UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

True Return Systems LLC,	Case No. 22-cv-8478-VSB
Plaintiff,	
-against-	**MEMORANDUM OF LAW IN SUPPORT OF DEFENDANT'S MOTION TO DISMISS THE COMPLAINT FOR FAILURE TO STATE A CLAIM**
MakerDAO,	
Defendant.	

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Defendant MakerDAO submits this memorandum of law in support of its motion to dismiss the Complaint (ECF No. 1) pursuant to Federal Rule of Civil Procedure 12(b)(6).[1]

PRELIMINARY STATEMENT[2]

Plaintiff True Return Systems, LLC's ("Plaintiff") Complaint should be dismissed for two separate and independent reasons.

First, the named defendant, MakerDAO, does not have capacity to be sued under New York or federal law. The Complaint fails to allege that MakerDAO is a legal entity that can be sued: it does not allege that MakerDAO is a person and concedes that MakerDAO is not a corporation, LLC, or partnership. And Plaintiff has not shown and cannot show that MakerDAO is an unincorporated association that can face a lawsuit in its own name. Instead, MakerDAO is a "decentralized autonomous organization" that does not have any attributes which would subject it to a lawsuit under the law. It does not have a president or treasurer or other officer or director, and in fact it has no leaders at all. MakerDAO does not comprise an identifiable set of members or otherwise consist of any defined group of legal persons—those who hold MakerDAO's governance tokens, for example, are transient, anonymous, and unidentifiable. Plaintiff has failed to allege (and cannot allege) that MakerDAO is an entity with legal capacity to be sued under New York or federal law.

Second, the Complaint fails to state a claim for patent infringement because Plaintiff's infringement claim involves accused activities that necessarily occur outside of the United States

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[1] The length of this Memorandum is within the 40-page limit set by the Court during the October 2, 2023, telephonic status conference.

[2] Except as otherwise noted, all "factual" statements set forth herein are taken from the Complaint and its supporting exhibits and are assumed to be true solely for purposes of this motion pursuant to Fed. R. Civ. P. 12(b)(6). Defendant does not admit the truth of the allegations in the Complaint.

to an extent that precludes infringement of the asserted U.S. patent. The Complaint admits that

MakerDAO operates globally and has no address or location in the United States. The Complaint

fails to plead facts concerning the accused activities that could give rise to a plausible claim for

infringement in view of MakerDAO's extraterritorial activities.

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FACTUAL BACKGROUND

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Plaintiff is a non-practicing entity organized as a limited liability company under the laws

of the state of Connecticut with its principal place of business in New Canaan, Connecticut.

Compl. ¶ 3. Plaintiff alleges that MakerDAO infringes U.S. Patent No. 10,025,797 (the "'797

patent"). *Id.* ¶¶ 89–98, Ex. 11. Plaintiff alleges that defendant MakerDAO is a "decentralized

autonomous organization ('DAO') controlled and operating at the Ethereum blockchain contract

address 0x9f8f72aa9304c8b593d555f12ef6589cc3a579a2." *Id.* ¶¶ 4, 42.[3]

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A.   Background pertaining to lack of capacity to be sued.

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The Complaint states that MakerDAO "is not formally organized as a corporation, LLC,

partnership, or other recognized organization type …." *Id.* ¶ 9. According to Plaintiff, "[i]n a

DAO, there is generally no formal corporate structure … and no distinction between managers

and directors, or between general and limited partners." *Id.* ¶ 10. "Instead, holders of specific

tokens, such as MKR, have governance rights that allow [token] holders to propose and approve

actions that MakerDAO will take." *Id.* The Complaint extensively cites to and quotes from the

"MakerDAO Whitepaper," which is attached to the Complaint as Exhibit 2 and incorporated

therein. *Id.* ¶¶ 41–47, Ex. 2. The Whitepaper states, "MakerDAO is an open-source project on

the Ethereum blockchain and a Decentralized Autonomous Organization created in 2014. The

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[3] At the same time this action was filed, Plaintiff filed a second lawsuit against Compound
Protocol, also alleging infringement of the '797 patent and that defendant Compound Protocol is
a DAO. *True Return Systems LLC v. Compound Protocol*, No. 22-cv-08483 (S.D.N.Y.).

project is managed by people around the world who hold its governance token, MKR." *Id.* ¶ 41, Ex. 2 at 2.[4]

The Complaint and MakerDAO Whitepaper also refer to the "Maker Protocol": "The Maker Protocol, built on the Ethereum blockchain, enables users to create currency. Current elements of the Maker Protocol are the Dai stablecoin, Maker Collateral Vaults, Oracles, and Voting." *Id.* Ex. 2 at 3. "The Maker Protocol, also known as the Multi-Collateral Dai (MCD) system, allows users to generate Dai by leveraging collateral assets approved by 'Maker Governance.'" *Id.* at 2. "MakerDAO governs the Maker Protocol by deciding on key parameters (e.g., stability fees, collateral types/rates, etc.) through the voting power of MKR holders." *Id.* at 3. "Through a system of scientific governance involving Executive Voting and Governance Polling, MKR holders manage the Maker Protocol and the financial risks of Dai to ensure its stability, transparency, and efficiency." *Id.*

According to Plaintiff, MKR holders "have governance rights that allow holders to propose and approve actions that MakerDAO will take." *Id.* ¶ 10; *see also id.* ¶¶ 6, 36. Plaintiff appears to assert that the holders of MKR are "MakerDAO *owners*" who can "profit" from "distributions" (Compl. ¶¶ 6, 8, 10, 32, 33, 36, 37, Exs. 2 and 6), but those allegations are belied by the documents attached to the Complaint. For example, the MakerDAO Whitepaper explains that "MKR holders manage the Maker Protocol and the financial risks of Dai to ensure its stability, transparency, and efficiency." *Id.* Ex. 2 at 2–3. "MKR holders can vote" to modify the protocol in various ways, such as "Add[ing] a new collateral asset type," "Chang[ing] the Risk

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[4] The MakerDAO Whitepaper does not have printed page numbers. In this Memorandum, page numbers in citations to exhibits *without* printed page numbers are to the page numbers in the ECF header information. For example, citation to page 2 of Exhibit 2 of the Complaint refers to "Page 2 of 26" in the ECF header.

Parameters" of an asset type, or "Modify[ing] the Dai Savings Rate," and they can "allocate

funds from the Maker Buffer to pay for various infrastructure needs and services, including

Oracle infrastructure and collateral risk management research." *Id.* at 15. The Whitepaper does

not describe any mechanism by which profits could be distributed to MKR token owners because

there is no such mechanism—MKR tokenholders have the ability to vote on Maker Protocol

operations, but do not have any corresponding profit right or interest in MakerDAO. *Id.* Publicly

available blockchain data cited to by Plaintiff shows that the MKR token is held by more than

94,000 unique addresses and some number of MKR tokens is transferred between blockchain-

based addresses many thousands of times a day. *See Token Maker (MKR), Etherscan,*

https://etherscan.io/token/0x9f8f72aa9304c8b593d555f12ef6589cc3a579a2 (last visited on

Nov. 3, 2023) (an aggregator of public-facing blockchain data specifically displaying the smart

contract address for MKR token—cited in the Complaint—which shows transfers of MKR

occurring at least every few minutes).[5]

     B.   **Background pertaining to failure to state a claim for patent
infringement**

     A "blockchain" refers to a decentralized database distributed across a network of

computers. *See, e.g.,* Compl. ¶ 31, Ex. 2 at 4; Ex. 11 at 13, 22 (citation to "'Intro to Ethereum'—

Ethereum.org developers docs, https://ethereum.org/en/developers/docs/intro-to-ethereum/")

(hereinafter "Intro to Ethereum webpage"). Blockchain technology fosters "an unbiased,

transparent, and highly efficient permissionless system—one that can improve current global

finance and monetary structures and better serve the public good." Compl. Ex. 2 at 4. In short,

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[5] The MKR smart contract address on the Ethereum blockchain is referenced in the Complaint at
¶ 4, and the Court may take judicial notice of MKR token transfers, as the data is "not subject to
reasonable dispute because it can be accurately and readily determined from sources whose
accuracy cannot reasonably be questioned," namely, the blockchain itself. *Press v. Primavera*,
No. 21-CV-10971, 2023 WL 4978099, at *3 (S.D.N.Y. Aug. 3, 2023).

the core value proposition of blockchain technology is the "global adoption of a common

infrastructure without a central authority or administrator that may abuse its influence." *Id.* at 5.

Ethereum is a type of blockchain. *Id.* Ex. 2 at 2. Ethereum permits "smart contracts" to be

written and deployed on its blockchain. *See, e.g., Id.* Ex. 11 at 13, 22 (Intro to Ethereum

webpage), Ex. 2 at 4. The "Intro to Ethereum" webpage cited by Plaintiff states, "At a very basic

level, you can think of a smart contract like a sort of vending machine: a script that, when called

with certain parameters, performs some actions or computation if certain conditions are

satisfied," "Any developer can create a smart contract and make it public to the network, using

the blockchain as its data layer, for a fee paid to the network. Any user can then call the smart

contract to execute its code …." Compl. Ex. 11 at 13, 22 (Intro to Ethereum webpage).

The Complaint alleges, "MakerDAO provides methods and systems that use a

processing/storage system to link published data to a distributed computerized ledger,

specifically a blockchain." *Id.* ¶ 31. The Complaint states, "MakerDAO establishes the

MakerDAO blockchain data environment which includes the MakerDAO Multi-Collateral Dai

(MCD) System [i.e, the Maker Protocol], the Oracle Security Module, and related system

components." *Id.* ¶ 32. The Complaint cites a document titled, "Maker Docs," which shows that

the Maker Protocol is made up of various smart contracts, as seen below:

The Maker Protocol Smart Contract Modules System
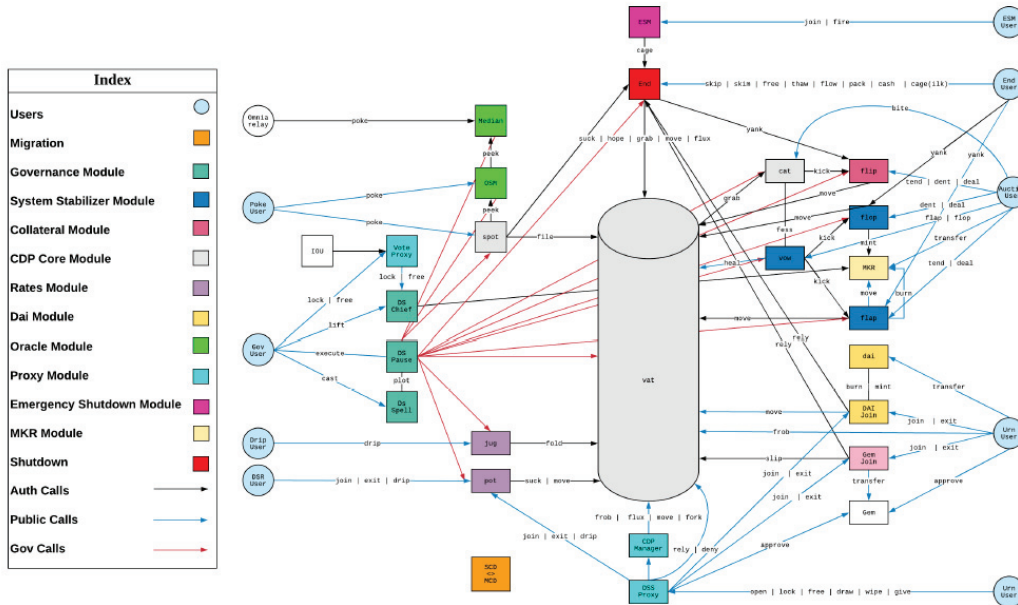
The Maker Protocol System Diagram

Id. ¶ 57, Ex. 4 at 3. Smart contracts are sometimes called "decentralized applications" or "dapps." *Id.* ¶ 79, Ex. 8 at 2.[6] The Maker Protocol is one of the largest dapps on the Ethereum blockchain. *Id.* Ex. 2 at 3, 5–6.

1. Dai Stablecoins.

MakerDAO is associated with two types of digital assets known as "tokens," Dai and MKR. *Id.* ¶¶ 9–10. Plaintiff asserts that "MakerDAO was launched for the principal purposes of issuing a Dai stablecoin currency." *Id.* ¶ 6. The Complaint alleges, "In the MakerDAO Whitepaper, MakerDAO states: 'Dai is a decentralized, unbiased, collateral-backed cryptocurrency soft-pegged to the US Dollar.'" *Id.* ¶¶ 43–44 (quoting Ex. 2 at 6). The

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[6] Exhibit 8 ("Introducing Oracles V2 and DeFi Feeds") has printed page numbers. In this Memorandum, page numbers in citations to exhibits **with** printed page numbers are to the printed page numbers. For example, citation to page 2 of Exhibit 8 refers to printed page number "2/10" in the bottom right corner of the document.

MakerDAO Whitepaper states, "Dai can be used in the same manner as any other cryptocurrency: it can be sent to others, used as payments for goods and services, and even held as savings through a feature of the Maker Protocol called the Dai Savings Rate (DSR)." *Id.* Ex. 2 at 6. The Whitepaper states, "Dai is generated, backed, and kept stable through collateral assets that are deposited into Maker Vaults on the Maker Protocol." *Id.* at 7–8.

