

Bitnomial Exchange, LLC
Form 1-N Notice Registration

SEC Mail Processing
SEP 04 2026
Washington, DC

U.S. SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549
FORM AND AMENDMENTS FOR NOTICE OF REGISTRATION AS A NATIONAL
SECURITIES EXCHANGE FOR THE SOLE PURPOSE OF TRADING SECURITY
FUTURES PRODUCTS PURSUANT TO SECTION 6(g) OF THE EXCHANGE ACT

Date filed
(MM/DD/YY):

WARNING: Failure to keep this form current and to file accurate supplementary information on a timely basis, or the failure to keep accurate books and records or otherwise to comply with the provisions of law applying to the conduct of a national securities exchange would violate the federal securities laws and may result in disciplinary, administrative or criminal action.

INTENTIONAL MISSTATEMENTS OR OMISSIONS OF FACTS MAY CONSTITUTE CRIMINAL VIOLATIONS

☒ APPLICATION

☐ AMENDMENT

1. State the name of the exchange: Bitnomial Exchange, LLC.
2. Provide the Security Futures Product Exchange's primary street address (Do not use a P.O. Box):
Bitnomial Exchange, LLC, 325 W. Huron St., Suite 230, Chicago, IL 60654
3. Provide the exchange's mailing address (if different):
N/A
4. Provide the business telephone and facsimile number:
(312) 883-5851 N/A
(Telephone) (Facsimile)
5. Provide the name, title and telephone number of a contact employee:
James Walsh Chief Regulatory & Compliance Officer (312) 883-5851
(Name) (Title) (Telephone Number)
6. Provide the name and address of counsel for the exchange:
Trevor Levine, Morrison Foerster LLP, 2100 L St. NW, Suite 900, Washington, D.C. 20037

7. Provide the date that the exchange's fiscal year ends: December 31
8. Indicate legal status of the exchange: ☐ Corporation ☐ Sole Proprietorship ☐ Partnership
☒ Limited Liability Company ☐ Other (specify): _____

If other than a sole proprietor, indicate the date and place where the exchange obtained its legal status (e.g., state where incorporated, place where partnership agreement was filed, or where the Security Futures Product Exchange entity was formed):

(a) Date (MM/DD/YY): June 30, 2016 (b) State/Country of formation: Delaware, United States

(c) Statute under which the exchange was organized: Delaware Limited Liability Company Act. 6 Del. C. § 18-101 et seq.

EXECUTION:

The exchange consents that service of any civil action brought by or notice of any proceeding before the Securities and Exchange Commission in connection with the exchange's activities may be given by registered or certified mail or confirmed telegram to the exchange's contact employee at the main address, or mailing address if different, given in Items 2 and 3. The undersigned, being first duly sworn, deposes and says that he/she has executed this form on behalf of, and with the authority of, said exchange. The undersigned and the exchange represent that the information and statements contained herein, including exhibits, schedules, or other documents attached hereto, and other information filed herewith, all of which are made a part hereof, are current, true, and complete.

Date: September 4, 2026
(MM/DD/YY)

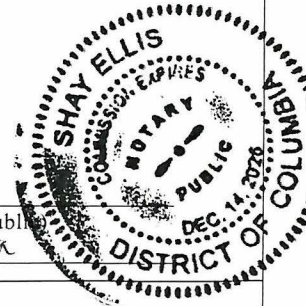
Bitnomial Exchange, LLC
(Name of Exchange)

By: [Signature]
(Signature)

Trevor Levine, Partner
(Printed Name and Title)

Subscribed and sworn before me this 4 day of September, 2026 by [Signature]
(Month) (Year) (Notary Public)

My Commission expires December 14th 2026 County of DISTRICT OF COLUMBIA State of DISTRICT OF COLUMBIA



*This page must always be completed in full with original, manual signature and notarization.
Affix notary stamp or seal where applicable.*

DO NOT WRITE BELOW THIS LINE - FOR OFFICIAL USE ONLY

Form 1-N Page 2	U.S. SECURITIES AND EXCHANGE COMMISSION WASHINGTON, D.C. 20549 FORM AND AMENDMENTS FOR NOTICE OF REGISTRATION AS A NATIONAL SECURITIES EXCHANGE FOR THE SOLE PURPOSE OF TRADING SECURITY FUTURES PRODUCTS PURSUANT TO SECTION 6(g) OF THE EXCHANGE ACT	OFFICIAL USE	OFFICIAL USE ONLY
EXHIBITS File all Exhibits with: a form for notice of registration as a national securities exchange for the sole purpose of trading security futures products pursuant to Section 6(g) of the Exchange Act and Rule 6a-4, or amendments to such forms pursuant to Rule 6a-4. For each exhibit, include the name of the filing exchange, the date upon which the exhibit was filed, and the date as of which the information is accurate (if different from the date of the filing). If any Exhibit required is inapplicable, a statement to that effect shall be furnished in lieu of such Exhibit. Exhibit A As of the latest date practicable within one (1) month of the date Form 1-N is filed, a copy of the constitution, articles of incorporation or association with all subsequent amendments, and existing by-laws or corresponding rules or instruments, whatever the name, of the filing exchange. Exhibit B As of the latest date practicable within one (1) month of the date Form 1-N is filed, a copy of all written rulings, settled practices having the effect of rules, and interpretations of the Governing Board or other committee of the exchange in respect of any provisions of the constitution, by-laws, rules, or trading practices of the filing exchange which are not included in Exhibit A. Exhibit C As of the latest date practicable within one (1) month of the date Form 1-N is filed, for each subsidiary or affiliate of the filing exchange that will be involved in the trading of security futures products, and for any entity with whom the exchange has a contractual or other agreement relating to the operation of an electronic trading system to be used to effect transactions in security futures products on the exchange ("System"), provide the following information: 1. Name and address of organization. 2. Form of organization (e.g., association, corporation, partnership, etc.). 3. Name of state and statute citation under which organized. Date of incorporation in present form. 4. Brief description of nature and extent of affiliation. 5. Brief description of business or functions. Description should include responsibilities with respect to operation of the System and/or execution, reporting, clearance (including the controls that will be implemented to ensure the safety of held funds or securities), or settlement of transactions in connection with operation of the System. 6. A copy of the constitution. 7. A copy of the articles of incorporation or association including all amendments. 8. A copy of existing by-laws or corresponding rules or instruments. 9. The name and title of the present officers, governors, or persons performing similar functions. 10. An indication of whether such business or organization ceased to be associated with the Security Futures Product Exchange during the previous year, and a brief statement of the reasons for termination of the association. Exhibit D Describe the manner of operation of the System involving trading of security futures products. This description should include the following: 1. The means of access to the System. 2. Procedures governing entry and display of quotations and orders in the System. 3. Procedures governing the execution, reporting, clearance, and settlement of transactions in connection with the System. 4. Proposed fees. 5. Procedures for ensuring compliance with System usage guidelines.			

Form 1-N Page 3	U.S. SECURITIES AND EXCHANGE COMMISSION WASHINGTON, D.C. 20549 FORM AND AMENDMENTS FOR NOTICE OF REGISTRATION AS A NATIONAL SECURITIES EXCHANGE FOR THE SOLE PURPOSE OF TRADING SECURITY FUTURES PRODUCTS PURSUANT TO SECTION 6(g) OF THE EXCHANGE ACT	OFFICIAL USE	OFFICIAL USE ONLY
	6. The hours of operation of the System, and the date on which the exchange intends to commence operation of the System. 7. Attach a copy of the users' manual. Exhibit E A list of the officers, governors, or persons performing similar functions, who presently hold or have held their offices or positions during the previous year, indicating the following for each: 1. Name. 2. Title. 3. Dates of commencement and termination of term of office or position. 4. Type of business in which each is primarily engaged. Exhibit F This Exhibit is applicable only to filing exchanges that have one or more owners, shareholders, or partners that are not also members of the exchange and should be current as of the latest date practicable within 1 month of the date Form 1-N is filed. If the exchange is a corporation, please provide a list of each shareholder that directly owns 5% or more of a class of a voting security of the Security Futures Product Exchange. If the exchange is a partnership, please provide a list of all general partners and those limited and special partners that have the right to receive upon dissolution, or have contributed, 5% or more of the partnership's capital. For each of the persons listed in the Exhibit F, please provide the following: 1. Full legal name. 2. Title or Status. 3. Date title or status was acquired. 4. Approximate ownership interest. 5. Whether the person has control, a term that is defined in the instructions to this Form. Exhibit G To the extent not covered in an exchange's rules submitted under Exhibit A, describe the Security Futures Product Exchange's criteria for membership. Describe conditions under which members may be subject to suspension or termination for infractions relating to the trading of security futures products. Describe any procedures that will be involved in the suspension or termination of a member for such infractions. Exhibit H As of the latest date practicable within 1 month of the date Form 1-N is filed, provide an alphabetical list of all members, participants, subscribers, or other users, including the following information: 1. Name. 2. If member, participant, subscriber, or other user is an individual, the name of the entity with which such individual is associated and the relationship of such individual to the entity (e.g., partner, officer, director, employee, etc.). 3. Brief description of the type of activities primarily engaged in by the member, participant, subscriber, or other user. A person shall be "primarily engaged" in an activity or function for purposes of this item when that activity or function is the one in which that person is engaged for the majority of their time. When more than one type of person at an entity engages in activities or functions, identify each type and state the number of members, participants, subscribers, or other users in each. 4. The class of membership, participation, subscription, or other access. Exhibit I Provide a schedule of the security futures products proposed to be listed by the filing exchange, or for amendments to the Form 1-N the security futures products listed by the exchange, indicating for each the name of the issuer and a description of the security		

Exhibits

Exhibit A — Constitution, articles of incorporation or association, by-laws or corresponding rules

Bitnomial Exchange, LLC — Rulebook effective August 4, 2026; information provided as of September 4, 2026.

The following constitute the exchange's governing instruments:

1. **Certificate of Formation** of Bitnomial Exchange, LLC (Delaware), with all amendments, attached as **Ex A-1**.
2. **Limited Liability Company Agreement** of the exchange (the "LLC Agreement"), dated as of June 30, 2016, which governs the management and operation of the exchange (Rulebook Rules 101, 201), attached with all amendments as **Ex A-2**: the original execution version (**Ex A-2(a)**) and the agreement as amended (**Ex A-2(b)**).

The Exchange's Rulebook is submitted as Exhibit B.

Exhibit B — Written rulings, settled practices having the effect of rules, and interpretations of the Governing Board not included in Exhibit A

Bitnomial Exchange, LLC — Rulebook effective August 4, 2026; information provided as of September 4, 2026.

The **Bitnomial Exchange Rulebook**, as in effect on the filing date, is submitted as **Exhibit B-1**. The Rulebook comprises Chapters 1–11:

- Chapter 1 — Definitions and Interpretations (Rules 101–102)
- Chapter 2 — Governance (Rules 201–213)
- Chapter 3 — Participation (Rules 301–314)
- Chapter 4 — Business Conduct and Trading Practices (Rules 401–411)
- Chapter 5 — Market Operations (Rules 501–514)
- Chapter 6 — Discipline and Enforcement (Rules 601–607)
- Chapter 7 — Arbitration (Rules 701–703)
- Chapter 8 — Clearing (Rules 801–824)
- Chapter 9 — Reserved
- Chapter 10 — Miscellaneous (Rules 1001–1012)
- Chapter 11 — Digital Asset Delivery (Rules 1101–1107)

The Exchange has proposed amendments to its Rules relating to security futures products (amending Rules 101, 303, 402, 405, 501, 502, 509, 607, 803, and 806). Those amendments are not included in Exhibit B-1 and will be submitted separately: customer-margin amendments on Form 19b-4 for approval under Section 19(b)(2) of the Exchange Act, the remaining amendments pursuant to Section 19(b)(7) of the Exchange Act, and in each case through the corresponding CFTC procedures under Part 40 of its regulations. The Exchange will amend this filing to reflect the Rulebook as amended once the proposed amendments become effective.

