. Barsky oversees, coordinates and maintains multinational trademark portfolios encompassing thousands of marks registered in more than 100 countries, including the monitoring and enforcement of the portfolios, as well as multinational, anti-counterfeiting activities.

In addition to his transactional and counseling work, Mr. Barsky maintains an active, nationwide IP and IT litigation practice and has represented clients in patent infringement, trademark infringement, anti-counterfeiting, unfair competition, copyright infringement and trade secret theft matters, as well as information technology, data privacy, cyberfraud, data breach and hacking matters, and responses thereto.

Mr. Barsky is an active force and thought leader in South Florida's entrepreneurial and startup community. He regularly represents startup and new business ventures and has helped multiple startups develop, protect, grow, monetize and enforce their IP and other business assets. His work with startups and entrepreneurs includes advising on software license agreements, user agreements, privacy policies, brand clearance, brand protection and monetization strategies, blockchain and NFT questions, and IP registration.

Outside of his law practice, Mr. Barsky helped form, and is a former board member of, Tech Lauderdale, which promotes the growth, connectivity and awareness of the thriving technology ecosystem in Greater Fort Lauderdale and throughout South Florida.

Additionally, Mr. Barsky is an adjunct professor at the University of Miami School of Law where he teaches patent litigation and the university's Startup Practicum, and is the university's faculty supervisor for the U.S. Patent and Trademark Office's (USPTO) Law School Clinic Program. In his various roles at the university, Mr. Barsky works with students and clients in the university's startup practicum to foster the development of the South Florida startup and entrepreneurial community and the professionals that are needed to serve and grow that community.

Mr. Barsky is a registered patent attorney with the USPTO and regularly prosecutes patents, trademarks and copyrights for clients.

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