In contrast, MKR is not a stablecoin like Dai but rather is a token used for governance voting, as explained above.

2.   The global and autonomous nature of MakerDAO.

The Complaint alleges that MakerDAO operates globally. Plaintiff admits that "MakerDAO operates, ***by design, without a U.S. address or location***." *Id.* ¶ 6 (emphasis added). The exhibits to the Complaint refer to "the global Maker community" (*id.* Ex. 2 at 3) and state: "The Maker Protocol is managed by people around the world who hold its governance token, MKR" (*id.* at 2, 6); "The Dai stablecoin is used around the world for all types of transactional purposes" (*id.* at 7); "As the world's first unbiased stablecoin, Dai allows anyone to achieve financial independence, regardless of their location or circumstances" (*id.* at 23); "The Dai stablecoin is used around the world as a medium of exchange because people have confidence in its value and efficiency" (*id.* at 24); "Maker is unlocking the power of decentralized finance for everyone… enabling everyone with equal access to the global financial marketplace." (Compl. Ex. 4 at 2). Similarly, the information cited by the Complaint states that the Ethereum blockchain on which MakerDAO operates is global: The MakerDAO Whitepaper cites ethereum.org, which states, "Ethereum is a network of computers all over the world that follow a set of rules called the Ethereum protocol" (https://ethereum.org/en/what-is-ethereum/; *id.* Ex. 2 at 3 n.2, citing https://ethereum.org); "The Ethereum Virtual Machine is the global virtual computer whose state

every participant on the Ethereum network stores and agrees on." Compl. Ex. 11 at 13, 22 (Intro to Ethereum webpage).

The Complaint also avers that MakerDAO operates autonomously: "MakerDAO is a self-described 'Decentralized Autonomous Organization' and ***MakerDAO operates autonomously***, carrying out the business of creating and maintaining its stable coin currency token Dai, and running its decentralized ecosystem for the benefit and profit of the MKR token owners." *Id.* ¶ 33 (emphasis added).

> **3.   Maker Protocol, Multi-Collateral Dai (MCD) System, and Oracle Security Modules (OSMs).**

The MakerDAO Whitepaper states, "The Maker Protocol, built on the Ethereum blockchain, enables users to create currency. Current elements of the Maker Protocol are the Dai stablecoin, Maker Collateral Vaults, Oracles, and Voting. MakerDAO governs the Maker Protocol by deciding on key parameters (e.g., stability fees, collateral types/rates, etc.) through the voting power of MKR holders." *Id.* Ex. 2 at 3. The Maker Protocol is also known as the "Multi-Collateral Dai (MCD) system." *Id.* at 2. The Complaint cites a high-level schematic:

-8-
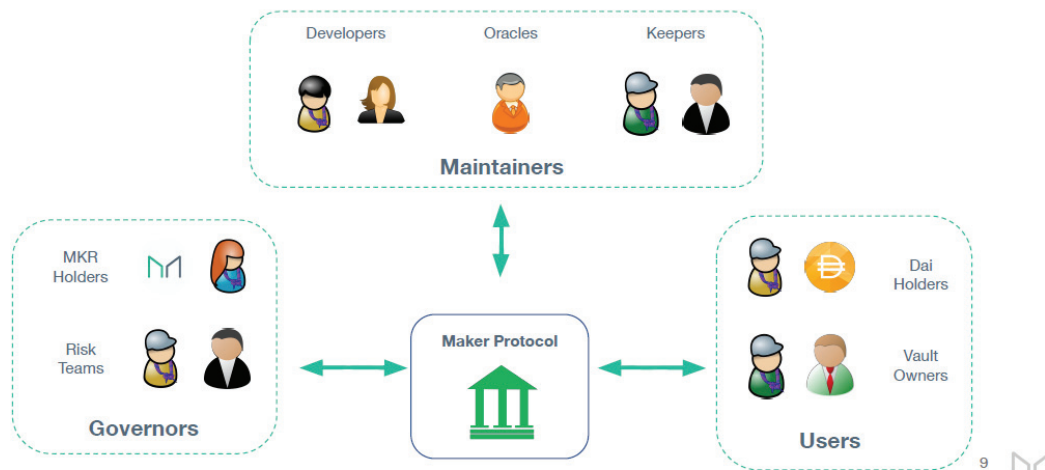
Compl. ¶ 68, Ex. 6 at 9.

The MakerDAO Whitepaper states that the MCD system "allows users to generate Dai by leveraging collateral assets approved by 'Maker Governance.'" *Id.* Ex. 2 at 2. Within the MCD system, assets can be used as collateral against the Dai stablecoin. *Id.* at 2–9. The Whitepaper states, "Users generate Dai by depositing collateral assets into Maker Vaults within the Maker Protocol. This is how Dai is entered into circulation and how users gain access to liquidity." *Id.* at 6. "To retrieve a portion or all of the collateral, a Vault owner must pay down or completely pay back the Dai she generated …." *Id.* at 8–9.

According to the Whitepaper, if the price of collateral in a Vault falls below a certain "Target Price," the Vault can be liquidated through an automated auction within the MCD system. *Id.* at 9–10. This occurs when the Vault becomes "undercollateralized." The Vault collateral is sold using an automated self-executing market-based auction mechanism, in which Dai is received in exchange for the Vault collateral. *Id.* The Complaint cites the following example: "In the MakerDAO Whitepaper, MakerDAO states: 'A large Vault becomes undercollateralized due to market conditions. An Auction Keeper then detects the undercollateralized Vault opportunity and initiates liquidation of the Vault, which kicks off a Collateral Auction for, say, 50 ETH.'" Compl. ¶ 46 (quoting Ex. 2 at 10).

The Complaint alleges, "In the MakerDAO Whitepaper, MakerDAO states, 'The Maker Protocol requires real-time information about the market price of the collateral assets in Maker Vaults in order to know when to trigger Liquidations.'" *Id.* ¶ 47 (quoting Ex. 2 at 11). These real-time, internal collateral prices are derived from "Oracles." *Id.* Ex. 2 at 12. The Complaint cites a document that discusses the Oracles of the Maker Protocol. *Id.* ¶¶ 78–80, Ex. 8. "Oracles, collectively, are a mechanism to broadcast data from outside of the blockchain onto the

blockchain. The Maker Protocol uses Oracles to obtain the real-time price of assets." *Id.* ¶ 80, Ex. 8 at 1.

For security-related reasons, the MCD system receives these real-time price inputs through Oracle Security Modules ("OSMs"), not from the Oracles directly. *Id.* ¶ 45, Ex. 2 at 12. The purpose of OSMs is "to defend against fraudulent price data." *Id.* Ex. 3 at 1. The Complaint alleges:

> "To protect the system from an attacker attempting to gain control of most [*sic*: a majority] of the Oracles, the Maker Protocol receives price inputs through the Oracle Security Module (OSM), not from the Oracles directly. The OSM, which is a layer of defense between the Oracles and the Protocol, delays a price for one hour, allowing Emergency Oracles or a Maker Governance vote to freeze an Oracle if it is compromised."

Id. ¶ 45 (quoting Ex. 2 at 12). "An OSM is active on each Oracle in the Maker Protocol." *Id.* ¶ 55 (quoting Ex. 4 at 5, 6). In other words, an Oracle and a corresponding OSM is deployed for each collateral type. *Id.* Ex. 6 at 33.

The Complaint alleges, "In Oracle Security Module (OSM), MakerDAO states: 'The central mechanism of the OSM is to periodically feed a delayed price into the MCD system for a particular collateral type. For this to work properly, an external actor must regularly call the poke() method to update the current price and read the next price.'" *Id.* ¶ 83 (quoting Ex. 9 at 4). The "poke()" function is public and not under any kind of "authorization" (auth) limitation; thus, it is callable by anyone. Compl. Ex. 9 at 5, 15.

As alleged by the Complaint and explained above, Oracles and OSMs provide price information for collateral assets from outside MakerDAO (i.e., "off-chain") to MakerDAO. Off-chain broadcasters provide price updates to the Oracle network. Compl. Ex. 9 at 7. The median of these prices is calculated and then provided to the OSMs. *Id.* at 7–8. The Complaint cites Uniswap as an example of an off-chain price feed. Compl. ¶¶ 85–88, Ex. 10 ("uniswap-price-

feed"). Uniswap provides prices as an off-chain broadcaster to the MCD system (*id.* Ex. 10 at 1), specifically the Oracle feeds that then transmit those prices to the OSMs.

Plaintiff's infringement claim centers on the operation of MakerDAO's Oracles and OSMs. *Id.* ¶ 98, Ex. 11 (claim chart for "MAKERDAO – ORACLE SECURITY MODULE"). The Complaint does not allege that MakerDAO or the Oracles and OSMs are controlled in or from the United States or that beneficial use of MakerDAO or the Oracles and OSMs occurs in the United States. Plaintiff does not plead facts that show a control point in the United States of MakerDAO or the Oracles and OSMs.[7] To the contrary, the Complaint alleges that "MakerDAO operates, ***by design, without a U.S. address or location***." *Id.* ¶ 6 (emphasis added).

4.   The Asserted U.S. Patent No. 10,025,797.

The '797 patent is titled, "Method and System for Separating Storage and Process of a Computerized Ledger for Improved Function." *Id.* ¶ 22, Ex. 1. The Complaint alleges that the '797 patent describes a method and system for processing and storing "time-sequenced data streams or descriptive differentials" using a "distributed computerized ledger" ("DCL"). *Id.* ¶¶ 23–26. The Complaint alleges that the system of the '797 patent "improves over the prior-art distributed computerized ledgers in several ways including moving certain functionality and storage off the DCL while simultaneously allowing the DCL to utilize exogenous data to update transaction records on the DCL." *Id.* ¶ 27. Plaintiff alleges, "Through a layered or parallel architecture [of the '797 patent], system access, processing, and storage can be performed more efficiently, and distributed ledgers such as blockchains can realize increased functionality." *Id.*

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[7] Compl. Ex. 8 at 6 ("It is important to note that the Oracle Team ***does not have any special privileges to enact changes*** without voter approval; it is merely a facilitation mechanism for helping to craft proposals and guide the governance process."); *id.* Ex. 9 at 5 ("The fact that 'poke' is public, and thus ***callable by anyone***, helps mitigate concerns…"); *id.* at 15 ("***The 'poke' method is not under any kind of 'auth.'*** This means that anybody can call it.").

¶ 27. By way of example, Plaintiff alleges, "the system may process logistical data provided by a shipping network, financial data and market prices provided by an exchange, or information provided by a news outlet." *Id.* ¶ 25.

The '797 patent has 20 claims. *Id.* Ex. 1 at columns 18–20. The Complaint alleges that MakerDAO infringes at least "Exemplary '797 Patent Claims" "by making, using, offering to sell, selling and/or importing, without limitation, at least the products identified in the charts incorporated into this Count below." *Id.* ¶ 90. Those claim charts are Exhibit 11 to the Complaint and identify claims 1 and 7 as the "Exemplary '797 Patent Claims" alleged to be infringed. *Id.* ¶ 98, Ex. 11. Claims 1 and 7 of the '797 patent are reproduced in Appendix 1.

All claims of the '797 patent recite "at least one electronic parallel storage of a differences layer linked to a distributed computer ledger (DCL)." *Id.* Ex. 1 at columns 18–20. The Complaint maps the "DCL" of claims 1 and 7 to the Ethereum blockchain on which MakerDAO operates—for example: "MakerDAO provides methods and systems that use a processing/storage system to link published data to a distributed computerized ledger, specifically a blockchain" (*id.* ¶ 31); "'MakerDAO is an open-source project on the Ethereum blockchain and [is] a Decentralized Autonomous Organization…'—Whitepaper" (*id.* at 2); and "'With the new version of the Maker Protocol, Multi Collateral Dai (MCD), being released and live on the main Ethereum network'—MakerDAO Documentation" (*id.* Ex. 11 at 17). Appendix 2 is a highlighted version of Plaintiff's claim charts that are Exhibit 11 of the Complaint. Blue highlighting shows references to the DCL and related mapping to the Ethereum blockchain.

Plaintiff's claim charts refer to the operation of MakerDAO's Oracles and OSMs in handling price feed information for the collateral related to Dai tokens as the allegedly infringing

activity of the "Exemplary Defendant Products." *Id.* ¶¶ 90-99, Ex. 11. The Complaint maps the

"electronic parallel storage of a differences layer linked to [the DCL]" of claims 1 and 7 to the

Oracles and OSMs. *Id.* at 2–4, 15–18. Appendix 2 has passages highlighted in pink that show

references to the "parallel storage differences layer" and related mapping to the Oracles and

OSMs.

The Complaint's allegations relating to alleged infringement in the United States are that

"Defendant, directly and/or through intermediaries, distributes, uses, offers for sale, sells, and/or

advertises products and services in the United States, the State of New York, and the Southern

District of New York including but not limited to the products which contain the infringing

elements as detailed below. Upon information and belief, Defendant has committed patent

infringement in the State of New York and in this district." Compl. ¶ 15. The Complaint also

alleges, "Despite such actual knowledge [of the '797 patent], Defendant continues to make, use,

test, sell, offer for sale, market, and/or import into the United States, products that infringe the

'797 Patent." *Id.* ¶ 93.