Other than the Rulebook, the Exchange has no written rulings, settled practices having the effect of rules, or interpretations of the Board of Directors or any committee of the Exchange with respect to any provision of the Exchange's constitution, by-laws, rules, or trading practices that are not included in Exhibit A.

Exhibit C — Subsidiaries and affiliates involved in trading of security futures products; entities operating the System

Bitnomial Exchange, LLC — Rulebook effective August 4, 2026; information provided as of September 4, 2026.

Two categories of affiliate are within the scope of this Exhibit: those that will be involved in the trading of security futures products, and Payward, Inc., which is included by reason of its ultimate control of the Exchange. The Exchange operates its electronic trading system (the "System") itself and has no contractual or other agreement with any third party for the operation of the System.

C-1. Bitnomial Clearinghouse, LLC

1. **Name and address:** Bitnomial Clearinghouse, LLC, 325 W. Huron St., Suite 230, Chicago, IL 60654.

2. **Form of organization:** Limited liability company.
3. **State/statute; date of formation:** Delaware; Delaware Limited Liability Company Act, 6 Del. C. § 18-101 et seq. Formed March 29, 2022.
4. **Nature and extent of affiliation:** Wholly owned subsidiary of Bitnomial Exchange, LLC. The Exchange and the Clearinghouse share a single Board of Directors, which serves as the governing body of both entities (Rulebook Rule 101, definition of “Board”).
5. **Business or functions:** The Clearinghouse is a derivatives clearing organization registered with the CFTC under Section 5b of the CEA. It clears all contracts executed on the Exchange, including the security futures products proposed for listing, and will rely on the exemption from clearing-agency registration under Section 17A(b)(7)(A) of the Exchange Act (15 U.S.C. § 78q-1(b)(7)(A)), which is available to a derivatives clearing organization that would otherwise be required to register solely because it clears security futures products effected under the rules of a national securities exchange notice-registered under Section 6(g); the additional condition applicable to security futures products that are not cash settled does not apply because all of the proposed products are cash settled. Matched trades are submitted to the Clearinghouse automatically and, upon acceptance, are novated, with the Clearinghouse substituting itself as central counterparty to each Clearing Member (Rule 811). Controls implemented to ensure the safety of held funds include: segregation of customer funds in accordance with Section 4d of the CEA and CFTC Rules 1.20, 22.2, and 22.3, with security futures product customer funds to be held in futures accounts subject to Section 4d segregation under the proposed amendments to Rule 806; investment of customer funds limited to instruments permitted by CFTC Rule 1.25 (Rule 806); collection of Margin and Collateral through banks and trust companies designated as Approved Financial Institutions and Settlement Banks (Rules 803, 820); maintenance of financial resources in accordance with CFTC Rule 39.11; risk-based initial margin methodology in accordance with CFTC Rule 39.13 (Rule 820); and a Guaranty Fund capitalized by the Clearinghouse itself (Rule 819).
- With respect to margin for security futures products: customer margin will be collected by Clearing Members at levels that comply with 17 CFR part 41, subpart E and 17 CFR §§ 242.400–406, as will be required by proposed Exchange Rule 806(21), and the Clearinghouse’s margin methodology for cleared positions is established in accordance with 17 CFR part 39.
6. **Constitution:** None; not applicable to a Delaware limited liability company. Governing instruments are provided under items 7–8.
7. **Articles:** Certificate of Formation, with all amendments, attached as **Ex C-1(a)**.
8. **By-laws or corresponding instruments:** Limited Liability Company Agreement attached as **Ex C-1(b)**; the Clearinghouse is also governed by the Rulebook submitted as Exhibit B.
9. **Present officers and governors:** The Exchange and the Clearinghouse share a single Board of Directors (Rule 101) and the same executive officers, each serving both Bitnomial Exchange, LLC and Bitnomial Clearinghouse, LLC, as set forth in Exhibit E.

Directors:

Name	Title	Primary business
Luke Hoersten	Director	CEO of Bitnomial, LLC
Thomas J. Anderson	Director (Independent)	SVP, Global CFO and COO of ADM Investor Services
John O’Brien, Jr.	Director (Independent)	CEO of O’Brien Investment Group
Peter Nabicht	Director (Independent)	COO of Hive Trading
Matthew Williams	Director (Independent)	Head of Financial Services of Luxor Technology

Officers:

Name	Title
Michael Dunn	President & Chief Commercial Officer
James Walsh	Chief Regulatory & Compliance Officer

Name	Title
Amy McCormick	Chief Risk Officer
Seth Larson	VP of Operations

10. **Termination of association during the previous year:** None.

C-2. NinjaTrader Clearing, LLC

1. **Name and address:** NinjaTrader Clearing, LLC, 222 North LaSalle Street, Suite 400, Chicago, IL 60601, United States.
2. **Form of organization:** Limited liability company.
3. **State/statute; date of formation:** Delaware; Delaware Limited Liability Company Act, 6 Del. C. § 18-101 et seq. Certificate of Formation filed January 7, 1998.
4. **Nature and extent of affiliation:** Affiliate under common ultimate ownership. NinjaTrader Clearing, LLC is directly owned by NinjaTrader Group LLC; NinjaTrader Clearing, LLC and the Exchange are each indirect subsidiaries of Payward, Inc.
5. **Business or functions:** NinjaTrader Clearing, LLC is a futures commission merchant registered with the CFTC and a member of NFA, and is a Clearing Member of the Clearinghouse. It does not operate the System. With respect to security futures products, it will carry customer positions as an FCM notice-registered as a broker-dealer with the SEC on Form BD-N, its notice registration being attached as **Ex C-2(d)**, holding customer security futures product positions in futures accounts subject to Section 4d segregation, and collecting customer margin in accordance with 17 CFR part 41, subpart E and 17 CFR §§ 242.400–406, as provided by the proposed amendments to Rulebook Rules 803 and 806.
6. **Constitution:** None; not applicable to a limited liability company.
7. **Articles:** Certificate of Formation, certified by the Delaware Secretary of State, attached as **Ex C-2(a)**.
8. **By-laws or corresponding instruments:** Amended and Restated Limited Liability Company Agreement attached as **Ex C-2(b)**, together with Amendment No. 1 thereto attached as **Ex C-2(c)**.
9. **Present officers and governors (per NFA BASIC):**

Name	Title
Walter Martin Sledz	President
Eric Michael McNulty	Chief Financial Officer
Julius Kaiser	Chief Compliance Officer

10. **Termination of association during the previous year:** None.

C-3. Payward, Inc.

Payward, Inc. is included in this Exhibit as the Exchange's controlling parent.

1. **Name and address:** Payward, Inc., 106 E. Lincoln Way, 4th Floor, Cheyenne, WY 82001, United States.
2. **Form of organization:** Corporation.
3. **State/statute; date of incorporation in present form:** Delaware; Delaware General Corporation Law, 8 Del. C. § 101 et seq. Incorporated July 28, 2011.
4. **Nature and extent of affiliation:** Ultimate parent and controlling entity. Payward, Inc. owns 100% of the equity interests of Bitnomial, LLC, which owns 100% of the equity interests of the Exchange, which in turn owns 100% of the equity interests of the Clearinghouse. Payward, Inc. is therefore the indirect owner of, and has control of, both the Exchange and the Clearinghouse, as "control" is defined in the General Instructions to this Form. It is not a direct owner of the Exchange. The acquisition was completed on May 1, 2026. Payward, Inc. is also the ultimate parent of NinjaTrader Clearing, LLC, described at C-2 above, so that the Exchange and

that Clearing Member are under common ultimate ownership; the conflict-of-interest arrangements addressed to that relationship are described in Exhibit H and in the Exchange Affiliate Conflict of Interest Policy.

5. **Business or functions:** Payward, Inc. is a holding company. It conducts no operations with respect to security futures products: it will not trade, clear, carry, route, execute, or guarantee security futures product transactions, and it has no responsibilities with respect to the operation of the System or the execution, reporting, clearance, or settlement of transactions on the System. Its function with respect to the Exchange is the exercise of equity ownership and the governance rights attaching to it. It holds no customer funds or securities in connection with the operation of the System, and accordingly no controls with respect to the safety of held funds or securities arise at this entity; the controls applicable to customer funds are those of the Clearinghouse and the Clearing Members, described at C-1 and C-2.
6. **Constitution:** None; not applicable to a corporation. Governing instruments are provided under items 7–8.
7. **Articles:** Certificate of Incorporation, with all amendments, to be attached as **Ex C-3(a)**.
8. **By-laws or corresponding instruments:** Current by-laws, to be attached as **Ex C-3(b)**.
9. **Present officers and governors:**

Name	Title
Arjun Sethi	Co-Chief Executive Officer and Director
Dave Ripley	Co-Chief Executive Officer
Robert Moore	Chief Financial Officer
Curtis Ting	Chief Operating Officer
Ben Gray	Chief Legal Officer
CJ Rinaldi	Chief Compliance Officer
Nick Percoco	Chief Security Officer
Colin Murphy	Chief Information Officer
Mark Greenberg	Chief Commercial Officer
Mayur Gupta	Chief Marketing Officer
Pranesh Anthapur	Chief People Officer
Kamo Asatryan	Chief Data Officer
Jesse Powell	Co-Founder and Chairman of the Board
Thanh Luu	Co-Founder and Director
Dan Ciporin	Director
Alison Davis	Director
Christopher Calicott	Director
Sivan Whiteley	Director

10. **Termination of association during the previous year:** None. Payward, Inc. became the Exchange's ultimate parent on May 1, 2026 and has not ceased to be associated with the Exchange.

Bitnomial Clearing, LLC, an affiliated futures commission merchant and Clearing Member of the Clearinghouse, is not included in this Exhibit because it is not contemplated that it will clear or carry security futures product positions or otherwise be involved in the trading of security futures products, and it does not provide services to the Exchange relating to the operation of the System. Should that change, this Exhibit will be amended in accordance with Exchange Act Rule 6a-4.

Exhibit D — Manner of operation of the System

Bitnomial Exchange, LLC — Rulebook effective August 4, 2026; information provided as of September 4, 2026.

The Exchange lists and trades its products exclusively on its own electronic trading system (the “Exchange System”), a fully automated central limit order book operated by Bitnomial Exchange, LLC. All contracts executed on the Exchange System are cleared by the Exchange’s wholly owned, CFTC-registered clearinghouse, Bitnomial Clearinghouse, LLC (the “Clearinghouse”). There is no trading floor and no open-outcry facility; all order entry, matching, and trade reporting occur electronically. The security futures products proposed for listing will trade on the Exchange System on the same basis as the Exchange’s existing products. Items 1–7 are set forth below.

1. The means of access to the System

Access to the Exchange System is limited to registered Participants and their Authorized Users. Eligibility, application, and ongoing requirements for Participants are set forth in Rules 302–304, and the designation, registration, and supervision of Authorized Users and Account Administrators are governed by Rules 306–307. No person may access the Exchange System except as a Participant or as an Authorized User of a Participant.