C.   Procedural background.

Plaintiff filed its Complaint on October 5, 2022. ECF No. 1. On November 23, 2022, the

Court entered an order allowing service of process on MakerDAO by alternative means while

denying such service *nunc pro tunc*. ECF No. 13. Plaintiff filed a certificate of service on

November 30, 2022. ECF No. 14. On January 3, 2023, a Clerk's Certificate of Default was

entered against Defendant. ECF No. 25. Undersigned counsel entered an appearance on behalf of

Defendant on July 14, 2023. ECF Nos. 55–58. Following a telephonic conference on October 2,

2023, the Court vacated the Certificate of Default and set a briefing schedule. ECF No. 65.

STANDARD OF REVIEW

To survive a motion to dismiss under Rule 12(b)(6), a complaint must "state a claim to relief that is plausible on its face." *Bell Atl. Corp. v. Twombly*, 550 U.S. 544, 570 (2007). On a Rule 12(b)(6) motion, the Court must assume all factual allegations in the complaint to be true "unless contradicted by more specific allegations or documentary evidence," including documents "attached to [the complaint] as an exhibit" and "materials incorporated in it by reference." *L-7 Designs, Inc. v. Old Navy, LLC*, 647 F.3d 419, 422 (2d Cir. 2011). Likewise, "[l]egal conclusions and '[t]hreadbare recitals of the elements of a cause of action, supported by mere conclusory statements,' are not entitled to a presumption of truth." *Packard v. City of New York*, No. 15-cv-7130, 2017 WL 11580887, at *3 (S.D.N.Y. Mar. 2, 2017) (quoting *Ashcroft v. Iqbal*, 556 U.S. 662, 678 (2009)).

While leave to amend is often granted on a first motion to dismiss, dismissal with prejudice is appropriate where a plaintiff's infringement claims are legally implausible because a certain claim element or pleading requirement cannot be met. *Ottah v. BMW*, 230 F.Supp.3d 192, 196–98 (S.D.N.Y. 2017), *aff'd* 884 F.3d 1135 (Fed. Cir. 2018) (dismissing complaint with prejudice because the infringement claim was "legally implausible").

ARGUMENT

A.   MakerDAO does not have the capacity to be sued.

Where a defendant does not have capacity to be sued under applicable state or federal law, a complaint should be dismissed pursuant to Rule 12(b)(6). *Klebanow v. N.Y. Produce Exchg.*, 344 F.2d 294, 296 n.1 (2d Cir. 1965); *Willard v. Town of Hamburg*, No. 96-cv-187, 1996 WL 607100, at *1 (W.D.N.Y. Sept. 30, 1996) (collecting cases and stating "Lack of legal capacity to be sued may be raised in a [Rule] 12(b)(6) motion."); *see also Farrell v. U.S. Olympic & Paralympic Comm.*, 567 F. Supp. 3d 378, 390–91 (N.D.N.Y. 2021) (granting pre-

answer motion to dismiss for lack of capacity brought directly under Rule 17). "Capacity refers

to a party's personal right to litigate in federal court." *Sonterra Capital Master Fund, Ltd. v.*

Barclays Bank PLC, 403 F. Supp. 3d 257, 267 (S.D.N.Y. 2019). "[A] defendant-entity that

legally exists but lacks capacity to be sued can be properly served and plead … its lack of

capacity" on a motion to dismiss. *D&T Partners, LLC v. Baymark Partners, LP*, No. 21-cv-1171,

2022 WL 1778393, at *2 n.4 (N.D. Tex. June 1, 2022).

> Federal Rule of Civil Procedure 17 describes the law governing capacity to be sued.
>
> Per that rule, an individual may be sued by the law of their domicile, and a corporation may be sued "by the law under which it was organized." Fed. R. Civ. P. 17(b)(1)-(2). For all other parties, however, the rule provides that they may be sued "by the law of the state where the court is located, except that: (A) a partnership or other unincorporated association with no such capacity under that state's law may sue or be sued in its common name to enforce a substantive right existing under the United States Constitution or laws ..." Fed. R. Civ. P. 17(b)(3)(A).

Farrell, 567 F. Supp. 3d at 390.

The Complaint must be dismissed under both state and federal law because it admits that

MakerDAO is not a natural person and is "not formally organized as a corporation, LLC,

partnership, or other recognized organization type" with the capacity to be sued. Compl. ¶ 9.

First, Plaintiff admits that MakerDAO is not an individual or a corporation, so under Rule

17(b)(3) New York law applies. Because Plaintiff is pursuing a patent claim under federal law, if

MakerDAO lacks capacity to be sued under New York law (which it does), the Court must also

consider whether it is a "partnership or other unincorporated association" under federal law. Fed.

R. Civ. P. 17(b)(3)(A). MakerDAO is an open-source project constituting a decentralized

protocol governed by votes cast by the holders of freely transferable MKR tokens. There is no

way to become a "member" of MakerDAO and MakerDAO therefore has no fixed membership.

MakerDAO is not an association of persons and does not have the capacity to be sued under New

York or federal law. The Complaint must therefore be dismissed with prejudice.

> **1.   Plaintiff cannot maintain a suit against MakerDAO under New York law.**

Plaintiff admits that MakerDAO is not a natural person and is "not formally organized as

a corporation, LLC, partnership, or other recognized organization type" with the capacity to be

sued under New York law. Compl. ¶ 9. The Complaint does not allege that MakerDAO is an

unincorporated association under New York law, or facts showing that MakerDAO has the

capacity to be sued as an unincorporated association. *See Farrell*, 567 F. Supp. 3d at 390–91

(dismissing entity defendant for lack of capacity to be sued where plaintiff did not "allege in her

complaint the type of entity she believe[d] applies to" the defendant).

> **a.   The Complaint is defective under New York law because it does not—and cannot—name a MakerDAO "president or treasurer" as a defendant.**

A lawsuit against an unincorporated association in New York may only be maintained by

naming as a defendant the "president or treasurer" of the purported association. N.Y. Gen.

Assoc. Law § 13; CPLR 1025. Failure to name an appropriate officer requires dismissal of a suit

against an association for lack of capacity to be sued. *See, e.g.*, *Farrell*, 567 F. Supp. 3d at 391

("Thus, to maintain an action against Defendant USOEC in this Court, Plaintiff must have

alleged causes of action against those named individuals. Notably, however, Plaintiff does not

identify Defendant USOEC's president, treasurer, or associates in her complaint."); *Collins v.*

Giving Back Fund, No. 18-cv-8812, 2019 WL 3564578, at *8 (S.D.N.Y. Aug. 6, 2019); *La*

Russo v. St. George's Univ. Sch. of Med., 936 F. Supp. 2d 288, 296 n.3 (S.D.N.Y. 2013), *aff'd*,

747 F.3d 90 (2d Cir. 2014); *Dudley v. N.Y. State Dep't of Correctional Servs.*, No. 86-cv-9533,

1987 WL 14906, at *2 (S.D.N.Y. July 22, 1987).[8] "In other words, an unincorporated association

may not be sued solely in the association's name." *Prescription Containers, Inc. v. Cabiles*, No.

12-cv-4805, 2014 WL 1236919, at *4 (E.D.N.Y. Feb. 14, 2014). In any event, Plaintiff cannot

maintain its lawsuit under New York law because it has not named the president, treasurer, or

any other purported officer of MakerDAO as a defendant; nor has Plaintiff served such

individual with a summons and complaint.

Plaintiff will not be able to amend the Complaint to cure this defect. Indeed, Plaintiff

concedes that MakerDAO does not have a president, treasurer, or any other officers. Compl. ¶ 10

(alleging that MakerDAO has "no formal corporate structure" and "no distinction between

managers and directors" and that actions "typically done by corporate officers" are instead the

subject of governance vote by holders of MKR tokens); *see also id.* Ex. 2 at 3.

       b. **The Complaint is defective under New York law because Plaintiff cannot allege that every "member" would be individually liable for the alleged conduct.**

Under New York law the liability of an unincorporated association is limited to the

liability "of the individual members as individuals, and so the cause of action [against an

unincorporated association] has to be one for or upon which the plaintiff may [proceed] against

all the associates, by reason of their liability therefor, either jointly or severally." *Martin v.*

Curran, 303 N.Y. 276, 281 (1951) (cleaned up). A complaint against an unincorporated

association must plead that "each individual … member authorized or ratified the [allegedly]

unlawful actions." *Charter Commc'ns, Inc. v. Local Union No. 3*, 166 A.D.3d 468, 469 (1st

Dep't 2018); *see also Duane Reade, Inc. v. Local 338 Retail, Wholesale, Dep't Store Union,*

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[8] The same rule prohibits an unincorporated association from bringing suit solely in its own name. *CA-POW! v. Town of Greece, N.Y.*, No. 10-cv-6035, 2010 WL 3663409 (W.D.N.Y. Sept. 14, 2010); *Concerned Citizens for Neighborhood Schools v. Pastel*, No. 05-cv-1070, 2007 WL 1220542, at *4 (N.D.N.Y. Apr. 24, 2007).

UFCW, AFL-CIO, 17 A.D.3d 277, 278 (1st Dep't 2005) (same). Plaintiff cannot carry that

burden here. MakerDAO is an open-source project that has no members. Even if votes by MKR

token holders (who may no longer have been MKR token holders at the time of filing) could

satisfy the ratification requirement, Plaintiff cannot identify any unanimous vote to authorize the

activities underlying Plaintiff's claim of patent infringement.

2. MakerDAO is not an unincorporated association under federal common law.

MakerDAO is not an "unincorporated association" as that term is used in Federal Rule of

Civil Procedure 17(b)(3)(A) and cannot be sued in its common name. "'[U]nincorporated

association' is a term of art—every group that is not a corporation or partnership is ***not***

automatically an unincorporated association." *Roby v. Corporation of Lloyd's*, 796 F. Supp. 103,

110 (S.D.N.Y. 1992) (emphasis added); *see also Brown v. Fifth Judicial Dist. Drug Task Force*,

255 F.3d 475, 477 (8th Cir. 2001) (same). Further, under the Rules Enabling Act, 28 U.S.C.

§ 2072(b), Rule 17 cannot operate to "confer legal existence or create new types of legal

entities." *Roby*, 796 F. Supp. at 110–11. Only unincorporated associations recognized at common

law have the capacity to be sued under Rule 17(b)(3)(A).[9]

Although the Second Circuit does not appear to have reached the question, "[f]ederal

courts have generally defined an unincorporated association as 'a voluntary group of persons,

without a charter, formed by mutual consent for the purpose of promoting a common objective."

In re Inclusive Access Course Materials Antitrust Litig., No. 20-cv-6339, 2021 WL 2419528, at

*18 (S.D.N.Y. June 14, 2021) (quoting *Comm. for Idaho's High Desert, Inc. v. Yost*, 92 F.3d

814, 820 (9th Cir. 1996)); *see also Rivera v. Mora Dev. Corp.*, 624 F. Supp. 3d 80, 87 (D.P.R.

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[9] Rule 17(b)(3) also applies to partnerships, but the Complaint clearly alleges that MakerDAO is not a partnership. Compl. ¶ 9.

2022) (same); *Pipeline Prods., Inc. v. S&A Pizza, Inc.*, No. 20-cv-00130, 2022 WL 16540098, at

*2 (W.D. Mo. Oct. 28, 2022); *Goldenberg v. Indel, Inc.*, 741 F. Supp. 2d 618, 628 (D.N.J. 2010)

(same); *Motta v. Samuel Weiser, Inc.*, 598 F. Supp. 941, 949 (D. Me. 1984) (same). Similar

definitions include "a body of persons acting together and using certain methods for prosecuting

a special purpose or common enterprise," *Klinghoffer v. S.N.C. Achille Lauro Ed Altri–Gestione*

Motonave Achille Lauro In Amministrazione Straordinaria, 739 F. Supp. 854, 858 (S.D.N.Y.

1990), *vacated on other grounds*, 937 F.2d 44 (2d Cir. 1991), and "a collection of persons

created and formed by the voluntary action of a number of individuals in associating themselves

together under a common name for the accomplishment of some lawful purpose," *Prescription*

Containers, 2014 WL 1236919, at *5 (quoting *Skyfire v. ServiceSource, Inc.*, No. 10-cv-3155,

2012 WL 4329025, at *4 (D. Colo. Sept. 20, 2012)).

Common among all these definitions is that an unincorporated association must comprise

an identifiable collection of specific persons who are the members of the association. A labor

union, the paradigmatic example of an unincorporated association under Rule 17, maintains a

membership roll of active dues-paying members. There is no question about who is in the union.

But here, "the complaint contains insufficient information concerning [MakerDAO's]

membership, formation or lawful purpose to determine whether it meets the federal definition of

an unincorporated association." *Prescription Containers*, 2014 WL 1236919, at *5.

> **a.   MakerDAO cannot be sued because it operates via autonomous technology and does not have readily identifiable members.**

Where, as here, a putative unincorporated association lacks an identifiable membership,

courts have concluded that it had no capacity to sue or be sued. For example, the court in *Motta*

held that the "Ordo Templi Orientis (OTO), a quasi-Masonic secret fraternity," lacked capacity

to sue because the Court had no way to "determine membership in any discrete group of persons

known as the OTO." 598 F. Supp. at 942, 950. The court explained that "an unincorporated association is more than a name; the concept connotes a well-defined group of legal persons connected by a common purpose or interest. This common purpose or interest affords a court objective criteria by which it may ascertain the membership." *Id.* at 950. Similarly, in *Ellul v. Congregation of Christian Brothers*, No, 09-cv-10590, 2011 WL 1085325 (S.D.N.Y. Mar. 23, 2011), this Court found that there was no legal entity called the Order of the Sisters of Mercy because "'Sisters of Mercy' is a generic term used to describe vowed religious women who serve throughout the world as members of one of the nine autonomous organizations" and it is "not an organization with a structure and purpose to act as an entity." *Id.* at *3. The Court had no way to tell who the "Sisters of Mercy" were that plaintiff intended to sue, so it was not an unincorporated association with the capacity to be sued. Similarly, the Complaint does not clearly allege who, or what, comprises "MakerDAO," other than that "MakerDAO is a decentralized autonomous organization ("DAO") controlled and operating at the Ethereum blockchain contract address 0x9f8f72aa9304c8b593d555f12ef6589cc3a579a2." Compl. ¶ 4.

MakerDAO, as an open-source software project, even more so than the entities named in *Motta* and *Ellul*, is not a "voluntary group of persons" or a "body of persons." It is a **decentralized** autonomous organization operating at an autonomous, self-executing smart contract address with no membership and no officers or directors. Compl. ¶¶ 4, 10. There is no fixed or readily ascertainable group of people with the ability to authorize or cause "MakerDAO" to take any action. Any person, anywhere, may propose a change to the MakerDAO Protocol. *Id.* Ex. 2 at 14. Anyone who happens to control a wallet holding MKR tokens at the time of a vote may vote on that proposal. *Id.* The Complaint does not allege the existence of a single identifiable "member" of MakerDAO. Moreover, MKR tokens "are freely tradable in the U.S. on

the largest cryptocurrency exchanges." Compl. ¶ 8. That means that the list of wallets holding

MKR tokens today almost certainly will not be the same as the list of wallets holding MKR

tokens next Tuesday.[10] And while the wallet addresses that hold MKR tokens at any particular

point in time may be identified via the blockchain, neither MakerDAO nor anyone else knows

the identities of the persons or entities associated with each such wallet address (and it is

generally not possible for such information to be obtained). *Cf. Centro De La Comunidad*

Hispana De Locust Valley v. Town of Oyster Bay, 954 F. Supp. 2d 127, 137 (E.D.N.Y. 2013),

aff'd, 868 F.3d 104 (2d Cir. 2017), *and aff'd*, 705 F. App'x 10 (2d Cir. 2017) (holding

organization to be unincorporated association where it had membership criteria of attending a

meeting and "ke[pt] record of these members, including names and addresses").

Thus, MakerDAO is substantially ***unlike*** clubs, community groups, and committees—

which have readily identifiable membership and leadership—that can sue or be sued in the name

of their unincorporated association. *See, e.g.*, *So. Cal. Darts Ass'n v. Zaffina*, 762 F.3d 921, 924,

927 (9th Cir. 2014) (recreational darts league is an unincorporated association with capacity to

sue); *Conservative Party ex rel. Long v. Walsh*, 818 F. Supp. 2d 670, 672 (S.D.N.Y. 2011) (state

political parties had capacity to sue); *Booth Oil Site Admin. Group v. Safety-Kleen Corp.*, 532 F.

Supp. 2d 477, 496 (W.D.N.Y. 2007) (association of corporations had capacity to sue where

complaint "identif[ied] the individual members of the group"); *Delta Coal Program v. Libman*,

554 F. Supp. 684, 686 n.1 (N.D. Ga. 1982) (group of individuals voluntarily bound together for

purposes of buying interest in coal leases was an unincorporated association with capacity to

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[10] Indeed, publicly available information shows that the MKR token is held by more than 94,000 unique addresses and some number of MKR tokens is transferred between blockchain-based addresses many thousands of times a day. *See* https://etherscan.io/token/0x9f8f72aa9304c8b593d555f12ef6589cc3a579a2

sue); *Assoc. Students of Univ. of Cal. at Riverside v. Kleindienst*, 60 F.R.D. 65, 66–68 (C.D. Cal. 1973) (campus student government association had capacity to sue).

<div align="center">

b.   Plaintiff cannot allege that any persons mutually consented to a common purpose.

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MakerDAO cannot be sued as an unincorporated association because Plaintiff cannot show that any persons mutually consented to be "connected by a common purpose or interest." *Motta*, 598 F. Supp. at 950. No allegation in the Complaint supports the argument that MKR holders have the same objectives.

First, the allegations in the Complaint that MakerDAO is run "for the benefit and profit of the MKR token holders" and that MKR token holders are "owners" who "profit from the activities and operations of MakerDAO and its technology," Compl. ¶¶ 33, 36, are directly rebutted by the MakerDAO Whitepaper attached to the Complaint and therefore need not be taken as true. *L-7 Designs*, 647 F.3d at 422 (allegations in the complaint are taken as true "unless contradicted by more specific allegations or documentary evidence"); *see also Ruiz v. New Avon LLC*, No. 18-cv-9033, 2019 WL 4601847, at *13 n.12 (S.D.N.Y. Sept. 22, 2019) ("If a document relied on in the complaint contradicts allegations in the complaint, the document, not the allegations, control, and the court need not accept the allegations in the complaint as true."). As discussed above, the Whitepaper does not describe *any* mechanism by which profits could be distributed to MKR token owners because there is no such mechanism—MKR tokenholders have the ability to vote on Maker Protocol operations, but do not have any corresponding profit right or interest in MakerDAO. *See generally* Compl. Ex. 2 at 14–15 (describing role of MKR tokenholders).

Second, although the Complaint alleges that "MakerDAO was launched for the principal purposes of issuing a Dai stablecoin currency" (*id.* ¶ 6), that cannot be a "common purpose" of

MKR tokenholders because Dai is issued autonomously via smart contract without the need for further intervention by MKR holders. *See, e.g.*, *id.* Ex. 2 at 9–11 (describing automated Maker Protocol auctions), 24 ("Savings Earned Automatically"); *id.* Ex. 6 at 23–24 (describing automatic Dai creation), 27 (describing the automated burning of Dai via Collateral Module).

Third, MKR tokens are "freely tradable"—and indeed trade hands many thousands of times a day—and thus there is no membership criteria or mutual consent upon acquisition of MKR tokens. *See* page 4 and n.5 above. A person may acquire MKR tokens as a cryptocurrency without any intent to participate in governance of the MakerDAO protocol. Indeed, the Complaint alleges that a small minority of the nearly 100,000 MKR holders participate in governance. *Id.* ¶ 34.

Not only has Plaintiff failed to show that MKR holders have a common purpose, but in fact, the purposes of MKR holders may be adverse, not common. Since any person, anywhere, may propose a change to the MakerDAO protocol, persons may propose changes that are contrary to the interests of other MKR holders. *Id.* Ex. 2 at 14. And unlike the members of an association, who are "customarily subject to discipline for violations or non-compliance with the rules of the association," the Complaint does not allege and the MakerDAO Whitepaper does not identify MKR holders who have consented to abide by any rules. *See Yonce v. Miners Mem'l Hosp. Ass'n, Inc.*, 161 F. Supp. 178, 186 (W.D. Va. 1958). Since token holders may propose contrary votes, may not vote at all, may have different objectives from one another or no objectives at all, and are not subject to any rules, they have no common purpose—and none is alleged in the Complaint.

<div align="center">*   *   *</div>

The recent decision of the U.S. District Court for the Northern District of California in *CFTC v. Ooki DAO*, No. 22-cv-5416, 2022 WL 17822445 (N.D. Cal. Dec. 20, 2022) is not to the contrary. In that case the court exercised its discretion to permit alternative service on Ooki DAO, which the CFTC expressly alleged was "an unincorporated association comprised of Token Holders that … [voted] to use funds from the central DAO Treasury" to pay DAO users including token holders. *Id.* at *2. Ooki DAO did not appear through counsel and thus did not move to dismiss the complaint for lack of capacity. *Id.* at *3. Certain non-parties filed *amicus* motions challenging service on Ooki DAO. *Id.* In affirming its alternative service order—over which the district court has considerable "discretion to determine the sufficiency of service of process," *id.* at *4 (citing *Rio Props., Inc. v. Rio Int'l Interlink*, 284 F.3d 1007, 1014 (9th Cir. 2002))—the court held that "the CFTC ***sufficiently alleged, for the purposes of their service motion***, that Ooki DAO [was] an unincorporated association under [California] law," not federal law. *Id.* at *6 (emphasis added). This portion of the *Ooki DAO* decision is dictum because capacity is not a prerequisite to service. *E.g.*, *D&T Partners*, 2022 WL 1778393, at *2 n.4 ("[A] defendant-entity that legally exists but lacks capacity to be sued *can be properly served* and plead (or waive) its lack of capacity." (emphasis added)). In any event that case concerned the hypothetical application of California law to an entirely different protocol with a different governance structure and has no bearing on this Court's fact-specific inquiry under Rule 17(b).

3.   **The Complaint should be dismissed with prejudice because Plaintiff cannot allege facts to demonstrate that MakerDAO has capacity to be sued.**

Plaintiff will not be able to amend the Complaint to allege that MakerDAO has capacity to be sued under either New York state law or federal law. The Complaint should be dismissed with prejudice.

As set forth at pages 16–18 above, New York state law requires a complaint be dismissed for lack of capacity if a Plaintiff does not name a "president or treasurer" of the defendant. Here, any amendment on that point would be futile: Plaintiff concedes that MakerDAO does not have a president, treasurer, or any other officers. *Farrell*, 567 F. Supp. 3d at 391; Compl. ¶ 10. Further, Plaintiff cannot meet the requirement to plead that each "member" of MakerDAO ratified or authorized the allegedly unlawful actions, because MakerDAO has no members. *Charter Commc'ns*, 166 A.D.3d at 469. Plaintiff cannot sue MakerDAO under New York state law.

Plaintiff also did not and cannot allege facts to show that MakerDAO has capacity to be sued as an unincorporated association under federal law, as there are (i) no members joined by mutual consent and (ii) no common objective. *In re Inclusive Access Course Materials Antitrust Litig.*, 2021 WL 2419528, at *18 (describing an unincorporated association as "a voluntary group of persons, without a charter, formed by mutual consent for the purpose of promoting a common objective."). Plaintiff has alleged no facts—and none exist—to demonstrate that MakerDAO has readily identifiable members, or whether those nonexistent members mutually consented to a common purpose. Indeed, Plaintiff alleges that MakerDAO is a decentralized autonomous organization operating at an autonomous, self-executing smart contract address with no membership and no officers or directors (Compl. ¶¶ 4, 10). And, as set forth at 22–23 above, any contention that MakerDAO is run for the common interest of benefitting MKR holders is directly rebutted by the MakerDAO whitepaper incorporated by reference into the Complaint and by the fact that the Maker Protocol is self-operating and autonomous. It is not possible for MKR token holders to have a common interest, as MKR tokens are traded thousands of times a day, and there is no membership criteria or mutual consent upon acquisition of MKR tokens.

Plaintiff should not be permitted to amend its Complaint because amendment would be futile; dismissal with prejudice is warranted. Plaintiff cannot show that MakerDAO has any ascertainable members or that the purported "members" of MakerDAO are working together toward a specific common purpose. It is a decentralized and autonomous protocol operating at a smart contract address on the Ethereum blockchain. It is not an unincorporated association and cannot be sued.

B.   Plaintiff fails to state a claim of patent infringement.

As explained above at pages 11–13, Plaintiff's patent infringement claim is based on claims 1 and 7 of the '797 patent and the operation of MakerDAO's Oracles and Oracle Security Modules (OSMs) in handling price feed information for the collateral related to Dai tokens. Compl. ¶¶ 90, 98, Ex. 11. Claim 1 is directed to a method and sets forth a series of steps that comprise the claimed method. Claim 7 is directed to a system comprising a memory device and a processor configured to carry out a series of steps. The Complaint fails to state a claim for infringement because it fails to allege activity tied to the territorial boundaries of the United States that could give rise to infringement of a U.S. patent. To the contrary, the Complaint asserts that MakerDAO is a global system that involves extraterritorial activity that cannot support a plausible claim for infringement of the '797 patent.

Plaintiff's infringement claim refers to all possible acts of infringement under 35 U.S.C. § 271—that is, making, using, selling, offering for sale, and importing. However, the references to making, selling, offering for sale, and importing are conclusory statements of possible elements of infringement, unsupported by any factual averments. *Id.* ¶¶ 89–99, Ex. 11. There are no factual averments that MakerDAO made, sold, or offered for sale MakerDAO or its Oracles and OSMs in the United States or imported MakerDAO or its Oracles and OSMs into the United

States. *Id.* Accordingly, MakerDAO addresses here alleged infringement based on "use" of

MakerDAO's Oracles and OSMs in the United States.