Access is Internet-based. Each Participant and its Authorized Users are issued unique, Exchange-assigned User IDs, together with passwords and digital certificates, which are required to establish a secure connection to the Exchange System (Rule 311). Credentials are issued for the Participant's exclusive use, may not be shared, and the Participant is solely responsible for the security and use of all credentials issued to it and is bound by all actions taken under them; any suspected compromise or unauthorized access must be reported to the Exchange immediately (Rules 311, 503). Technical connectivity to the Exchange System is available over the Exchange's electronic interfaces, including its binary trading protocol (BTP), FIX, WebSocket, and REST interfaces, permitting Participants to connect using their own front-end applications.

Access to the Exchange is inseparable from clearing. Every Participant must have clearing arrangements in place with a Clearing Member, and the Clearinghouse will accept a contract for clearing only where the parties have such arrangements in place and have satisfied the applicable risk limits imposed by the Clearing Member, the Exchange, or the Clearinghouse (Rule 811). Clearing Members are admitted and supervised under Rules 803–804, and a Clearing Member's authority to act on a Participant's account for default-liquidation purposes is addressed in Rule 308. The general terms and conditions of access, including the Exchange's right to condition, suspend, or terminate access, are set forth in Rule 311.

2. Procedures governing entry and display of quotations and orders in the System

Orders are entered electronically through the Exchange's API by Authorized Users under their registered User IDs. Every order is tracked to the specific User ID of the Authorized User who submitted it, and each Participant must at all times be able to identify all orders submitted under each of its User IDs (Rule 503). To be valid, an order must specify the contract, an order ID, side (buy or sell), a quantity (a positive integer within the maximum defined in the Contract Specifications), a price consistent with the Contract Specifications, and a time-in-force (Day or Immediate-or-Cancel, or as otherwise permitted by the Contract Specifications) (Rule 504). Participants may modify or cancel any resting order prior to its full execution (Rule 504).

The Exchange System supports Limit Orders, under which a buyer sets the maximum price and a seller the minimum price at which the order may execute; the unfilled portion of a Limit Order rests in the order book until it executes, is cancelled, or expires at the end of the trading session (Rule 504). Order and quotation information — including bids and offers — is displayed to Participants through the Exchange System, and the Exchange makes order, trade, and related market information available to Participants and others as it considers appropriate, subject to redistribution restrictions (Rule 512).

The Exchange applies a series of automated pre-trade risk controls at the point of order entry (Rule 504):

- **Price banding** — aggressive orders are checked against a band set around the prior Settlement Price by an Exchange-defined variation, and orders outside the band are rejected or held.
- **Price limits** — orders are accepted only within a defined range relative to the prior Settlement Price: for futures, the greater of 50% of the prior Settlement Price or the price listed in the Contract Specifications (100% for options), and for calendar spreads, 50% of the outright contract's Price Limit (Rule 504).
- **Self-match prevention** — the System prevents the matching of resting and incoming orders bearing the same Trading Account ID.
- **Messaging controls** — the Exchange limits the rate of messages a Participant may submit to the API.

3. Procedures governing the execution, reporting, clearance, and settlement of transactions in connection with the System

Execution. The Exchange System matches orders on a nondiscretionary central limit order book using a strict price-time priority algorithm: the best-priced orders execute first, and orders at the same price execute on a first-in-first-out (FIFO) basis (Rule 504). Competitive-execution and pre-execution-communication requirements are set forth in Rules 402–403. In addition to order-book execution, Eligible Contract Participants that have received Exchange approval may execute Block Trades at or above the minimum quantity thresholds posted by the Exchange, at prices that are fair and reasonable in light of prevailing market conditions; Block Trades must be reported to the

Exchange through its web platform no later than fifteen (15) minutes after execution and are subject to Exchange risk controls before submission to the Clearinghouse (Rule 505).

Reporting and error-trade review. Every order and execution is captured in an audit trail (see item 5). The Exchange publishes daily settlement prices, volume, open interest, and opening/closing ranges for active contracts at the end of each trading day (Rule 504). The Exchange may adjust or cancel (bust) trades that result from erroneous use of the System or from system defects, or where allowing a trade to stand would materially and adversely affect market integrity. A Participant may request review of a trade within five (5) minutes of execution; the Exchange may itself initiate a review up to one hour after execution for less-liquid contracts, and thereafter where prices deviated substantially from fair value (Rule 508).

Clearance and novation. All matched trades are submitted automatically to the Clearinghouse for registration and clearing (Rule 504). The Clearinghouse accepts contracts for clearing as promptly as technologically practicable, provided the parties have clearing arrangements in place and have satisfied applicable risk limits; fully collateralized positions are accepted only after the Clearinghouse has confirmed sufficient collateral, and contracts that breach pre-collateralization requirements are rejected (Rule 811). Upon acceptance, the Clearinghouse novates the contract — substituting itself as counterparty to each Clearing Member and thereby guaranteeing performance (Rule 811). Only Clearing Members face the Clearinghouse directly; a Participant reaches the Clearinghouse through its Clearing Member (Rules 803–804, 811). The Clearinghouse maintains a Guaranty Fund that it capitalizes itself; Clearing Members are not required to contribute to it (Rule 819).

Settlement and delivery. The Exchange determines a daily Settlement Price for each contract during the Daily Settlement Period (14:55–15:00 CPT) using a defined waterfall — the volume-weighted average price of trades during the period, then a time-weighted average of the bid-ask midpoint, then curve- or model-derived prices, then the prior day's Settlement Price (Rule 509). A Final Settlement Price is determined at contract expiration in the manner specified for the product type (Rule 509). The Clearinghouse collects margin at levels set by the Clearinghouse (Rule 820) and effects daily settlement and, for physically delivered contracts, delivery, in accordance with the settlement timelines and delivery procedures of Rule 813 and, for digital-asset delivery, Chapter 11.

4. Proposed fees

Transaction fees are governed by Rule 312 (Dues and Fees) and Rule 823 (Clearing Fees). The security futures products will be assessed under the Exchange's current published fee schedule at **\$0.07 per side for Participants and \$0.10 per side for non-Participants**, inclusive of both exchange and clearing fees (consistent with the rates currently applied to the Exchange's existing product complexes). The Exchange may amend its fee schedule from time to time in accordance with its rules and applicable regulatory requirements.

5. Procedures for ensuring compliance with System usage guidelines

Compliance with the Exchange's system-usage requirements is enforced through registration, surveillance, and discipline. Each Participant is responsible for controlling and monitoring the use of every User ID issued to it and its Authorized Users, for maintaining current and accurate registration information, and for implementing policies that protect User ID security (Rules 503, 411). Each order must carry the correct Customer Type Indicator (CTI) code — CTI 1 (individual trading for own or controlled account), CTI 2 (proprietary account of a Participant or Clearing Member), CTI 3 (personal account of an individual Participant), or CTI 4 (all other customers) — which supports the Exchange's ability to attribute activity (Rule 511).

Clearing Members and Participants accessing the Exchange electronically must maintain a front-end audit trail capturing every order entry, modification, and cancellation, together with system-assigned timestamps that the entering person cannot alter and, for executed orders, the execution time and award information. Audit-trail records must be retained for at least five (5) years and produced to the Exchange on request in a standard format, and CFTC Regulation §1.35 applies where applicable (Rule 510). These records support the Exchange's surveillance programs.

The Compliance Department, under the supervision of the Chief Regulatory Officer, monitors trading activity for compliance with the Rules; the Regulatory Oversight Committee provides independent oversight of the regulatory program (Rules 203, 205). The Exchange is a member of the Intermarket Surveillance Group ("ISG") and satisfies the ISG's membership and procedural requirements, providing coordinated surveillance and information sharing with the markets for the securities underlying the security futures products proposed for listing. The Exchange may also enter into additional information-sharing arrangements under Rule 209. The Exchange may inspect Participant books and records (Rule 313) and may terminate or suspend a connection or take other disciplinary action for violations (Rule

404). Investigation, notice-and-hearing, summary action, appeal, and notice procedures are set forth in Chapter 6 (Discipline and Enforcement), Rules 601–607.

6. The hours of operation of the System, and the date on which the exchange intends to commence operation of the System

Market Hours are established under Rule 501 and the Contract Specifications. As specified in the Contract Specifications for its current products, the Exchange System operates 24 hours a day, 7 days a week, with a weekly maintenance window each Friday from 17:00 to 18:00 Central Time; holidays affect settlement and banking operations rather than trading availability. The hours of trading for the security futures products proposed for listing have not yet been determined and will be established in their respective Contract Specifications.

The Exchange has not yet determined the date on which it intends to commence trading in security futures products. Commencement will follow the effectiveness of the Exchange’s related rule filings with the SEC and the CFTC and completion of product submissions under 17 CFR § 41.23.

7. Attach a copy of the users’ manual

The Exchange’s API and market-operations documentation, which describes to Participants how to connect to the Exchange System and enter, modify, and cancel orders, is compiled and attached as the users’ manual (**Ex D-7**).

Exhibit E — Officers, governors, and persons performing similar functions (current and during the previous year)

Bitnomial Exchange, LLC — Rulebook effective August 4, 2026; information provided as of September 4, 2026.

Board of Directors:

Name	Title	Commenced	Primary business
Luke Hoersten	Director	April 17, 2020	Founder & CEO of Bitnomial, LLC
Thomas J. Anderson	Director (Independent)	April 17, 2020	SVP, Global CFO and COO of ADM Investor Services
John O’Brien Jr.	Director (Independent)	January 29, 2025	CEO of O’Brien Investment Group
Peter Nabicht	Director (Independent)	April 17, 2020	COO of Hive Trading
Matthew Williams	Director (Independent)	January 29, 2025	Head of Financial Services of Luxor Technology

Officers:

Name	Title	Employment Dates	Primary business
Michael Dunn	President & Chief Commercial Officer	May 2016 - present	Exchange operations
James Walsh	Chief Regulatory & Compliance Officer	March 2017 - present	Exchange regulation and compliance
Amy McCormick	Chief Risk Officer	December 2024 - present	Risk management
Seth Larson	VP of Operations	January 2022 - present	Exchange operations

No officer, director, or person performing similar functions ceased to hold office during the previous year.

Exhibit F — Owners of 5% or more (non-member owners)

Bitnomial Exchange, LLC — Rulebook effective August 4, 2026; information provided as of September 4, 2026.

Bitnomial, LLC is the sole shareholder directly owning 5% or more of a class of the Exchange’s voting securities: it owns 100% of the equity interests of Bitnomial Exchange, LLC and has control of the Exchange (as “control” is defined in the General Instructions to Form 1-N). Following the acquisition completed on May 1, 2026, Bitnomial,

LLC is in turn wholly owned by **Payward, Inc.**, which is accordingly the Exchange's ultimate indirect parent and controller; Payward, Inc. is not a direct owner of the Exchange.

Item	Bitnomial, LLC	Payward, Inc.
1. Full legal name	Bitnomial, LLC	Payward, Inc.
2. Title or status	Sole member (direct owner)	Ultimate parent (indirect owner)
3. Date acquired	June 30, 2016	May 1, 2026
4. Approximate ownership interest	100% direct	100% indirect
5. Control	Yes	Yes

Exhibit G — Membership criteria; suspension and termination

Bitnomial Exchange, LLC — Rulebook effective August 4, 2026; information provided as of September 4, 2026.