1. Direct infringement based on "use" in the United States.

A patent is infringed when a person "without authority makes, uses, offers to sell, or sells

any patented invention, ***within the United States or imports into the United States*** any patented

invention during the term of the patent therefor…." 35 U.S.C. § 271(a) (emphasis added). "The

territorial reach of section 271 is limited. Section 271(a) is only actionable against patent

infringement that ***occurs within the United States*.**" *NTP, Inc. v. Research In Motion, Ltd.*, 418

F.3d 1282, 1313 (Fed. Cir. 2005) (emphasis added). Thus, to plead a viable claim of direct

infringement, Plaintiff must plead sufficient facts that MakerDAO committed allegedly

infringing acts ***in the United States***, as required by 35 U.S.C. § 271(a). *Id.*

A complaint that sufficiently pleads direct infringement "require[s] well-pleaded facts,

not legal conclusions, that 'plausibly give rise to an entitlement to relief.'" *Golden v. Intel Corp.*,

No. 2023-1257, 2023 WL 3262948, at *2 (Fed. Cir. May 5, 2023) (citations omitted).

An infringing "use" must occur within the United States. "The statute makes it clear that

it is not an infringement to make or use a patented product outside of the United States."

Deepsouth Packing Co v. Laitram Corp., 406 U.S. 518, 527 (1972).

The Federal Circuit has addressed infringement in situations where accused activities or

products occur or exist partially in the United States and partially outside of the United States.

NTP, 418 F.3d at 1313–22. The accused activities involved use of the BlackBerry system by a

user in the U.S. to send email to a recipient in the U.S. *Id.* at 1289–90. The BlackBerry system

operated such that email messages were routed through a "relay" component in Canada. *Id.* The

court considered potential infringement by use of the BlackBerry system in view of the accused

activities including the routing of emails through the BlackBerry relay in Canada. *Id.* at 1313–18.

The defendant, Research In Motion ("RIM"), argued that the BlackBerry system did not infringe because some of the accused activities occurred at the relay in Canada. For situations involving extraterritorial activity, the Federal Circuit held that infringement of method claims should be assessed differently from infringement of system claims. *Id.* at 1316–18.

a.   Method claim analysis.

The Federal Circuit in *NTP* articulated a simple rule for determining "use within the United States" for method patent claims: "[A] process cannot be used 'within' the United States as required by section 271(a) unless each of the steps is performed within this country." *Id.* at 1318. The court held that the accused "use" of the BlackBerry system did not infringe the asserted method claims because the routing of email through the BlackBerry relay in Canada was part of the activities that were alleged to infringe the method claims. *Id.* at 1317–18. Thus, to establish direct infringement of a method claim under Section 271(a), **all** steps of the claimed method occur in the United States.

b.   System and apparatus claim analysis.

The court in *NTP* applied a different analysis and reached a different conclusion for the system patent claims. The court held, "The use of a claimed system under section 271(a) is the place at which the system as a whole is put into service, i.e., the place where control of the system is exercised and beneficial use of the system obtained." *Id.* at 1317 (citing *Decca Ltd. v. U.S.*, 210 Ct. Cl. 546, 544 F.2d 1070 (Ct. Cl. 1976)). The court stated, "RIM's customers located within the United States controlled the transmission of the originated information and also benefited from such an exchange of information. Thus, the location of the Relay in Canada did not, as a matter of law, preclude infringement of the asserted system claims in this case." *Id.* The court affirmed the judgment of infringement of the system claims based on "use" of the BlackBerry system, stating, "When RIM's United States customers send and receive messages

by manipulating the handheld devices in their possession in the United States, the location of the use of the communication system as a whole occurs in the United States." *Id.*

In contrast, when the control point of an accused system is outside of the United States, infringement by use under § 271(a) may not be established. For example, *Hughes Aircraft Co. v. U.S.*, 29 Fed. Cl. 197, 203 (Fed. Cl. 1993), involved patent claims for an apparatus for controlling the attitude of the spin axis of a spin-stabilized spacecraft. The spacecraft was built in the United Kingdom, launched off the coast of Kenya, and controlled from the United Kingdom after launch. *Id.* at 241–42. The only connection to the United States was that a NASA communications system located around the world but headquartered in Maryland provided a data communications link. *Id.* at 242. The court found no infringement because the "control point" was in England and not in the United States, and the provision of the communications link from Maryland was insufficient to give rise to liability for use within the United States. *Id.* at 242–43 (citing *Decca Ltd.*, 210 Ct. Cl. 546, 544 F.2d 1070).

In *Freedom Wireless, Inc. v. Boston Commc'ns Group, Inc.*, 198 F. Supp. 2d 11 (D. Mass. 2002), defendant Rogers Wireless was a Canadian prepaid wireless telephone service provider. The plaintiff alleged infringement of a patent that claimed a system for providing prepaid wireless services. *Id.* at 14. Rogers operated prepaid wireless service only in Canada to Canadian customers, but Rogers contracted with a U.S.-based company to provide billing services to its Canadian customers. *Id.* at 12–14. The court granted summary judgment of noninfringement because the accused system operated almost entirely outside the United States, except for the U.S.-based billing system. *Id.* at 17–18. The court found no infringing activity in the U.S. because the billing computer "was not the system's control point" and "did not direct, control, or monitor Rogers' prepaid wireless system in any way." *Id.*

In short, to show that a system is "used within the United States," the Federal Circuit requires a showing that the system as a whole is put into service in the United States such that control and beneficial use of the system occur in the United States.

2.   Direct infringement is a predicate for indirect infringement.

The complaint alleges that MakerDAO indirectly infringes claims 1 and 7 of the '797 patent by inducement of infringement and contributory infringement based on the purported sale of Exemplary Defendant Products to customers. Compl. ¶¶ 96, 97. "Liability for either active inducement of infringement or for contributory infringement is dependent upon the existence of direct infringement." *Joy Techs., Inc. v. Flakt, Inc.*, 6 F.3d 770, 774 (Fed. Cir. 1993) (citing *Deepsouth*, 406 U.S. 518, 526).

3.   The Complaint fails to plausibly allege direct infringement of asserted method claim 1.

The Complaint fails to state a claim of infringement of method claim 1. Plaintiff admits that "MakerDAO operates, ***by design, without a U.S. address or location***." Compl. at ¶ 6 (emphasis added). Rather than averring U.S.-based activities that could potentially give rise to infringement of a U.S. patent, the Complaint and its exhibits state that MakerDAO operates globally: they refer to "the global Maker community" (*id.* Ex. 2 at 3) and state, "The Maker Protocol is managed by people around the world who hold its governance token, MKR" (*id.* at 6); "The Dai stablecoin is used around the world for all types of transactional purposes" (*id.* at 7); "As the world's first unbiased stablecoin, Dai allows anyone to achieve financial independence, regardless of their location or circumstances" (*id.* at 23); "The Dai stablecoin is used around the world as a medium of exchange because people have confidence in its value and efficiency" (*id.* at 24); "Maker is unlocking the power of decentralized finance for everyone by creating an inclusive platform for economic empowerment; enabling everyone with equal access

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to the global financial marketplace." Compl. Ex. 4 at 2. Similarly, the information cited by the

Complaint states that the Ethereum blockchain on which MakerDAO operates is global: The

MakerDAO Whitepaper cites the ethereum.org, which states, "Ethereum is a network of

computers all over the world that follow a set of rules called the Ethereum protocol"

(https://ethereum.org/en/what-is-ethereum/; *id.* Ex. 2 at 3 n.2, citing https://ethereum.org); "The

Ethereum Virtual Machine is the global virtual computer whose state every participant on the

Ethereum network stores and agrees on." Compl. Ex. 11 at 13, 22 (Intro to Ethereum webpage).

Claim 1 of the '797 patent recites "at least one electronic parallel storage of a differences

layer linked to a distributed computer ledger (DCL)." *Id.* Ex. 1 at column 18. The Complaint

purports to show infringement by mapping the "DCL" to the Ethereum blockchain on which

MakerDAO operates. *Id.* ¶ 31, Ex. 11 at 2, 17. The Complaint does not allege any facts to the

effect that the Ethereum blockchain on which MakerDAO operates exists in the United States.

To the contrary, the Complaint alleges that MakerDAO is a global system that operates

worldwide, and the information cited by the Complaint shows that the Ethereum blockchain

operates worldwide. *See, e.g.*, Compl. ¶ 4; Ex. 2 at 3, 6–7, 23; Ex. 11 at 13, 22 (citation to Intro

to Ethereum webpage). Appendix 2 is a highlighted version of Plaintiff's claim charts that are

Exhibit 11 of the Complaint. Blue highlighting shows references to the DCL and related

mapping to the Ethereum blockchain.

The Complaint further purports to show infringement by mapping the "electronic parallel

storage of a differences layer linked to [the DCL]" to MakerDAO's Oracles and OSMs. Compl.

Ex. 11 at 2–4, 15–18. Here again, the Complaint does not allege any facts to the effect that the

Oracles and OSMs exist in the United States. Rather, the Complaint alleges that MakerDAO is a

global system that operates worldwide, and the patent claims require that the electronic parallel

storage of a differences layer (which is mapped to the Oracles and OSMs) is linked to the DCL

(which is mapped to the global Ethereum blockchain). Appendix 2 has passages highlighted in

pink that show references to the "parallel storage differences layer" and related mapping to the

Oracles and OSMs.

Therefore, the Complaint does not and cannot allege that all steps of claim 1 occur in the

United States, and it fails to state a claim of infringement of this method claim. *NTP*, 418 F.3d at

1318.

4. Plaintiff fails to plausibly allege direct infringement of asserted system claim 7.

The Complaint also fails to state a claim of infringement of system claim 7. As stated

above, Plaintiff admits that "MakerDAO operates, ***by design, without a U.S. address or***

location" (Compl. ¶ 6 (emphasis added)), and the Complaint and its exhibits state that

MakerDAO and the Ethereum blockchain on which it operates is global, rather than in the United

States (see above). The Complaint also alleges that "MakerDAO operates autonomously." *Id.*

¶ 33.

The Complaint is deficient on its face in alleging infringement of system claim 7 because

it does not allege that control and beneficial use of the accused aspects of the MakerDAO system

exist in the United States. But beyond that fatal deficiency, the Complaint cannot allege that

control and beneficial use occur in the United States because of the specific limitations of

asserted claim 7 and the global and autonomous nature of MakerDAO. The Complaint alleges

that "MakerDAO provides methods and systems that use a processing/storage system to link

published data to a ***distributed computerized ledger, specifically a blockchain***." *Id.* at ¶ 31

(emphasis added). Here again, claim 7 of the '797 patent recites "at least one electronic parallel

storage of a differences layer linked to a distributed computer ledger (DCL)." *Id.* Ex. 1 at

column 19. The Complaint purports to show infringement by mapping the "DCL" of claim 7 to the Ethereum blockchain on which MakerDAO operates, and the Ethereum blockchain operates worldwide rather than in the United States. *Id.* ¶ 31, Ex. 11 at 2, 17. The DCL is located around the world and involves various decentralized actors, such as MKR holders, risk teams, developers, oracles, keepers, DAI holders, and vault owners. *Id.* Ex. 6 at 10 (System Interaction Diagram) and 33 (Oracle Module diagram); *see also* Ex. 2 at 2 (The MakerDAO "project is managed by people around the world who hold its governance token, MKR."). "The oracle system for the Maker Protocol uses ***decentralized reporting*** to defend against fraudulent price data." *Id.* Ex. 11 at 9 (claim chart) (quoting Ex. 3 at 2) (emphasis added).

Furthermore, the Complaint purports to show infringement by mapping the "electronic parallel storage of a differences layer linked to [the DCL]" of claim 7 to MakerDAO's Oracles and OSMs. *Id.* Ex. 11 at 15–18. The purpose of the OSMs is "to defend against fraudulent price data." Compl. Ex. 3 at 2. The accused OSM system is "a decentralized Oracle infrastructure that consists of a broad set of individual nodes called Oracle Feeds." *Id.* Ex. 2 at 12. The Complaint does not allege who or what controls the Oracles and OSMs, much less that someone or something in the United States does so. To the contrary, the distributed nature of MakerDAO is such that there is no identifiable control point of the Oracles and OSMs.

The Complaint alleges and its exhibits state that the Oracles and OSMs autonomously receive price feed information about the collateral in MakerDAO Vaults from off-chain sources such as Uniswap. *Id.* at ¶¶ 81–88, Exs. 9, 10. The information cited by the Complaint state that many functions related to the Oracles and OSMs (and the Maker Protocol generally) are automated, without any identifiable control. For example, after the Oracles and OSMs provide price feed updates, if the prices of the collateral are below a certain target price, certain Dai

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holder "vaults" may be automatically liquidated, and MKR tokens may be automatically minted

to recapitalize the Maker Protocol. *See, e.g.*, *id.* Ex. 2 at 9 ("[A]ny Maker Vault deemed too risky

(according to parameters established by Maker Governance) is liquidated through ***automated***

Maker Protocol auctions.") (emphasis added); *id.* at 10 ("Once the Surplus Auction has ended,

the Maker Protocol ***autonomously*** destroys the MKR collected, thereby reducing the total MKR

supply.") (emphasis added); *id.* at 11 ("In addition to its smart contract infrastructure, the Maker

Protocol involves groups of external actors to maintain operations: Keepers, Oracles, and Global

Settlers (Emergency Oracles), and Maker community members .... A Keeper is an independent

(usually ***automated***) actor…") (emphasis added); Compl. Ex. 6 at 9 ("A Vault is ***automatically***

liquidated if the collateral value (in USD) falls too low.") (emphasis added); *id.* at 36 ("MKR can

be ***autonomously*** minted by the Flopper auction house and sold for DAI, which is used to

recapitalize the Maker Protocol in times of insolvency.") (emphasis added).

Furthermore, the Complaint fails to allege that beneficial use of the Oracles and OSMs

occurs in the United States. As discussed above at pages 8–11, the OSMs help maintain the

integrity of price information of the collateral associated with Dai by preventing fraudulent price

data. Compl. at ¶ 45 (quoting Ex. 2 at 12). The Complaint quotes from a webpage titled,

"Security—How the Maker Protocol handles the security of oracles": "The oracle system for the

Maker Protocol uses decentralized reporting to defend against fraudulent price data." *Id.* ¶ 54

(quoting Ex. 3 at 2). Therefore, the use of the Oracles and OSMs is for the benefit of all users of

MakerDAO, not any user or component of MakerDAO.

The Complaint does not and cannot allege that control and beneficial use of the Oracles

and OSMs exists in the United States. Therefore, the Complaint fails to state a claim of

infringement of system claim 7. *NTP*, 418 F.3d at 1317; *Hughes Aircraft*, 29 Fed. Cl. at 203;

Freedom Wireless, 198 F.Supp.2d at 17–18.

5. The Complaint fails to plausibly allege indirect infringement.

Direct infringement is a necessary predicate for indirect infringement. *Joy Techs.*, 6 F.3d

at 774 (citing *Deepsouth*, 406 U.S. 518, 526). Because the Complaint fails to state a claim of

direct infringement of asserted claims 1 and 7 of the '797 patent, it necessarily fails to state a

claim of indirect infringement by inducement or contributory infringement.

6. This Court should dismiss Plaintiff's infringement claim with prejudice.

As alleged in the Complaint, MakerDAO's architecture is inherently worldwide and

distributed via a decentralized blockchain network. The operation of MakerDAO and its Oracles

and OSMs necessarily implicate activities outside the United States, without control of the

system as a whole or beneficial use existing in the United States. As such, Plaintiff's

infringement allegations are legally implausible and cannot state a viable claim of infringement

of the asserted '797 patent. Under the circumstances of this case, Plaintiff should not be

permitted to amend its Complaint because amendment would be futile, and dismissal *with*

prejudice is warranted here. *See, e.g.*, *Ottah,* 230 F.Supp.3d at 196 (dismissing complaint with

prejudice because the infringement claim was "legally implausible" due to "the language of the

patent").

CONCLUSION

For the reasons stated above, defendant MakerDAO respectfully requests that the Court grant MakerDAO's motion to dismiss with prejudice.

Dated: New York, New York.
         November 6, 2023

Respectfully submitted,

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APPENDIX 1

Claim 1 (Exhibit 1, column 18):

1. A computer based method comprising:

creating at least one electronic parallel storage of a differences layer linked to a distributed computer ledger (DCL); the DCL contains an electronic transaction record by a time-sequenced value or a time-sequenced string;

accessing and storing a value through the at least one electronic parallel storage of the differences layer, the value from a group comprising of at least one time-sequenced electronically published data stream and at least one descriptive differential, wherein at least one differences processing engine running on a specialized computer system creates and stores parameters from a group comprised of a measurement differences and a descriptive differences;

storing the DCL containing an electronic transactions record on at least one of a distributed network of connected independent computers or a decentralized network of computers wherein the electronic transaction record is time sequenced, and a writing or an appending of the electronic transaction records is performed on the distributed network of connected independent computers or the decentralized network of computers;

storing the at least one electronic parallel storage of the differences layer on at least one of a centralized storage device controlled by the specialized computer system or a decentralized storage device controlled by the specialized computer system for increasing functionality and utility of the DCL, reducing data storage requirements, eliminating transmission of redundant data, and improving data security;

linking the electronic transaction record in the DCL to records of the at least one electronic parallel storage of the differences layer utilizing at least one time sequenced value, string, code, or key; and

imputing at least one measured differential with a descriptive identifier or at least one descriptive identifier to the electronic transaction record of the DCL through data storage and processing on the at least one electronic parallel storage of the differences layer.

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Claim 7 (Exhibit 1, column 19):

7. A system comprising:

a system having a memory device, the memory device further including a Random Access
    Memory (RAM);

a processor connected to the memory device, the processor is configured to:

    create at least one electronic parallel storage of a differences layer linked to a distributed
        computer ledger (DCL), both the electronic parallel storage of the differences layer and
        the DCL containing a respective electronic transaction record, a time-sequenced value,
        or a time-sequenced string;

    access a value from a group comprising of at least one time-sequenced electronically
        published data stream and at least one descriptive differential;

    store the values from a group comprising of at least one time-sequenced electronically
        published data stream and at least one descriptive differential on the at least one
        electronic parallel storage of the differences layer;

    align and link a stored value record of the at least one electronic parallel storage of the
        differences layer to the electronic transaction record of the DCL utilizing at least one
        time sequenced value, string, code, or key; and

    impute at least one measured differential with a descriptive identifier or at least one
        descriptive identifier to the electronic transaction record of the DCL.

APPENDIX 2

MAKERDAO

MAKERDAO – ORACLE SECURITY MODULE

Claim	'797 Claims	Use
Claim 1, lines 6-10	A computer based method comprising: creating at least one electronic parallel storage of a differences layer linked to a distributed computer ledger (DCL); the DCL contains an electronic transaction record by a time-sequenced value or a time-sequenced string; NOTES: 1. Computer based method (A0) 2. PSDL (A1) 3. PSDL (A1) linked (A2) to DCL (A2,A3) 4. DCL (A2,A3) containing transaction records (A4), by 5. time sequenced value or string (A5) NARRATIVE: At or around September 2019, MakerDAO built, adopted, and implemented the MakerDAO Oracles Security Modules (the "OSM"). The build and integration of the OSM is reported to be in response to improving the functionality and security of the MakerDAO system, software, and processes (see "Introducing Oracles V2 and DeFi Feeds"). Prior to the OSM build-out, the December 2017 MakerDAO whitepaper (The Dai Stablecoin System Whitepaper, December 2017) writes that market prices will be derived from sources,but provides for no off-chain linked storage or processing. "As of October 7th, 2019, the Oracle Team was mandated, granting the Interim Oracle Team the responsibility of being the intermediary between the Feeds and governance. In the coming months, the process of becoming a Feed will become more clear." – Security – How the Maker Protocol handles the security of oracles "The oracle system for the Maker Protocol uses decentralized reporting to defend against fraudulent price	OPERATION NOTES: - MakerDAO tokens (MKR) are an on-chain cryptocurrency operating on the Ethereum blockchain. - The collateral (cryptocurrencies) sent to MakerDAO are on-chain digital money residing on a blockchain. - The MakerDAO Oracle Security Modules, store values and medians of values off-chain. - The MakerDAO Oracle Security Modules are storage and time-sequencing for market price values propagated from the Oracles. - The MakerDAO Oracle Security Module holds price values for a specified delay period before they are imputed on the blockchain by the system. COMPUTER BASED METHOD – **(A0)** "MakerDAO is an open-source project on the Ethereum blockchain and a Decentralized Autonomous Organization…" – Whitepaper "Vat - The single source of truth for the Maker Protocol. It contains the accounting system of the core Vault, Internal Dai balances, and collateral state. The Vat has no external dependencies and maintains the central "Accounting Invariants" of the Maker Protocol. It houses the public interface for Vault management, allowing urn (Vault) owners to adjust their Vault state balances. It also contains the public interface for Vault fungibility, allowing urn (Vault) owners to transfer, split, and merge Vaults. Excluding these interfaces, the Vat is accessed through trusted smart contract modules." - Maker Protocol 101 CREATING PARALLEL STORAGE OF A DIFFERENCES LAYER – **(A1)** "The oracle system for the Maker Protocol uses decentralized reporting to defend against fraudulent price data." – Security – How the Maker Protocol handles the security of oracles - MakerDAO Documentation

Claim	'797 Claims	Use
	data." – Security – How the Maker Protocol handles the security of oracles - MakerDAO Documentation	"Every time a new list of prices is received, the median of these is computed and used to update the stored value." – Median (emphasis added) "Oracle Security Modules (OSMs) delay the publishing of new reference prices for a predefined set of time. This parameter is called the Oracle Security Module Delay and was set to be one hour at the launch of MCD." – Security – How the Maker Protocol handles the security of oracles "The Oracle Security Module(OSM) safeguards the process by delaying price-feed data for one hour." – Security – How the Maker Protocol handles the security of oracles "Oracles use the median of the reported prices for each asset as the reference price. Using a median instead of an average makes it harder to manipulate the reference price since control over half of the data providers is needed in order for a fraudulent price to be pushed through." – Security – How the Maker Protocol handles the security of oracles "At the launch of Multi-Collateral Dai, oracles received data from a total of 20 Feeds which consisted of 15 individuals and five public organizations." – Security – How the Maker Protocol handles the security of oracles DCL IS A LINKED TO THE LEDGER– (**A2**) "MakerDAO is an open-source project on the Ethereum blockchain and a Decentralized Autonomous Organization…" – Whitepaper "Dai is a decentralized, unbiased, collateral-backed cryptocurrency soft-pegged to the US Dollar." – Whitepaper DCL IS DISTRIBUTED – (**A3**) "The Maker Protocol is the platform through which anyone, anywhere can generate the Dai stablecoin against crypto collateral assets." – MakerDAO Documentation

Claim	'797 Claims	Use
		MakerDAO is a decentralized organization dedicated to bringing stability to the cryptocurrency economy. – MakerDAO Documentation
		"Maker Governance is the community organized and operated process of managing the various aspects of the Maker Protocol. Dai is a decentralized, unbiased, collateral-backed cryptocurrency soft-pegged to the US Dollar" – Whitepaper
		<u>DCL</u> ELECTRONIC TRANSACTION RECORD – **(A4)**
		"Dai is a decentralized, unbiased, collateral-backed cryptocurrency soft-pegged to the US Dollar." – Whitepaper
		"The transactionManager service is used to track a transaction's status as it propagates through the blockchain." – Transaction Manager
		"Methods in Dai.js that start transactions are asynchronous, so they return promises. These promises can be passed as arguments to the transaction manager to set up callbacks when transactions change their status to pending, mined, confirmed or error." – Transaction Manager
		<u>DCL</u> TIME-SEQUENCED – **(A5)**
		"This links blocks together (in a chain) because hashes are cryptographically derived from the block data. This prevents fraud, because one change in any block in history would invalidate all the following blocks as all subsequent hashes would change and everyone running the blockchain would notice." – Blocks
		"The sequence of all blocks that have been committed to the Ethereum network in the history of the network. So-named because each block contains a reference to the previous block, which helps us maintain an ordering over all blocks (and thus over the precise history)." – Intro to Ethereum
		"Blocks are batches of transactions with a hash of the previous block in the chain." – Blocks
Claim 1, lines 11-19	accessing and storing a value through the at least one electronic parallel storage of the differences layer, the value	<u>ACCESS & STORING VALUE THROUGH PSDL</u> – **(B1)**

Claim	'797 Claims	Use

	from a group comprising of at least one time-sequenced electronically published data stream and at least one descriptive differential, wherein at least one differences processing engine running on a specialized computer system creates and stores parameters from a group comprised of a measurement differences and a descriptive differences;
	
	NOTES:
	
	  1. access and store a value (B1), through
	  2. PSDL (A1, B1)
	  3. value is time sequenced stream OR descriptor (B1,B2)
	  4. compute and store differences (A1, B1)
	
	NARRATIVE:
	
	MakerDAO includes centralized (or decentralized) storage and centralized (or decentralized) processing which accesses off-chain data streams, feeds, and differentials for the purposes including, writing and storing these differentials on-chain and off-chain, and having these values and differentials impute or trigger changes to the state of the Ethereum blockchain.
		"There are multiple organizations and individuals who report price-data, they are called Feeds." – Security – How the Maker Protocol handles the security of oracles - MakerDAO Documentation
		
		A Medianizer is a type of smart-contract in the Maker Protocol's Oracle system that collects price-data from Feeds and calculates a reference price by calculating a median. – Security – How the Maker Protocol handles the security of oracles
		
		"Every time a new list of prices is received, the median of these is computed and used to update the stored value." – Median (emphasis added)
		
		"The published prices are pooled together into a canonical price in a smart contract that can then be used by a decentralized application (dapp)." - Introducing Oracles
		
		"At the launch of Multi-Collateral Dai, oracles received data from a total of 20 Feeds which consisted of 15 individuals and five public organizations." – Security – How the Maker Protocol handles the security of oracles
		
		"All new Feeds go through MakerDAO's governance in order to be added in. There is currently no formal way for Feeds to be added to the Maker Protocol." – Security – How the Maker Protocol handles the security of oracles
		