With respect to the trading of security futures products, the Exchange's members are its **Clearing Members**: futures commission merchants admitted to and regulated by the Exchange and the Clearinghouse under the Rules submitted as Exhibit B and, under the proposed amendments to Rule 803 described in Exhibit B, notice-registered with the SEC as broker-dealers where they clear security futures products for or on behalf of customers. All trading in security futures products on the Exchange is intermediated by an FCM Clearing Member: the Clearinghouse accepts a security futures product transaction for clearing only where the parties have clearing arrangements in place with a Clearing Member and applicable risk limits are satisfied (Rules 802, 811), and the Clearing Member guarantees that activity to the Clearinghouse. No member obtains any equity, ownership, voting, or distribution interest in the Exchange or the Clearinghouse, and membership rights may not be transferred, assigned, sold, or leased.

i. Criteria for membership

To be admitted as a Clearing Member, and to remain one, a firm must demonstrate that it satisfies each of the following (Rule 803):

- it is a corporation, limited liability company, partnership, or other entity in good standing in its jurisdiction of formation;
- it is qualified to conduct business in the State of Illinois or maintains an agency agreement with a qualified agent for service of process;
- it is in compliance with a Clearing Member Agreement and with the Rules;
- it has established relationships with a bank or trust company designated as an Approved Financial Institution for confirmation and payment of Margin, Collateral, and settlements;
- it has adequate operational capabilities, including the ability to process expected peak volumes, fulfill Collateral payment and delivery obligations, and participate in default management;
- unless it clears solely Fully Collateralized Swaps for its own accounts, it is registered as a futures commission merchant with the CFTC and is a member of NFA; under the proposed amendments to Rule 803 it must also be registered as a broker-dealer where it clears security futures products for or on behalf of Customers;
- it is not subject to statutory disqualification under Section 8a(2) of the CEA or, where it clears security futures products for or on behalf of Customers, statutory disqualification as defined in Section 3(a)(39) of the Exchange Act; and
- it meets applicable requirements under the CEA and CFTC rules, including risk management procedures and requirements relating to minimum net capital, financial reporting, and recordkeeping, as determined by the Clearinghouse.

Note on Clearing Member registration status. Every Clearing Member that clears on a margined basis must be a futures commission merchant. Under Rule 803.1(9) a Clearing Member is registered as an FCM with the CFTC and is a member of NFA unless it clears solely Fully Collateralized Swaps for its own accounts, which is the only category of Clearing Member that is not required to hold that registration. A Clearing Member admitted on that limited basis clears only fully collateralized swaps for its own account and carries no Customer business, and accordingly could not clear security futures products.

A Clearing Member must immediately notify the Clearinghouse if any of the foregoing ceases to be true (Rule 803), and is subject to ongoing supervision, financial reporting, and notification obligations under Rules 804–808. Any person initiating or executing a transaction on or subject to the Rules consents to the jurisdiction of the Exchange

and the Clearinghouse and agrees to be bound by the Rules, including the obligation to cooperate in investigatory and disciplinary processes (Rule 301).

ii. Conditions giving rise to suspension or termination

A member may be suspended, terminated, or otherwise disciplined for violating — or aiding and abetting a violation of — any Rule of the Exchange or the Clearinghouse or any applicable law (Rules 601, 603). In addition:

- The Clearinghouse may revoke Clearing Member approval at any time if the admission criteria described above cease to be met (Rule 803).
- The Exchange may, in its sole discretion, summarily terminate any connection or the access of any Trading Account or User ID (Rule 404).
- The Chief Regulatory Officer may summarily suspend, revoke, limit, or condition privileges where a member's conduct is not in the best interest of the Exchange, the Clearinghouse, or the marketplace — including failure to meet CEA/CFTC requirements, unpaid fees or fines, or where immediate action is needed to protect the public interest (Rule 604).

The same conditions apply to infractions relating to the trading of security futures products.

iii. Procedures for suspension or termination

The Exchange's disciplinary program is administered by the Compliance Department — comprising separate surveillance, investigation, and disciplinary functions — under the supervision of the Chief Regulatory Officer, and the Exchange may engage a Regulatory Services Provider for enforcement (Rule 602). The procedures are set forth in Chapter 6:

1. **Investigation.** The Compliance Department conducts real-time and post-trade surveillance and investigates potential violations; a respondent found in violation may be charged the costs of investigation and prosecution (Rule 602).
2. **Notice and answer.** The Compliance Department serves a written notice of charges stating the alleged acts, the Rules alleged to have been violated, and the proposed sanctions, and affording at least 14 days to request a hearing; the respondent must answer within 14 days, and a failure to answer is treated as an admission (Rule 603).
3. **Hearing.** A Hearing Panel of at least three persons — chaired by a Public Director and including a brokerage-community and a trading-community representative, none involved in the underlying conduct — conducts the hearing. Formal rules of evidence do not apply; the respondent may appear with counsel, cross-examine witnesses, and present evidence; the burden of proof is on the Compliance Department; and a violation requires a majority vote (Rule 603).
4. **Sanctions.** Upon a finding of violation, the Exchange may impose censure or reprimand; restrictions on or suspension of trading or access privileges; fines of up to \$1,000,000 per violation; restitution and disgorgement; termination of privileges; and such other remedies as are appropriate (Rule 603). For specified operational infractions, the Compliance Department may impose summary fines of between \$1,000 and \$15,000 per violation under a fine schedule (Rule 604).
5. **Appeal.** A respondent may appeal a Hearing Panel decision or a summary action within 14 days to a Board of Appeals of at least three persons who did not participate in any prior stage; the Board of Appeals may affirm, modify, or reverse, and its decision is the final action of the Exchange (Rule 605).
6. **Effect of suspension or termination.** A suspended party (12 months or less) loses trading access and fee benefits but remains bound by pre-existing obligations; a terminated party loses all rights other than to assert claims and may regain access only by reapplying under Chapter 3. Both remain subject to the Exchange's jurisdiction and must continue to cooperate in investigations and proceedings (Rule 606).
7. **Notice to the CFTC and the public.** The Exchange provides written notice of disciplinary actions to the parties and the CFTC, and makes the public disclosures required, consistent with CFTC Rules, whenever it suspends, expels, fines, or otherwise disciplines a person or denies access (Rule 607).

Exhibit H — Alphabetical list of all members, participants, subscribers, and other users

Bitnomial Exchange, LLC — Rulebook effective August 4, 2026; information provided as of September 4, 2026.

The members of the Exchange with respect to the trading of security futures products are its **Clearing Members**: futures commission merchants that agree to be regulated by the Exchange and with respect to which the Exchange undertakes to enforce compliance with its Rules (see Section 3(a)(3)(A) of the Exchange Act) and that, under the proposed amendments to Rule 803, are notice-registered with the SEC as broker-dealers where they clear security futures products for or on behalf of customers. All trading in security futures products on the Exchange is intermediated by a Clearing Member; any other person trades security futures products solely as a customer of a Clearing Member through clearing arrangements guaranteed by that Clearing Member (Rules 802, 811). Consistent with the Form 1-N adopting release, which provides that this Exhibit does not seek information regarding customers (Exchange Act Release No. 34-44692, 66 FR 43721, 43726 (Aug. 20, 2001)), the Exchange's Clearing Members are listed alphabetically below.

No member of the Exchange listed below is an individual; accordingly, item 2 of this Exhibit (entity association of individual users) is not applicable.

Separately, the Clearinghouse admits members that clear solely Fully Collateralized Swaps for their own accounts (Rules 803, 806). Such persons are members of the Clearinghouse, not of the Exchange; they do not trade, clear, or carry security futures products, and information regarding them accordingly does not relate to the trading of security futures products and is not within the scope of this Exhibit (see Exchange Act Release No. 34-44692: a notice-registrant provides information "only to the extent that such information directly relates to its proposed trading of security futures products").

Name	Class	Description
Bitnomial Clearing, LLC	Clearing Member	Futures commission merchant providing clearing services
Hidden Road Partners CIV US LLC	Clearing Member	Futures commission merchant and prime brokerage services
Marex Capital Markets, Inc.	Clearing Member	Futures commission merchant; subsidiary of Marex Group plc
NinjaTrader Clearing, LLC	Clearing Member	Futures commission merchant providing retail futures brokerage and clearing
R.J. O'Brien & Associates, LLC	Clearing Member	Futures commission merchant and brokerage services
Wedbush Securities Inc.	Clearing Member	Broker-dealer and futures commission merchant

Exhibit I — Schedule of security futures products proposed to be listed

Bitnomial Exchange, LLC — Rulebook effective August 4, 2026; information provided as of September 4, 2026.

The Exchange proposes to list **cash-settled futures contracts on individual equity securities (single-stock futures)**. Each contract will be a security future within the meaning of Section 1a(44) of the CEA and Section 3(a)(55) of the Exchange Act, will be cash settled, and will overlie a single equity security that is registered pursuant to Section 12 of the Exchange Act and listed on a national securities exchange. The schedule of proposed products is as follows:

#	Issuer	Underlying security	Ticker	Listing market
1	Tesla, Inc.	Common stock	TSLA	Nasdaq
2	Space Exploration Technologies Corp.	Common stock	SPCX	Nasdaq
3	NVIDIA Corporation	Common stock	NVDA	Nasdaq
4	Broadcom Inc.	Common stock	AVGO	Nasdaq
5	Micron Technology, Inc.	Common stock	MU	Nasdaq
6	Apple Inc.	Common stock	AAPL	Nasdaq
7	Microsoft Corporation	Common stock	MSFT	Nasdaq
8	Amazon.com, Inc.	Common stock	AMZN	Nasdaq
9	Alphabet Inc.	Class A common stock	GOOGL	Nasdaq
10	Palantir Technologies Inc.	Class A common stock	PLTR	Nasdaq

#	Issuer	Underlying security	Ticker	Listing market
11	Strategy Inc (f/k/a MicroStrategy Incorporated)	Class A common stock	MSTR	Nasdaq

Each issuer is a U.S. reporting company whose identified security is registered under Section 12(b) of the Exchange Act. Each future will be cash settled by reference to the price of the underlying security, with a final settlement price determined in accordance with 17 CFR § 41.25(c) so as to fairly reflect the opening price of the underlying security, and each product will be listed in accordance with the listing standards of CEA Section 2(a)(1)(D), SEA Section 6(h)(3), and 17 CFR §§ 41.21 and 41.25 (including the requirement that the underlying security not be readily susceptible to manipulation). Products will be listed pursuant to the Exchange's security futures product rules, which will be submitted to the SEC through the applicable rule-filing processes under Section 19(b) of the Exchange Act and to the CFTC under Part 40 of its regulations (see Exhibit B). The Exchange's Rules also permit the listing of cash-settled futures on narrow-based security indexes; the Exchange does not presently propose to list any such products, and any future listing would be subject to the applicable SEC and CFTC requirements and product filings.

Exhibit A-1

Delaware

The First State

Page 1

*I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF
DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT
COPY OF THE CERTIFICATE OF FORMATION OF "BITNOMIAL EXCHANGE,
LLC", FILED IN THIS OFFICE ON THE THIRTIETH DAY OF JUNE, A.D.
2016, AT 6:37 O`CLOCK P.M.*



Jeffrey W. Bullock, Secretary of State

6083879 8100
SR# 20164738352

You may verify this certificate online at corp.delaware.gov/authver.shtml

Authentication: 202593720
Date: 07-01-16

CERTIFICATE OF FORMATION
OF

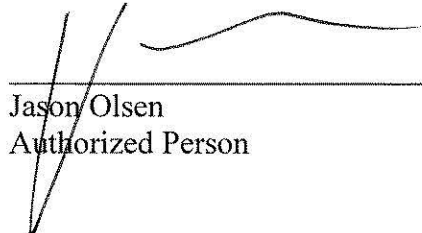
BITNOMIAL EXCHANGE, LLC

*Pursuant to Section 18-201 of the
Limited Liability Company Act of the State of Delaware*

This Certificate of Formation, dated as of the date set forth below, is being duly executed and filed by the undersigned, an authorized person, to form a limited liability company under the Delaware Limited Liability Company Act (6 Del. C. §18-101, et seq.).