		"There are two types of Feeds; Dark Feeds run by anonymous individuals, and Light Feeds run by public organizations. Individuals consist of people internal to Maker, influential people in the greater crypto community, as well as some community members." – Security – How the Maker Protocol handles the security of oracles
		
		"Vat - The single source of truth for the Maker Protocol. It contains the accounting system of the core Vault, Internal Dai balances, and collateral state. The Vat has no external dependencies and maintains the central "Accounting Invariants" of the Maker Protocol. It houses the public interface for Vault management, allowing urn (Vault) owners to

Claim	'797 Claims	Use
		adjust their Vault state balances. It also contains the public interface for Vault fungibility, allowing urn (Vault) owners to transfer, split, and merge Vaults. Excluding these interfaces, the Vat is accessed through trusted smart contract modules." - Maker Protocol 101 "Prices are retrieved from chain every second. The average of last 60 prices are reported to subscribed clients." – uniswap-price-feed "Oracles, collectively, are a mechanism to broadcast data from outside of the blockchain onto the blockchain." – Introducing Oracles TIME SEQUENCED – **(B2)** "The primary and only entity this service operates on is feed. Each feed is effectively a stream of timestamped records. Timestamps never go back and it is always guaranteed that new records will be added 'after' the existing ones. This simplification makes feed streams consumption much easier for clients." – uniswap-price-feed "Each record is represented throughout the service as a JSON structure with two fields: timestamp and data . The first one is a UNIX epoch timestamp represented as a number (either integer or floating-point). The latter can be basically anything." – uniswap-price-feed "The primary and only entity this service operates on is feed. Each feed is effectively a stream of timestamped records. Timestamps never go back and it is always guaranteed that new records will be added 'after' the existing ones. This simplification makes feed streams consumption much easier for clients." – uniswap-price-feed
Claim 1, lines 20-28	storing the DCL containing an electronic transactions record on at least one of a distributed network of connected independent computers or a decentralized network of computers wherein the electronic transaction record is time sequenced, and a writing or an appending of the electronic transaction records is performed on the distributed network of connected independent computers or the decentralized network of computers; NOTES:	STORING DCL DECENTALIZED OR DISTRIBUTED – **(C1)** "With the new version of the Maker Protocol, Multi Collateral Dai (MCD), being released and live on the main Ethereum network" - MakerDAO Documentation "The Maker Protocol is the platform through which anyone, anywhere can generate the Dai stablecoin against crypto collateral assets." – MakerDAO Documentation

Claim	'797 Claims	Use
	1. store DCL on distributed or decentralized (C1), 2. transaction records (A4, A1) are time sequenced (A5, B2), 3. writing or appending is performed on distributed or decentralized (C1, C2)	"MakerDAO is a decentralized organization dedicated to bringing stability to the cryptocurrency economy." – MakerDAO Documentation STORED DCL TRANSACTION RECORDS, WRITING/APPENDING – (C2) "The sequence of all blocks that have been committed to the Ethereum network in the history of the network. So-named because each block contains a reference to the previous block, which helps us maintain an ordering over all blocks (and thus over the precise history)." - Intro to Ethereum "Blocks are batches of transactions with a hash of the previous block in the chain. This links blocks together (in a chain) because hashes are cryptographically derived from the block data. This prevents fraud, because one change in any block in history would invalidate all the following blocks as all subsequent hashes would change and everyone running the blockchain would notice" – Blocks "Vat - The single source of truth for the Maker Protocol. It contains the accounting system of the core Vault, Internal Dai balances, and collateral state. The Vat has no external dependencies and maintains the central "Accounting Invariants" of the Maker Protocol. It houses the public interface for Vault management, allowing urn (Vault) owners to adjust their Vault state balances. It also contains the public interface for Vault fungibility, allowing urn (Vault) owners to transfer, split, and merge Vaults. Excluding these interfaces, the Vat is accessed through trusted smart contract modules." - Maker Protocol 101
Claim 1, lines 29-36	storing the at least one electronic parallel storage of the differences layer on at least one of a centralized storage device controlled by the specialized computer system or a decentralized storage device controlled by the specialized computer system for increasing functionality and utility of the DCL, reducing data storage requirements, eliminating transmission of redundant data, and improving data security; NOTES:	STORING THROUGH PSDL – (D1) see A1, also "Every time a new list of prices is received, the median of these is computed and used to update the stored value." – Median (emphasis added)

Claim	'797 Claims	Use
	1. storing PSDL (A1, B1) on centralized or decentralized (A1) 2. increasing functionality, utility of DCL (D2) 3. reducing data storage, redundant transmission (D3) 4. increase data security (D3)	"...the price (val) is intentionally kept not public because the intention is to only read it from the two functions read and peek , which are whitelisted. This means that you need to be authorized." - Median INCREASED FUNCTIONALITY AND UTILITY – **(D2)** "Component Spotter - The Maker Protocol requires real time information about the market price of the assets used as collateral in Vaults. Ultimately, this market price determines the amount of Dai that can be minted, as well as the grab condition for Vault liquidations. The oracle module handles how markets prices are recorded on the blockchain." - Maker Protocol 101 (emphasis added) "Oracle Security Modules (OSMs) delay the publishing of new reference prices for a predefined set of time. This parameter is called the Oracle Security Module Delay and was set to be one hour at the launch of MCD." – Security – How the Maker Protocol handles the security of oracles "Oracles use the median of the reported prices for each asset as the reference price. Using a median instead of an average makes it harder to manipulate the reference price since control over half of the data providers is needed in order for a fraudulent price to be pushed through." – Security – How the Maker Protocol handles the security of oracles "Vat - The single source of truth for the Maker Protocol. It contains the accounting system of the core Vault, Internal Dai balances, and collateral state. The Vat has no external dependencies and maintains the central "Accounting Invariants" of the Maker Protocol." – Maker Protocol 101 "The OSM (named via acronym from "Oracle Security Module") ensures that new price values propagated from the Oracles are not taken up by the system until a specified delay has passed." – Oracle Security Module The central mechanism of the OSM is to periodically feed a delayed price into the MCD system for a particular collateral type. For this to work properly, an external actor must regularly call the poke() method

Claim	'797 Claims	Use
		to update the current price and read the next price. – Oracle Security Module (emphasis added) DCL –REDUCED STORAGE, REDUNDANT DATA, DATA SECURITY – **(D3)** "To protect the system from an attacker attempting to gain control of a majority of the Oracles, the Maker Protocol receives price inputs through the Oracle Security Module (OSM), not from the Oracles directly. The OSM, which is a layer of defense between the Oracles and the Protocol, delays a price for one hour, allowing Emergency Oracles or a Maker Governance vote to freeze an Oracle if it is compromised." – Whitepaper "The Oracle Security Module (OSM) safeguards the process by delaying price-feed data for one hour." – Security – How the Maker Protocol handles the security of oracles (emphasis added) "The oracle system for the Maker Protocol uses decentralized reporting to defend against fraudulent price data." – Security – How the Maker Protocol handles the security of oracles – MakerDAO (emphasis added) "This allows MKR token holders and other stakeholders the time to react to bugs or attacks on the Oracles. An OSM is active on each Oracle in the Maker Protocol." – Security – How the Maker Protocol handles the security of oracles "A Medianizer is a type of smart-contract in the Maker Protocol's Oracle system that collects price-data from Feeds and calculates a reference price by calculating a median." – Security – How the Maker Protocol handles the security of oracles "The Medianizer maintains a white-list of Feeds that can be controlled by MakerDAO governance. Every time a new set of price updates is received, the reference price is recalculated and queued into the Oracle Security Module which publishes the price after a delay period." – Security – How the Maker Protocol handles the security of oracles

Claim	'797 Claims	Use
		"Any time the collateral value of a Vault gets closer to its debt, it becomes "risky-er". The system liquidates Vaults that get too risky." – Maker Protocol 101 "Prices are retrieved from chain every second. The average of last 60 prices are reported to subscribed clients." – uniswap-price-feed "There are two types of Feeds; Dark Feeds run by anonymous individuals, and Light Feeds run by public organizations. Individuals consist of people internal to Maker, influential people in the greater crypto community, as well as some community members." – Security – How the Maker Protocol handles the security of oracles "Oracles use the median of the reported prices for each asset as the reference price. Using a median instead of an average makes it harder to manipulate the reference price since control over half of the data providers is needed in order for a fraudulent price to be pushed through." – Security – How the Maker Protocol handles the security of oracles "This links blocks together (in a chain) because hashes are cryptographically derived from the block data. This prevents fraud, because one change in any block in history would invalidate all the following blocks as all subsequent hashes would change and everyone running the blockchain would notice." - Blocks "Vat - The single source of truth for the Maker Protocol. It contains the accounting system of the core Vault, Internal Dai balances, and collateral state. The Vat has no external dependencies and maintains the central "Accounting Invariants" of the Maker Protocol." – Maker Protocol 101
Claim 1, lines 37-40	linking the electronic transaction record in the DCL to records of the at least one electronic parallel storage of the differences layer utilizing at least one time sequenced value, string, code, or key; and NOTES:	LINKING – (E1) "Component Spotter - The Maker Protocol requires real time information about the market price of the assets used as collateral in Vaults. Ultimately, this market price determines the amount of Dai that can be minted, as well as the grab condition for Vault liquidations. The

Claim	'797 Claims	Use
	1. link (E1) DCL transaction records (A2, A4) to PSDL records (A1, B1, B2), 2. utilizing time seq. value, string, code, or key (E1, A5, C2)	oracle module handles how markets prices are recorded on the blockchain." - Maker Protocol 101 "An oracle module is deployed for each collateral type. It feeds price data for a corresponding collateral type to the Vat." - Maker Protocol 101 "Each record is represented throughout the service as a JSON structure with two fields: timestamp and data . The first one is a UNIX epoch timestamp represented as a number (either integer or floating-point). The latter can be basically anything." – uniswap-price-feed (emphasis added) "Oracle Security Modules (OSMs) delay the publishing of new reference prices for a predefined set of time. This parameter is called the Oracle Security Module Delay and was set to be one hour at the launch of MCD." – Security – How the Maker Protocol handles the security of oracles "The Medianizer maintains a white-list of Feeds that can be controlled by MakerDAO governance. Every time a new set of price updates is received, the reference price is recalculated and queued into the Oracle Security Module which publishes the price after a delay period." – Security – How the Maker Protocol handles the security of oracles "Components: Dai - An extension from DS-Token and standard ERC20 token interface. Contains the database of Dai token owners, transfer, approval and supply logic." - Maker Protocol 101 "The primary and only entity this service operates on is feed. Each feed is effectively a stream of timestamped records. Timestamps never go back and it is always guaranteed that new records will be added 'after' the existing ones. This simplification makes feed streams consumption much easier for clients." – uniswap-price-feed "val - the price (private) must be read with read() or peek() age - the Block timestamp of last price val update wat - the price oracles type (ex: ETHUSD) / tells us what the type of asset is" – Median

Claim	'797 Claims	Use
		"…the price (val) is intentionally kept not public because the intention is to only read it from the two functions read and peek , which are whitelisted. This means that you need to be authorized." - Median "The bud is modified to get whitelisted authorities to read it on-chain (permissioned), whereas, everything of off-chain is public." – Median "In the case of it being an authorized oracle, it will check if it signed the message with a timestamp that is greater than the last one. This is done for the purpose of ensuring that it is not a stale message. The next step is to check for order values, this requires that you send everything in an array that is formatted in ascending order." – Median "Values are read from a designated DSValue contract (its address is stored in src). The purpose of this delayed updating mechanism is to ensure that there is time to detect and react to an Oracle attack (e.g. setting a collateral's price to zero). Responses to this include calling stop() or void(), or triggering Emergency Shutdown." – Oracle Security Module
Claim 1, lines 41-44	imputing at least one measured differential with a descriptive identifier or at least one descriptive identifier to the electronic transaction record of the DCL through data storage and processing on the at least one electronic parallel storage of the differences layer. NOTES: 1. impute differential or descriptor to DCL records (F1) through, 2. data storage and processing on PSDL (A1, F2) NARRATIVE: Records on the blockchain system are processed and the state of the Ethereum blockchain is altered by linked differentials stored on the PSDL(s).	DCL IMPUTING MEASURED DIFFERENTIAL OR DESCRIPTIVE ID. – (F1) "The oracle module handles how markets prices are recorded on the blockchain." - Maker Protocol 101 "Oracles, collectively, are a mechanism to broadcast data from outside of the blockchain onto the blockchain." – Introducing Oracles "Component Spotter - The Maker Protocol requires real time information about the market price of the assets used as collateral in Vaults. Ultimately, this market price determines the amount of Dai that can be minted, as well as the grab condition for Vault liquidations. The oracle module handles how markets prices are recorded on the blockchain." - Maker Protocol 101 (emphasis added) "A large Vault becomes undercollateralized due to market conditions. An Auction Keeper then detects the undercollateralized Vault

Claim	'797 Claims	Use
		opportunity and initiates liquidation of the Vault, which kicks off a Collateral Auction for, say, 50 ETH." – Whitepaper "Any time the collateral value of a Vault gets closer to its debt, it becomes "risky-er". The system liquidates Vaults that get too risky." – Maker Protocol 101 "ETHUSD shutdown (can still add collateral and pay back debt - increases safety) but you cannot do anything that increases risk (decreases safety - remove collateral, generate dai, etc.) because the system would not know if you would be undercollateralized." – Median "Values are read from a designated DSValue contract (its address is stored in src). The purpose of this delayed updating mechanism is to ensure that there is time to detect and react to an Oracle attack (e.g. setting a collateral's price to zero). Responses to this include calling stop() or void(), or triggering Emergency Shutdown." – Oracle Security Module "The Maker Protocol requires real-time information about the market price of the collateral assets in Maker Vaults in order to know when to trigger Liquidations." – Whitepaper

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MAKERDAO   NON-LIMITING AND NON-EXHAUSTIVE

MAKERDAO – ORACLE SECURITY MODULE

Claim	'797 Claims	Use

Claim 7, lines 18-23	a system having a memory device, the memory device further including a Random Access Memory (RAM);
	
	a processor connected to the memory device, the processor is configured to:
	
	create at least one electronic parallel storage of a differences layer linked to a distributed computer ledger (DCL), both the electronic parallel storage of the differences layer and the DCL containing a respective electronic transaction record, a time-sequenced value, or a time-sequenced string;
	
	NOTES:
	
	  1. a system (A1)
	  2. create PSDL (A2)
	  3. linked (A3) to a DCL (A4, A3)
	  4. PSDL (transactions, or value, or string) (A2)
	  5. DCL (transactions, or value, or string) (A5)
	
	NARRATIVE:
	
	At or around September 2019, MakerDAO built, adopted, and implemented the MakerDAO Oracles Security Modules (the "OSM"). The build and integration of the OSM is reported to be in response to improving the functionality and security of the MakerDAO system, software, and processes (see "Introducing Oracles V2 and DeFi Feeds").
	