- FIRST: The name of the limited liability company is Bitnomial Exchange, LLC (the "Company").
- SECOND: The address of the registered office of the Company in the State of Delaware is 1679 S. DuPont Highway, Suite 100, in the City of Dover, County of Kent, 19901.
- THIRD: The name and address of the registered agent for service of process on the Company in the State of Delaware is Registered Agent Solutions, Inc., 1679 S. DuPont Highway, Suite 100, in the City of Dover, County of Kent, 19901.
- FOURTH: The period of duration of the Company is perpetual.

IN WITNESS WHEREOF, the undersigned has executed this Certificate of Formation as of June 30, 2016.



Jason Olsen
Authorized Person

Exhibit A-2(a)

**LIMITED LIABILITY COMPANY AGREEMENT
OF
BITNOMIAL EXCHANGE, LLC**

THIS LIMITED LIABILITY COMPANY AGREEMENT OF BITNOMIAL EXCHANGE, LLC (the “**Agreement**”), dated as of June 30, 2016, is adopted, executed and agreed to by the sole Member (as defined below).

**ARTICLE I.
DEFINITIONS**

The following capitalized terms used in this Agreement shall have the meanings specified in this Article I.

§1.01 “Act” means the Delaware Limited Liability Company Act, as amended from time to time.

§1.02 “Affiliate” means with respect to a Person, any other Person that, directly or indirectly, controls, is controlled by, or is under common control with, the specified Person. As used in this definition, the term “control” means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of an entity, whether through ownership of voting securities, by contract or otherwise. Notwithstanding anything to the contrary, “Affiliate” shall not include the Company.

§1.03 “Agreement” has the meaning set forth in the Preamble.

§1.04 “Board” has the meaning set forth in Section 5.02.

§1.05 “CEA” means the U.S. Commodity Exchange Act, as amended from time to time.

§1.06 “CFTC” means the U.S. Commodity Futures Trading Commission or any successor thereto with similar regulatory authority over the Company and its business, activity, property, or assets.

§1.07 “Charter” has the meaning set forth in Section 5.11(a).

§1.08 “Code” means the U.S. Internal Revenue Code of 1986, as amended.

§1.09 “Company” means Bitnomial Exchange, LLC, a Delaware limited liability company.

§1.10 “Confidential Information” has the meaning set forth in Section 9.02(b).

§1.11 “Covered Person” means any current or former Member, Director, or Officer and, with respect to each such Person, such Person’s Affiliates, officers, directors, liquidators, partners, stockholders, managers, members, employees, heirs, executors, administrators, personal and legal representatives, successors in interest, and permitted assigns.

§1.12 “Director” has the meaning set forth in Section 5.05(a).

§1.13 “Disciplinary Panel” and “Disciplinary Panel Member” have the meanings set forth in Section 5.13.

§1.14 “Exchange” has the meaning set forth in Section 2.05.

§1.15 “Fiscal Year” means each twelve-month period (or portion thereof) beginning on January 1 and ending on December 31 of each year.

§1.16 “GAAP” means U.S. generally accepted accounting principles, as consistently applied.

§1.17 “Interests” has the meaning set forth in Section 3.03.

§1.18 “Member” means each Person signing this Agreement and any Person who subsequently is admitted as a member in the Company.

§1.19 “Nominating Committee” has the meaning set forth in Section 5.11(b).

§1.20 “Officer” has the meaning set forth in Section 5.12(a).

§1.21 “Participant Committee” has the meaning set forth in Section 5.11(d).

§1.22 “Person” means any individual, corporation, partnership, association, limited liability company, enterprise, trust, estate or other entity.

§1.23 “Regulatory Requirements” means any applicable law (including but not limited to, the Act), rules, regulations, or other requirements imposed by any governmental organization or agency that has authority or jurisdiction over the Company or its business, activities, property, or assets, including, but not limited to, the CFTC.

§1.24 “ROC” has the meaning set forth in Section 5.11(c).

§1.25 “Rulebook” has the meaning set forth in Section 2.07.

§1.26 “Transfer” means to sell, exchange, encumber, dispose, hypothecate, pledge, assign, mortgage or otherwise transfer or grant rights or interests, whether voluntary or involuntarily, by operation of law or otherwise.

§1.27 “Withdrawal” means a Member’s resignation from the Company by such Member’s express will or other voluntary act (other than a Transfer).

ARTICLE II.

GENERAL TERMS

§2.01 Formation. The Company has been formed as a Delaware limited liability company under and pursuant to Act.

§2.02 Term. The term of the Company commenced at the time the Articles were marked “Filed” by the Secretary of State of Delaware and shall continue in existence in perpetuity unless its existence is sooner terminated as provided herein.

§2.03 Office of and Agent for Service of Process. The registered office of the Company in Delaware shall be maintained at 1679 South DuPont Highway, Suite 100, Dover, Delaware 19801. The Company's agent for service of process on the Company at such address shall be Registered Agent Solutions, Inc.

§2.04 No State-Law Partnership. No provisions of this Agreement shall be deemed or construed to constitute the Company a partnership (including, without limitation, a limited partnership) or joint venture for state law purposes.

§2.05 Purposes. The purposes of the Company shall be to (a) engage in the development, ownership and operation of an exchange (the "**Exchange**") for the trading of financial instruments for commodities, and (b) engage in any other lawful act or activity for which limited liability companies may be organized under the Act as authorized by the Member pursuant to Section 5.03. The Company shall have all the powers necessary or convenient to carry out the purposes for which it is formed, including the powers granted by the Act.

§2.06 Powers. The Company shall have the power and authority to take any and all actions necessary, appropriate, proper, advisable, incidental or convenient to or in furtherance of the purposes of the Company, including all powers granted by the Act.

§2.07 The Rulebook. Activities conducted on the Exchange shall be subject to the rules of the Exchange as in effect from time to time (the "**Rulebook**"). To the extent there is any conflict between the Rulebook and this Agreement, this Agreement shall govern with respect to the subject matter hereof.

ARTICLE III. **MEMBERS**

§3.01 Member. Bitnomial, Inc., a Delaware corporation, is the sole member of the Company (the "**Member**").

§3.02 Admission of Additional Members. Additional members of the Company may be admitted to the Company only by the affirmative vote or written consent of the Member. For purposes of this Agreement, references to "**Member**" mean the sole Member and all other persons who become a member of the Company (if any) in accordance with this Agreement.

§3.03 Interests. The capital of the Company will be represented by membership interests ("**Interests**"). The Interests of the Member are reflected on Exhibit A, as the same may be amended from time to time. Unless the Member resolves otherwise, Interests will be issued without certificates.

§3.04 Capital Contributions. Concurrently with the execution of this Agreement, the Member has contributed to the Company such Member's initial capital contribution in the amount set forth in the books and records of the Company and will hold an interest in the Company represented by the Interests set forth opposite the Member's name on Exhibit A.

ARTICLE IV.
ALLOCATIONS, DISTRIBUTIONS AND CAPITAL ACCOUNTS

§4.01 Allocations of Net Profits and Net Losses. The profits, losses and other items of the Company will be allocated solely to the Member. There will be no “special allocations.”

§4.02 Distributions. The Member shall be entitled (a) to receive all distributions (including, without limitation, liquidating distributions) made by the Company and (b) to enjoy all other rights, benefits and interests in the Company.

§4.03 Capital Accounts. A Capital Account shall be maintained for the Member on the books of the Company and shall be adjusted from time to time pursuant to the terms of this Agreement. The Member’s Capital Account shall be increased by the value of each capital contribution made by the Member (net of any liability secured by such contributed property that the Company is considered to assume or take subject to) and allocations to such Member of net profits or other income. The Member’s Capital Account shall be decreased by the value of each Distribution made to the Member and allocations to such Member of net losses. If any property other than cash is distributed to the Member, the Capital Account of the Member shall be adjusted as if the property had been sold by the Company for a price equal to its fair market value (as determined solely by the Member in its reasonable discretion) and the proceeds distributed.

§4.04 Loans. The Member may make or cause a loan to be made to the Company in any amount and on those terms upon which the Company and such Member agree.

ARTICLE V.
MANAGEMENT

§5.01 Management by the Member. Except as otherwise provided in this Agreement, all decisions regarding the Company shall be made by the Member and the Member shall have the authority to delegate any decision making authority to the Board (as defined below).

§5.02 Delegation of Authority to Board of Directors. The management of the business and affairs of the Company shall be delegated by the Member to the board of directors (the “**Board**”). The Board shall have authority, power and discretion to manage and control the business and affairs of the Company, to make all decisions with respect thereto and to perform any and all other acts or activities customary or incident to the management of the Company’s business and affairs. Subject to the foregoing, the Board (acting on behalf of the Company) shall have the right, power and authority, in the management of the business and affairs of the Company, to do or cause to be done any and all acts, at the expense of the Company, deemed by the Board to be necessary or appropriate to effectuate the purposes of the Company. The Board shall have the power and authority to approve any revision to the Rulebook or the Company’s compliance procedures as in effect on the date of this Agreement or of any procedures in lieu of, or in addition to, the Rulebook or any compliance procedures of the Company. The Member may revoke the delegation of authority granted to the Board in this Section 5.02 at any time upon written notice to the Board.

§5.03 Acts Requiring the Consent of the Member. As a limitation on the powers of the Board as referenced in Section 5.02 above, the Board shall not have the power and authority to

approve or undertake any of the following actions, and only the Member's prior written consent shall be required for the following:

- (a) the entry by the Company into any line of business other than that set forth in Section 2.05(a) above;
- (b) the incurrence or issuance by the Company of indebtedness for borrowed money;
- (c) the sale, transfer or pledge by the Company for aggregate consideration greater than \$50,000 of (A) intellectual property or (B) assets or agreements of the Company;
- (d) the formation or dissolution of any subsidiary of the Company, and any sale or transfer by the Company of equity interests in any such subsidiary;
- (e) the annual approval of any business plan of the Company and any material changes to such approved business plan;
- (f) the annual approval of the budget of the Company, and any material changes to such approved annual budget;
- (g) the compensation (including, but not limited to, salaries, bonuses and awards under any incentive plans) of any Director, Officer, employee or agent of the Company;
- (h) any transaction between (A) the Company, on the one hand, and (B) any Person with an equity interest in the Member or any Affiliate thereof, on the other hand, other than (x) trading transactions conducted on the Exchange, and (y) transactions undertaken in the normal course of the Company's business at a price and on other material terms that are not less favorable to the Company than the price and other material terms generally prevailing with respect to comparable transactions between unrelated parties, as reasonably determined by the Member;
- (i) the appointment of any attorneys, independent certified accountants, tax counsel or other consultant to the Company;
- (j) the entry by the Company into any joint venture, strategic alliance, exclusive dealing, non-competition or similar commitment, other than as contemplated by a business plan and budget previously approved by the Member;
- (k) any recapitalization or any reorganization, any other change in organizational form, or any change in jurisdiction of organization of the Company;
- (l) any sale of the Company, or any sale, transfer or pledge of all or substantially all of the Company's assets;
- (m) any merger of the Company with or into, or any consolidation of the Company with, any other Person;
- (n) any acquisition by the Company of another Person or of any equity interest in another Person;

- (o) any amendment to this Agreement;
 - (p) any commencement by the Company of a voluntary case under any applicable bankruptcy, insolvency or other similar law or procedure, or the consent by the Company to the entry of an order for relief in an involuntary case under any such law or procedure;
 - (q) the authorization, issuance or sale by the Company of any equity interest in the Company, including options and warrants, pursuant to any plan or agreement adopted from and after the date of this Agreement;
 - (r) the adoption of any equity incentive plan by the Company;
 - (s) the appointment of any Officers, or the change of responsibility of the Officers;
- or
- (t) any liquidation or dissolution of the Company.