	Prior to the OSM build-out, the December 2017 MakerDAO whitepaper (The Dai Stablecoin System Whitepaper, December 2017) writes that market prices will be derived from sources, but provides for no off-chain linked storage or processing.
	
	"As of October 7th, 2019, the Oracle Team was mandated, granting the Interim Oracle Team the responsibility of being the intermediary between the Feeds and governance. In the coming months, the process of becoming a Feed will become more
		SYSTEM HAVING A MEMORY DEVICE, RAM – **(A1)**
		
		"MakerDAO is an open-source project on the Ethereum blockchain and a Decentralized Autonomous Organization…" – Whitepaper
		
		"Vat - The single source of truth for the Maker Protocol. It contains the accounting system of the core Vault, Internal Dai balances, and collateral state. The Vat has no external dependencies and maintains the central "Accounting Invariants" of the Maker Protocol." – Maker Protocol 101
		
		"Every time a new list of prices is received, the median of these is computed and used to update the stored value." – Median (emphasis added)
		
		"MKR is a cryptographic governance token used in the Dai System and Software, which is an autonomous system of smart contracts on the Ethereum Blockchain (the "Open Source Software"), that permits, among other things, the generation of Dai." – Terms of Use
		
		"2. Module Details
		Glossary (DAI)
		Key Functionalities (as defined in the smart contract)
		Mint - Mint to an address
		Burn - Burn at an address" – Dai Module
		
		"Values are read from a designated DSValue contract (its address is stored in src). The purpose of this delayed updating mechanism is to ensure that there is time to detect and react to an Oracle attack (e.g. setting a collateral's price to zero). Responses to this include calling stop() or void(), or triggering Emergency Shutdown." – Oracle Security Module

Claim	'797 Claims	Use
	clear." – Security – How the Maker Protocol handles the security of oracles "The oracle system for the Maker Protocol uses decentralized reporting to defend against fraudulent price data." – Security – How the Maker Protocol handles the security of oracles - MakerDAO Documentation	"By distributing data across a network of computers, the technology allows any group of individuals to embrace transparency rather than central-entity control." - Whitepaper Note: the system to include all centralized and decentralized components CREATE PARALLEL STORAGE OF A DIFFERENCES LAYER (PSDL) – **(A2)** "To protect the system from an attacker attempting to gain control of a majority of the Oracles, the Maker Protocol receives price inputs through the Oracle Security Module (OSM), not from the Oracles directly. The OSM, which is a layer of defense between the Oracles and the Protocol, delays a price for one hour, allowing Emergency Oracles or a Maker Governance vote to freeze an Oracle if it is compromised." – Whitepaper "Component Spotter - The Maker Protocol requires real time information about the market price of the assets used as collateral in Vaults. Ultimately, this market price determines the amount of Dai that can be minted, as well as the grab condition for Vault liquidations. The oracle module handles how markets prices are recorded on the blockchain." - Maker Protocol 101 "The Medianizer maintains a white-list of Feeds that can be controlled by MakerDAO governance. Every time a new set of price updates is received, the reference price is recalculated and queued into the Oracle Security Module which publishes the price after a delay period." – Security – How the Maker Protocol handles the security of oracles "OSM (Oracle Security Module) - Authorized users are allowed to set a value after some duration of time (e.g. one hour). To protect the system from an attacker who gains control of a majority of the oracles, the OSM imposes a 1 hour delay on price feeds, leaving enough time for the MKR governance community to analyze the data and react." – Maker Protocol

Claim	'797 Claims	Use
		PSDL LINKED TO A DISTRIBUTED COMPUTER LEDGER – **(A3)** "The oracle module handles how markets prices are recorded on the blockchain." - Maker Protocol 101 "Oracles, collectively, are a mechanism to broadcast data from outside of the blockchain onto the blockchain." – Introducing Oracles "The Oracle Security Module(OSM) safeguards the process by delaying price-feed data for one hour." – Security – How the Maker Protocol handles the security of oracles A DISTRIBUTED COMPUTER LEDGER – **(A4)** "With the new version of the Maker Protocol, Multi Collateral Dai (MCD), being released and live on the main Ethereum network" - MakerDAO Documentation "The Maker Protocol is the platform through which anyone, anywhere can generate the Dai stablecoin against crypto collateral assets." – MakerDAO Documentation "Blocks are batches of transactions with a hash of the previous block in the chain." – Blocks "This links blocks together (in a chain) because hashes are cryptographically derived from the block data. This prevents fraud, because one change in any block in history would invalidate all the following blocks as all subsequent hashes would change and everyone running the blockchain would notice." - Blocks "MakerDAO is a decentralized organization dedicated to bringing stability to the cryptocurrency economy." – MakerDAO Documentation "Maker Governance is the community organized and operated process of managing the various aspects of the Maker Protocol. Dai is

Claim	'797 Claims	Use
		a decentralized, unbiased, collateral-backed cryptocurrency soft-pegged to the US Dollar" – Whitepaper DISTRIBUTED LEDGER CONTAINS – **(A5)** "Dai is a decentralized, unbiased, collateral-backed cryptocurrency soft-pegged to the US Dollar." – Whitepaper "The transactionManager service is used to track a transaction's status as it propagates through the blockchain." – Transaction Manager "Methods in Dai.js that start transactions are asynchronous, so they return promises. These promises can be passed as arguments to the transaction manager to set up callbacks when transactions change their status to pending, mined, confirmed or error." – Transaction Manager

Claim 7, lines 24-26	access a value from a group comprising of at least one time-sequenced electronically published data stream and at least one descriptive differential;
	
	NOTE:
	
	    1. access a value (B1, A2),
	    2. …at least one descriptive differential (A2)
		ACCESS A VALUE – **(B1)**
		
		"There are multiple organizations and individuals who report price-data, they are called Feeds." – Security – How the Maker Protocol handles the security of oracles - MakerDAO Documentation
		
		"An oracle module is deployed for each collateral type. It feeds price data for a corresponding collateral type to the Vat." - Maker Protocol 101
		
		"Each record is represented throughout the service as a JSON structure with two fields: timestamp and data . The first one is a UNIX epoch timestamp represented as a number (either integer or floating-point). The latter can be basically anything." – uniswap-price-feed (emphasis added)
		
		"The published prices are pooled together into a canonical price in a smart contract that can then be used by a decentralized application (dapp)." - Introducing Oracles

Claim	'797 Claims	Use
		"Component Spotter - The Maker Protocol requires real time information about the market price of the assets used as collateral in Vaults. Ultimately, this market price determines the amount of Dai that can be minted, as well as the grab condition for Vault liquidations. The oracle module handles how markets prices are recorded on the blockchain." - Maker Protocol 101
Claim 7, lines 27-31	store the values from a group comprising of at least one time-sequenced electronically published data stream and at least one descriptive differential on the at least one electronic parallel storage of the differences layer; NOTES 1. store values on PSDL (C1), 2. …at least one descriptive differential (C1)	STORE VALUES ON PSDL – (C1) "Every time a new list of prices is received, the median of these is computed and used to update the stored value." – Median (emphasis added) "Whitelisted addresses broadcast price updates off-chain, which are fed into a medianizer before being pulled into the OSM. The Spotter reads from the OSM." - Maker Protocol 101 "An oracle module is deployed for each collateral type. It feeds price data for a corresponding collateral type to the Vat." - Maker Protocol 101 "Each record is represented throughout the service as a JSON structure with two fields: timestamp and data . The first one is a UNIX epoch timestamp represented as a number (either integer or floating-point). The latter can be basically anything." – uniswap-price-feed (emphasis added) "The MakerDAO Feed Dashboard illustrates the prices from the 14 Feeds that currently make up the ETHUSD Oracle price used by Single-Collateral Dai." - Introducing Oracles Organizations involved in being Feeds at the launch of MCD can be found in the Feeds list. – Security – How the Maker Protocol handles the security of oracles
Claim 7, lines 32-36	align and link a stored value record of the at least one electronic parallel storage of the differences layer to the electronic transaction record of the DCL utilizing at least one time sequenced value, string, code, or key; and	ALIGN AND LINK – (D1) "Oracle Security Modules (OSMs) delay the publishing of new reference prices for a predefined set of time. This parameter is called

Claim	'797 Claims	Use
	NOTES: 1. align and link PSDL stored value to DCL, (D1, A3) 2. utilizing time seq. value, string, code, or key (D1, D2)	the Oracle Security Module Delay and was set to be one hour at the launch of MCD." – Security – How the Maker Protocol handles the security of oracles "The Oracle Security Module(OSM) safeguards the process by delaying price-feed data for one hour." – Security – How the Maker Protocol handles the security of oracles "Each record is represented throughout the service as a JSON structure with two fields: timestamp and data . The first one is a UNIX epoch timestamp represented as a number (either integer or floating-point). The latter can be basically anything." – uniswap-price-feed (emphasis added) "The primary and only entity this service operates on is feed. Each feed is effectively a stream of timestamped records. Timestamps never go back and it is always guaranteed that new records will be added 'after' the existing ones. This simplification makes feed streams consumption much easier for clients." – uniswap-price-feed UTILIZING A STRING, CODE, OR KEY – **(D2)** "The primary and only entity this service operates on is feed. Each feed is effectively a stream of timestamped records. Timestamps never go back and it is always guaranteed that new records will be added 'after' the existing ones. This simplification makes feed streams consumption much easier for clients." – uniswap-price-feed "Each record is represented throughout the service as a JSON structure with two fields: timestamp and data . The first one is a UNIX epoch timestamp represented as a number (either integer or floating-point). The latter can be basically anything." – uniswap-price-feed "The primary and only entity this service operates on is feed. Each feed is effectively a stream of timestamped records. Timestamps never go back and it is always guaranteed that new records will be added 'after' the existing ones. This simplification makes feed streams consumption much easier for clients." – uniswap-price-feed

Claim	'797 Claims	Use
		"In the case of it being an authorized oracle, it will check if it signed the message with a timestamp that is greater than the last one. This is done for the purpose of ensuring that it is not a stale message. The next step is to check for order values, this requires that you send everything in an array that is formatted in ascending order." – Median
Claim 7, lines 37-40	impute at least one measured differential with a descriptive identifier or at least one descriptive identifier to the electronic transaction record of the DCL. NOTES: 1. impute measured differential (E1) or descriptor (E1) to DCL	<u>IMPUTING MEASURED DIFF. OR DESCRIPTIVE ID.</u> – **(E1)** "The oracle module handles how markets prices are recorded on the blockchain." - Maker Protocol 101 "Oracles, collectively, are a mechanism to broadcast data from outside of the blockchain onto the blockchain." – Introducing Oracles "Component Spotter - The Maker Protocol requires real time information about the market price of the assets used as collateral in Vaults. Ultimately, this market price determines the amount of Dai that can be minted, as well as the grab condition for Vault liquidations. The oracle module handles how markets prices are recorded on the blockchain." - Maker Protocol 101 (emphasis added) "A large Vault becomes undercollateralized due to market conditions. An Auction Keeper then detects the undercollateralized Vault opportunity and initiates liquidation of the Vault, which kicks off a Collateral Auction for, say, 50 ETH." – Whitepaper "The published prices are pooled together into a canonical price in a smart contract that can then be used by a decentralized application (dapp)." .- Introducing Oracles The Maker Protocol requires real-time information about the market price of the collateral assets in Maker Vaults in order to know when to trigger Liquidations. – Whitepaper

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