§5.04 Director Qualifications. Each Person elected or appointed as a Director, prior to serving on the Board, shall certify in writing to the Company that he (a) is not subject to a statutory disqualification under Section 8a(2) or (3) of the CEA, (b) does not have a history of disciplinary offenses as defined in CFTC Regulation 1.63(a)(6), and (c) meets the fitness standards as set forth in the Rulebook.

§5.05 Board Composition; Vacancies.

(a) Composition. The size and composition of the Board are determined by the Member, in its sole discretion. Initially, on the date of this Agreement, the Board shall be comprised of three Board members (each, a “**Director**”). The Member may expand the Board to allow for additional Directors provided that at all times not less than 35% of the Directors, but not fewer than two individuals, shall be “Public Directors”, as such term is defined by, and as such Board composition is required by, the CEA and regulations promulgated thereunder.

(b) Vacancies. In the event that a vacancy is created on the Board at any time due to the death, disability, retirement, resignation or removal of a Director, then the Member shall appoint a Person to fill the vacancy. If the vacancy is for a seat filed by a Public Director, the Member shall appoint a Person that satisfies the definition of a Public Director.

§5.06 Resignation; Removal.

(a) Resignation. A Director may resign at any time from the Board by delivering his written resignation to the Board. Any such resignation shall be effective upon receipt thereof unless it is specified to be effective at some other time or upon the occurrence of some other event. Neither the Member’s nor the Board’s acceptance of a resignation shall be necessary to make it effective.

(b) Removal. A Director may be removed at any time from the Board, with or without cause, by the Member.

§5.07 Meetings.

(a) Generally. The Board shall meet at such time and at such place as the Board may designate, but not less frequently than once each calendar quarter. Meetings of the Board may be held either in person, at the offices of the Company or such other place (either within or outside the State of Delaware) as may be determined from time to time by the Board, or by means of telephone, video conference, or other communications device that permits all Directors and other Persons participating in the meeting to hear each other, and a Director's participation in a meeting by such means shall constitute attendance in person at such meeting. Except as provided in Section 5.07(c), written notice of each meeting of the Board shall be given to each Director at least 24 hours prior to such meeting.

(b) Special Meetings. Special meetings of the Board shall be held on the call of the Member, the Chief Executive Officer, or any two Directors upon at least 5 days written notice (if the meeting is to be held in person) or upon 24 hours' written notice (if the meeting is to be held by telephone, video conference, or other communication device) to the Directors, or upon such shorter notice as may be approved by all of the Directors then in office or is practicable in the case of an emergency.

(c) Attendance and Waiver of Notice. Any Director may waive notice as to himself. Attendance by a Director at any meeting shall constitute a waiver of notice of such meeting, except where a Director attends a meeting solely for the express purpose of objecting to the transaction of any business on the ground that the meeting is not lawfully called or convened. Neither the business to be transacted at, nor the purpose of, any regular or special meeting of the Board need to be specified in the notice or waiver of such notice of such meeting.

§5.08 Quorum; Manner of Acting.

(a) Quorum. A majority of the Directors serving on the Board, including at least 1 Public Director, shall constitute a quorum for the transaction of business of the Board. At all times when the Board is conducting business at a meeting of the Board, a quorum of the Board must be present at such meeting. If a quorum shall not be present at any meeting of the Board, then the Directors present at the meeting may adjourn the meeting from time to time, without notice other than an announcement at the meeting, until a quorum shall be present.

(b) Binding Act. Each Director shall have 1 vote on all matters submitted to the Board (or any committee or subcommittee of the Board of which he is a member). With respect to any matter before the Board (or any committee or subcommittee), the act of a majority of the Directors constituting a quorum shall be the act of the Board (or committee or subcommittee).

§5.09 Action by Written Consent. Any action that may be taken by the Member or the Board under this Agreement may be taken without a meeting, without a vote and without prior notice, if a written consent or consents, including consents by facsimile or electronic mail, setting forth the action so taken are signed by an authorized representative of the Member or a minimum number of Directors who would be required to take such action if such action were taken by the Board at a

meeting at which all of the Directors were present.

§5.10 Compensation; No Employment Rights; Directors' Powers.

(a) Compensation. No Director shall be entitled to compensation for any services provided to the Company, except as authorized in writing by the Member. The Member may authorize the payment to Directors of a fixed sum and reimbursement of expenses for attendance, if any, at each regular or special meeting of the Board attended by such Directors. Nothing contained in this Section 5.10(a) shall be construed to preclude any Director from serving the Company in any other capacity and receiving compensation for such services.

(b) No Employment Rights. This Agreement does not, and is not intended to, confer upon any Director any rights with respect to employment or other retention by the Company, and nothing herein shall be construed to have created any employment or other agreement with any Person in his capacity as Director.

(c) Directors' Powers. Except as otherwise specifically provided by this Agreement or required by the Rulebook or the CEA, or any regulation promulgated thereunder, no Director, in his capacity as a Director, shall have the power to act for or on behalf of, or to bind, the Company without prior written authorization of the Member.

§5.11 Committees.

(a) General. The Board shall have the power and authority to establish committees and appoint Directors to serve on one or more committees of the Board, subject to any requirements under applicable law, including the CEA and regulations promulgated thereunder. The Board shall authorize and adopt a charter for each committee setting forth the committee's powers, authorities, and responsibilities ("**Charter**"). Each committee of the Board may determine the procedural rules for meeting and conducting its business and shall act in accordance therewith; provided however, that:

- (i) notice of the date, time and place of all meetings and the agenda for such meetings shall be given to all committee members, and waivers of notice may be effected, consistent with the notice provisions for Board meetings set forth in Section 5.07;
- (ii) a majority of the members of any committee shall constitute a quorum for any meeting of such committee;
- (iii) no committee member subject to a conflict of interest with respect to a matter, as reasonably determined by the Board or such committee, shall be entitled to vote on such matter;
- (iv) all matters to be decided upon at any meeting of a committee shall be determined by a vote or consent of a majority of the members of such committee then in office and entitled to vote on such matters;
- (v) action may be taken by any committee without a meeting, without prior

notice and without a vote, if all of the members of such committee consent to such action in writing (including by facsimile and electronic mail) and the writing or writings evidencing such consent are filed with the minutes of the proceedings of such committee;

- (vi) each committee shall keep minutes of its meetings and report its proceedings to the Board as and when required by the Board; and
- (vii) the Board has the power to call for review, and to affirm, modify, suspend or overrule, any and all decisions and actions of standing committees or special committees of the Board related to the day-to-day business operations of the Exchange.

(b) Nominating Committee. The Board shall appoint a nominating committee (“**Nominating Committee**”). The Nominating Committee shall have those powers, authorities, and responsibilities delegated to it by the Board in its Charter.

(c) Regulatory Oversight Committee. The Board shall appoint a Regulatory Oversight Committee (“**ROC**”), which shall be composed of only (100%) Public Directors. The ROC shall have those powers, authorities, and responsibilities delegated to it by the Board in its Charter.

(d) Participant Committee. The Board shall appoint an Exchange participation committee (“**Participant Committee**”), which shall be composed of at least 35% Public Directors. The Participant Committee shall have those powers, authorities, and responsibilities delegated to it by the Board in its Charter.

§5.12 Officers.

(a) General. The Member shall have the power and authority to appoint from time to time one or more individuals to serve as officers (“**Officers**”) of the Company, with such titles, duties and authority as the Member shall approve, to carry out the business of the Company upon such terms and conditions as the Member shall determine. The Officers of the Company as of the date of this Agreement shall continue to act in such capacity and consist of: (a) a Chief Executive Officer and President, (b) a Chief Financial Officer, (c) a Director of Market Operations & Surveillance, (d) a Director of Information Technology, and (e) a Chief Regulatory Officer. Any number of offices may be held by the same Person. Unless otherwise specified by the Member or this Agreement or required by the Act, the duties and authority of an Officer of the Company to act on behalf of the Company shall include the same duties and authority as an officer of a Delaware corporation (other than fiduciary duties) with the same title would have to act on behalf of a Delaware corporation in the absence of a specific delegation of authority. Any such Officer or agent shall hold office until the death, disability, retirement, resignation or removal of such Officer or agent.

(b) Resignation. Any Officer or agent of the Company may resign at any time by giving written notice to the Member or Board. Any such resignation shall take effect at the time specified therein, or if no time is specified, upon receipt thereof, and unless otherwise specified therein, acceptance of such resignation shall not be necessary to make it effective.

(c) Removal; Vacancies; Transfer of Duties. Any Officer may be removed from office, with or without cause, by the Member. The power and duties of any officer may be transferred in whole or in part by the Member to any other Officer or other individual, notwithstanding the other provisions of this Agreement.

(d) Compensation. The Officers shall be entitled to such salary or other compensation, including salaries, bonuses and any awards under an equity incentive plan at the discretion of the Member. The Member shall determine employee compensation matters including salaries, bonuses and any awards under an equity incentive plan.

(e) Third Party Reliance. Third parties dealing with the Company shall be entitled to rely conclusively upon the power and authority of any Officer acting within his or her authority on behalf of the Company.

§5.13 Disciplinary Panels. The Board may, in its discretion, but subject to any requirements under applicable law, including the CEA and regulations promulgated thereunder, establish one or more disciplinary panels (each a “**Disciplinary Panel**”), each of which generally shall be responsible for conducting hearings, rendering decisions, imposing sanctions, and reviewing appeals with respect to disciplinary matters as determined by the Board. Except as the Board may otherwise determine from time to time, each Disciplinary Panel shall be comprised of 3 individuals, at least one of whom would qualify as a Public Director, and such Person will chair the Disciplinary Panel. The number of individuals serving on any Disciplinary Panel (each a, “**Disciplinary Panel Member**”) may, subject to any requirements under applicable law, be increased or decreased from time to time by the Board. The Disciplinary Panel Members shall be appointed by the Board and may be removed from such position, either with or without cause, at any time by the Board.

ARTICLE VI.

DUTIES, INDEMNIFICATION AND EXCULPATION

§6.01 Interests to Consider; No Implied Duties.

(a) Interests to Consider. The Member and the Company hereby acknowledge and agree that, whenever a Covered Person is permitted or required to act or refrain from acting, or to make any other decision (solely in such Person’s capacity as a Covered Person) pursuant to any power or authority of such Person under this Agreement or the Act, he shall make such decision in a manner which he believes to be in the best interests of the Company and its Member.

(b) No Implied Duties. The provisions of this Agreement, including, but not limited to, the extent that they restrict or eliminate the duties, responsibilities, and liabilities of a Covered Person (acting solely in such Person’s capacity as a Covered Person) otherwise existing at law or in equity, are hereby acknowledged and agreed by the Member and the Company to replace, to the fullest extent permitted by law and equity, such other duties, responsibilities, and liabilities of such Covered Person. This Agreement is not intended to, and does not, create or impose on any Covered Person any duty, responsibility, or liability, including, but not limited to, any fiduciary duty, other than those expressly set forth herein. For the avoidance of doubt, the Member and the Company hereby acknowledge and agree that they

waive any and all fiduciary and other duties existing at law or in equity that, absent such waiver, may be implied under the Act, and in doing so, hereby acknowledges and agrees that the duties, responsibilities, and liabilities of each Covered Person (solely in such Person's capacity as a Covered Person) to the Company and the Member are only as expressly set forth in this Agreement.

§6.02 Limitation of Duties and Liabilities; Delegation; Reliance; Indemnification; Advancement; Effect of Amendment

(a) Limitation of Duties and Liabilities. Except as otherwise provided in the Act, to the fullest extent permitted by law, no Covered Person (solely in such Person's capacity as a Covered Person) shall have any duty or be responsible or liable to the Company or any Member, or to any other Person making claims on behalf of the Company (including, but not limited to, its creditors) or any Member, for any damages, expenses, liabilities, or losses as a result of any act or omission (in relation to the Company, any transaction, any investment, or any other action or inaction, including, but not limited to, for breach of contract, tort (including negligence), strict liability, violation of any applicable legal or equitable principle, or breach of duties (including fiduciary duties)), taken or omitted by the Covered Person, unless there has been a final and non-appealable judgment entered by a court of competent jurisdiction determining that, in respect of such act or omission, and taking into account the acknowledgments and agreements set forth in this Agreement, such Covered Person acted in bad faith, knowingly engaged in fraud or willful misconduct (including, but not limited to, acting beyond the scope of its or his authority) or, in the case of a criminal matter, acted with actual knowledge that such Covered Person's conduct was unlawful.

(b) Delegation. Subject to its duties and responsibilities as set forth in this Agreement, the Rulebook, and Regulatory Requirements, the Board may exercise any of the powers and authority granted to it by this Agreement and perform any of the duties and responsibilities imposed upon it hereunder either directly or by or through its committees, subcommittees, and agents, and neither the Board nor any Covered Person (acting solely in such Person's capacity as a Covered Person) shall have any duty or be responsible or liable to the Company or any Member, or to any other Person making claims on behalf of the Company (including, but not limited to, its creditors) or any Member, for any mistake, action, inaction, misconduct, negligence, fraud, or bad faith on the part of any such committee, subcommittee, or agent appointed by the Board unless, with respect to an individual Covered Person only, there has been a final and non-appealable judgment entered by a court of competent jurisdiction determining that, in respect of such delegation, and taking into account the acknowledgments and agreements set forth in this Agreement, such Covered Person had actual knowledge that such committee, subcommittee, or agent was acting in bad faith, knowingly engaging in fraud or willful misconduct (including, but not limited to, acting beyond the scope of its or his authority) or, in the case of a criminal matter, acting with actual knowledge that its or his conduct was unlawful.

(c) Reliance. Any Covered Person acting for, on behalf of, or in relation to the Company, any transaction, any investment, or any other action or inaction shall be entitled to rely upon the provisions of this Agreement and upon the advice of counsel, accountants, and other professionals or advisors that is provided to the Company, the Board, any committee or

subcommittee thereof, or such Covered Person (acting solely in such Person's capacity as a Covered Person), or upon any resolution, certificate, statement, instrument, opinion, report, notice, request, consent, order, bond, debenture, paper, document, signature, or writing reasonably believed by such Covered Person to be genuine, including, but not limited to, any certificate signed by an officer, agent, or representative of any Person, in order to ascertain any fact with respect to such Person or within such Person's knowledge, and such Covered Person shall not have any duty or be responsible or liable to the Company or to the Member, or to any other Person making claims on behalf of the Company (including, but not limited to, its creditors) or the Member, for such Covered Person's reliance thereon; *provided that*, in each case, there has not been a final and non-appealable judgment entered by a court of competent jurisdiction determining that, in respect of such reliance, and taking into account the acknowledgments and agreements set forth in this Agreement, such Covered Person acted in bad faith, knowingly engaged in fraud or willful misconduct (including, but not limited to, acting beyond the scope of his authority) or, in the case of a criminal matter, acted with actual knowledge that such Covered Person's reliance was unlawful.

(d) Indemnification. Each Covered Person (regardless of such Person's capacity and regardless of whether another Covered Person is entitled to indemnification) shall be indemnified and held harmless by the Company (but only to the extent of the Company's property and assets), to the fullest extent permitted under the Act, from and against any and all damage, expense, liability, and loss (including, but not limited to, taxes, penalties, judgments, fines, amounts paid or to be paid in settlement, costs of investigation and preparations, and fees, expenses, and disbursements of attorneys, whether or not the dispute or proceeding involves the Company or any Director, Officer, or Member) reasonably incurred or suffered by such Covered Person (solely in such Person's capacity as a Covered Person) in connection with the Company, any transaction, any investment, or any other action or inaction; *provided that*, such Covered Person shall not be so indemnified and held harmless for any proceeding initiated by such Covered Person; and *provided further that*, such Covered Person shall not be so indemnified and held harmless if there has been a final and non-appealable judgment entered by a court of competent jurisdiction determining that, in respect of the matter for which such Covered Person is seeking indemnification or seeking to be held harmless hereunder, and taking into account the acknowledgments and agreements set forth in this Agreement, such Covered Person acted in bad faith, knowingly engaged in fraud or willful misconduct (including, but not limited to, acting beyond the scope of his authority) or, in the case of a criminal matter, acted with actual knowledge that such Covered Person's conduct was unlawful. The indemnification provided by this Section 6.02(d) shall be in addition to any other rights to which a Covered Person may be entitled under any agreement, as a matter of law or equity, or otherwise, both as to actions and inactions in such Covered Person's capacity as a Covered Person and as to actions and inactions in any other capacity, and shall continue as to a Covered Person who has ceased to serve in such capacity and shall inure to the benefit of the heirs, executors, administrators, personal and legal representatives, successors in interest, and permitted assigns of such Covered Person.

(e) Advancement. Reasonable, documented expenses incurred by a Covered Person in defending any civil, criminal, administrative, or investigative action, suit, or proceeding referred to in Section 6.02 (d) shall be paid by the Company in advance of the final disposition of such action, suit, or proceeding; *provided that*, any such advance shall only be made if the

Covered Person delivers a written affirmation by such Covered Person of his good faith belief that he is entitled to indemnification under Section 6.02(d) and agrees to repay all amounts so advanced if it shall ultimately be determined that such Covered Person is not entitled to such indemnification.

(f) Effect of Amendment. Any amendment, modification, or repeal of this Section 6.02 or any provision hereof shall be prospective only and shall not in any way affect the limitations on duty, responsibility, and liability of the Covered Persons, or terminate, reduce, or impair the right of any past, present, or future Covered Person, under and in accordance with the provisions of this Section 6.02 as in effect immediately prior to such amendment, modification, or repeal, with respect to claims arising from or relating to matters occurring, in whole or in part, prior to such amendment, modification, or repeal, regardless of when such claims may arise or be asserted.

§6.03 Insurance. The Company shall (through the Company or the Member) maintain insurance (including directors' and officers' insurance) at levels that are consistent with industry practice, at its expense, and the Company may maintain such insurance to protect itself and any Covered Person, in each case against any damage, expense, liability, or loss, whether or not the Company would have the power to indemnify such Person against such damage, expense, liability, or loss under the Act or this Agreement.

ARTICLE VII.

TRANSFERS AND WITHDRAWALS

§7.01 Transfers. The Member may Transfer its Interests in whole or in part to any Person at any time.

§7.02 Withdrawals. Upon the occurrence of the Withdrawal of a Member, the Member's successor shall thereupon become a Member.

ARTICLE VIII.

DISSOLUTION, LIQUIDATION AND TERMINATION OF THE COMPANY

§8.01 Dissolution. The Company shall dissolve and its affairs shall be wound up at such time, if any, upon the written consent of the Member. No other event (including, without limitation, an event described in Section 18-801(4) of the Act) shall cause the Company to dissolve.

§8.02 Winding Up. If the Company is dissolved, the affairs of the Company shall be wound up by the Member or a liquidating agent appointed by the Member. Upon the winding up of the Company, the property and assets of the Company shall be distributed, first, to creditors, including all amounts owing to the Member under any agreement entered into between the Company and the Member or any Affiliate thereof to the extent permitted by law, in satisfaction of the liabilities of the Company, and then to the Member (or its successor in interest) in accordance with Section 4.02.

§8.03 Certificate of Cancellation. Upon the dissolution and completion of winding up the Company, a Certificate of Cancellation shall be filed with the Delaware Secretary of State in accordance with the provisions of Section 18-203 of the Act.

ARTICLE IX.
BOOKS, RECORDS, ACCOUNTS AND ACCOUNTING

§9.01 Books and Records. The Board shall keep or cause to be kept complete and accurate books and records of the Company and supporting documentation of the transactions with respect to the conduct of the Company's business and affairs and the ownership and maintenance of its property and assets. The books and records shall be maintained and reported in accordance with GAAP and all Regulatory Requirements. The Member shall have reasonable access to the books and records of the Company at any reasonable time during regular business hours without charge (and shall have the right to copy such books and records at its own expense).

§9.02 Confidentiality.

(a) Obligations. The Member and each Director recognizes and acknowledges that each of them will be entrusted with or have access to confidential and proprietary information which is the property of the Company and/or third parties (including Affiliates of the Company) to which the Company owes a duty of confidentiality. The Member and each Director agrees that, during the time that he, she or it is a Member or Director, and at all times thereafter, such Member or such Director shall (i) not, unless authorized in writing by the Member on behalf of the Company, directly or indirectly use, copy or duplicate or, disclose or otherwise make available to any third party, any Confidential Information (as defined below) other than in the performance of such Member's or Director's duties with respect to the Company, (ii) not assert prior knowledge of any item of Confidential Information that such Member or Director cannot prove by clear and convincing documentary evidence, (iii) take such protective measures as may be reasonably necessary to preserve the secrecy and interest of the Company in the Confidential Information, and (iv) not, without the prior written consent of the Member on behalf of the Company, utilize or convert Confidential Information for such Member's or Director's own benefit or gain, of whatever nature. Upon ceasing to be a Director for any reason whatsoever, or at any time requested by the Member, each Director shall promptly deliver or cause to be delivered any and all Confidential Information in such Director's possession, custody or control.

(b) Confidential Information Defined.

- (i) The term "**Confidential Information**" shall mean trade secrets and other non-public information, technical data or know-how relating to the Company, which may include, but not be limited to: research, products, services, inventions, processes, designs, drawings, engineering, marketing plans, finances, business plans and strategies, pricing, profits, losses, expenses and other financial information; lists of customers, investors, vendors and suppliers; any confidential information of any such customers, investors, vendors or suppliers; contractual arrangements, personnel records and other information relating to employees, training materials, statistical data, source codes, algorithms, proprietary technologies and other proprietary information used by the Company in connection with its businesses and/or which the Company is obligated to any third party (including Affiliates of the Company) to maintain as confidential.

- (ii) The Member and each Director acknowledges that the Confidential Information is vital, sensitive, confidential and proprietary to the Company. Notwithstanding the generality of the foregoing, the definition of “Confidential Information” does not include any information, materials, or data that is or becomes generally available to the public other than as a result of the Member’s or a Director’s unauthorized direct or indirect acts. As between the Company and a Director, the Company is and shall remain the exclusive owner of all rights, title, and interest in and to the Confidential Information.

§9.03 Bank Accounts. All funds of the Company shall be deposited in a bank account or accounts maintained in the Company’s name. The Member shall determine the institution or institutions at which the accounts will be opened and maintained, the types of accounts, and the Persons who will have authority with respect to the accounts and the funds therein.

§9.04 Annual Accounting Period and Taxable Year. The annual accounting period of the Company shall be its Fiscal Year. The Company’s taxable year shall be selected by the Member, subject to the requirements and limitations of the Code.

§9.05 Accounting Decisions. All decisions as to the Company’s accounting matters, except as specifically provided to the contrary herein, shall be made by the Member.

§9.06 Tax Returns. The Board shall, at the expense of the Company, cause to be prepared in a timely fashion after the end of the Fiscal Year, all federal and state income tax return information for the Company for such Fiscal Year, and delivered to the Member, which shall be deemed the “tax matters partner” (as defined in the Code). The Member is hereby authorized and required to represent the Company (at the Company’s expense) in connection with all examinations and audits of the affairs of the Company by any federal, state or local tax authorities and in any resulting administrative and judicial proceedings, and to expend funds of the Company for professional services and costs associated therewith.

ARTICLE X.

GENERAL PROVISIONS

§10.01 Construction. Any reference to any federal, state, local or foreign statute or law shall be deemed also to refer to all rules and regulations promulgated thereunder, unless the context requires otherwise. Whenever the context requires, the gender of all words used in this Agreement includes the masculine, feminine and neuter, and the singular number includes the plural number and vice versa. Unless otherwise indicated, all references to Articles and Sections refer to articles and sections of this Agreement, and all references to schedules and exhibits are to schedules and exhibits attached hereto, each of which is made a part hereof for all purposes. Reference in this Agreement to “includes” and “include” shall be deemed to be followed by “without limitation”, and references to “hereof”, “herein”, and similar expressions shall be deemed to be a reference to this Agreement. All references to accounting terms used herein (and not otherwise defined) refer to those terms determined in accordance with GAAP.

§10.02 Compliance with the Act. The Company and the Member agree not to take any action

(or fail to take any action) in contravention of this Agreement that, considered alone or in the aggregate with other actions or events, would result in the termination of the Company under the Act.

§10.03 Notices. Any notice, demand, consent, election, offer, approval, request, or other communication (collectively, a “**notice**”) required or permitted under this Agreement must be in writing and either delivered personally, sent by certified or registered mail, postage prepaid, return receipt requested, or sent by recognized overnight delivery service. A notice must be addressed to the Member at such Member’s address set forth in the books and records of the Company. A notice to the Company must be addressed to the Company’s principal office. A notice that is sent by mail will be deemed given: (i) five (5) Business Days to an address within the U.S. or (ii) seven (7) Business Days to an address outside of the U.S. after it is mailed. A notice sent by recognized overnight delivery service will be deemed given when received or refused. Any party may designate, by notice to all of the others, substitute addresses or addressees for notices; and, thereafter, notices are to be directed to those substitute addresses or addressees.

§10.04 Severability. The invalidity of any one or more provisions hereof or of any other agreement or instrument given pursuant to or in connection with this Agreement shall not affect the remaining portions of this Agreement or any such other agreement or instrument or any part thereof. In the event that one or more of the provisions contained herein or therein should be invalid, or should operate to render this Agreement or any such other agreement or instrument invalid, this Agreement and such other agreements and instruments shall be construed as if such invalid provisions had not formed part of this Agreement.

§10.05 Survival. It is the express intention and agreement of the parties that all covenants, agreements, statements, representations, warranties and indemnities made in this Agreement shall survive the execution and delivery of this Agreement.

§10.06 Waivers. No failure of the parties, on one or more occasions, to enforce any of the provisions of this Agreement or to exercise any right, remedy or privilege hereunder, shall be construed as a waiver of any such provisions, rights, remedies or privileges hereunder, nor shall any waiver by the parties of a breach of or a default under any of the provisions of this Agreement be construed as a waiver of any subsequent breach or default of a similar or other nature.

§10.07 Exercise of Rights. No failure or delay on the part of the parties in exercising any right, power or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise of any right, power or privilege hereunder preclude any other or further exercise thereof of the exercise of any other right, power or privilege. The rights and remedies herein expressly provided are cumulative and not exclusive of any other rights or remedies which the parties would otherwise have at law or in equity or otherwise.

§10.08 Binding Provisions. This Agreement is binding upon, and inures to the benefit of, the parties hereto and their respective shareholders, heirs, executors, administrators, personal and legal representatives, successors, and permitted assigns.

§10.09 No Third Party Beneficiaries. Nothing contained in this Agreement is intended to confer upon any Person, other than the parties hereto and any successors and assigns described herein, any rights or remedies under or by reason of this Agreement.

§10.10 Amendment. Any amendment of this Agreement may be made only in writing by the Member.

§10.11 Entire Agreement. This Agreement contains the entire agreement between the Member and the Company with respect to matters contemplated herein and supersedes all prior oral or written agreements, commitments or understandings with respect to the matters provided for herein and therein.

§10.12 Headings. The headings contained in this Agreement are inserted for convenience only and shall not be used to interpret or construe any provision of this Agreement.

§10.13 Governing Law. This Agreement, the rights and obligations of the parties hereto, and any claims or disputes relating thereto, shall be governed by and construed in accordance with the laws of the State of Delaware without regard to principles of conflict of laws.

§10.14 Specific Performance. Without limiting or waiving in any respect any rights or remedies of the parties under this Agreement now or hereinafter existing at law or in equity or by statute, each of the parties hereto shall be entitled to seek specific performance of the obligations to be performed by the other in accordance with the provisions of this Agreement.

§10.15 Submission to Jurisdiction; Waivers. Each party hereto hereby irrevocably and unconditionally:

(a) submits for itself and its property in any legal action or proceeding relating to this Agreement or for recognition and enforcement of any judgment in respect thereof, to the non-exclusive general jurisdiction of the courts of the State of Illinois, the courts of the United States of America for the Northern District of Illinois and appellate courts from any thereof;

(b) consents that any such action or proceeding may be brought in such courts and waives any objection that it may now or hereafter have to the venue of any such action or proceeding in any such court or that such action or proceeding was brought in an inconvenient court and agrees not to plead or claim the same;

(c) agrees that service of process in any such action or proceeding may be effected by mailing a copy thereof by registered or certified mail (or any substantially similar form of mail), postage prepaid, to such party; and

(d) agrees that nothing herein shall affect the right to effect service of process in any other manner permitted by law or shall limit the right to sue in any other jurisdiction.

§10.16 Waiver of Jury Trial. EACH OF THE PARTIES HERETO WAIVES ANY RIGHT TO TRIAL BY JURY IN ANY DISPUTE, WHETHER SOUNDING IN CONTRACT, TORT OR OTHERWISE, BETWEEN ANY OF THE PARTIES HERETO ARISING OUT OF OR RELATED TO THE TRANSACTIONS CONTEMPLATED BY THIS AGREEMENT OR ANY OTHER INSTRUMENT, DOCUMENT OR AGREEMENT EXECUTED OR DELIVERED IN CONNECTION HEREWITH. ANY PARTY HERETO MAY FILE AN ORIGINAL COUNTERPART OR A COPY OF THIS AGREEMENT WITH ANY COURT AS WRITTEN EVIDENCE OF THE CONSENT OF THE PARTIES HERETO TO THE WAIVER OF THEIR

RIGHT TO TRIAL BY JURY.

IN WITNESS WHEREOF, the undersigned, intending to be legally bound hereby, has duly executed this Agreement as of the date and year first written above.

MEMBER:

BITNOMIAL, INC.

By:  _____

Name: _____

Title: _____

EXHIBIT A

LIST OF MEMBERS AND MEMBERSHIP INTERESTS

Member	Address	Percentage Interest
Bitnomial, Inc.	230 West Superior Street, 2F #135 Chicago, Illinois 60654	100%

Exhibit A-2(b)

**LIMITED LIABILITY COMPANY AGREEMENT
OF
BITNOMIAL EXCHANGE, LLC**

THIS LIMITED LIABILITY COMPANY AGREEMENT OF BITNOMIAL EXCHANGE, LLC (the “**Agreement**”), dated as of June 30, 2016, is adopted, executed and agreed to by the sole Member (as defined below).

**ARTICLE I.
DEFINITIONS**

The following capitalized terms used in this Agreement shall have the meanings specified in this Article I.

§1.01 “Act” means the Delaware Limited Liability Company Act, as amended from time to time.

§1.02 “Affiliate” means with respect to a Person, any other Person that, directly or indirectly, controls, is controlled by, or is under common control with, the specified Person. As used in this definition, the term “control” means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of an entity, whether through ownership of voting securities, by contract or otherwise. Notwithstanding anything to the contrary, “Affiliate” shall not include the Company.

§1.03 “Agreement” has the meaning set forth in the Preamble.

§1.04 “Board” has the meaning set forth in Section 5.02.

§1.05 “CEA” means the U.S. Commodity Exchange Act, as amended from time to time.

§1.06 “CFTC” means the U.S. Commodity Futures Trading Commission or any successor thereto with similar regulatory authority over the Company and its business, activity, property, or assets.

§1.07 “Charter” has the meaning set forth in Section 5.11(a).

§1.08 “Code” means the U.S. Internal Revenue Code of 1986, as amended.

§1.09 “Company” means Bitnomial Exchange, LLC, a Delaware limited liability company.

§1.10 “Confidential Information” has the meaning set forth in Section 9.02(b).

§1.11 “Covered Person” means any current or former Member, Director, or Officer and, with respect to each such Person, such Person’s Affiliates, officers, directors, liquidators, partners, stockholders, managers, members, employees, heirs, executors, administrators, personal and legal representatives, successors in interest, and permitted assigns.

§1.12 “Director” has the meaning set forth in Section 5.05(a).

§1.13 “Disciplinary Panel” and “Disciplinary Panel Member” have the meanings set forth in Section 5.13.

§1.14 “Exchange” has the meaning set forth in Section 2.05.

§1.15 “Fiscal Year” means each twelve-month period (or portion thereof) beginning on January 1 and ending on December 31 of each year.

§1.16 “GAAP” means U.S. generally accepted accounting principles, as consistently applied.

§1.17 “Interests” has the meaning set forth in Section 3.03.

§1.18 “Member” means each Person signing this Agreement and any Person who subsequently is admitted as a member in the Company.

§1.19 “Nominating Committee” has the meaning set forth in Section 5.11(b).

§1.20 “Officer” has the meaning set forth in Section 5.12(a).

§1.21 “Participant Committee” has the meaning set forth in Section 5.11(d).

§1.22 “Person” means any individual, corporation, partnership, association, limited liability company, enterprise, trust, estate or other entity.

§1.23 “Regulatory Requirements” means any applicable law (including but not limited to, the Act), rules, regulations, or other requirements imposed by any governmental organization or agency that has authority or jurisdiction over the Company or its business, activities, property, or assets, including, but not limited to, the CFTC.

§1.24 “ROC” has the meaning set forth in Section 5.11(c).

§1.25 “Rulebook” has the meaning set forth in Section 2.07.

§1.26 “Transfer” means to sell, exchange, encumber, dispose, hypothecate, pledge, assign, mortgage or otherwise transfer or grant rights or interests, whether voluntary or involuntarily, by operation of law or otherwise.

§1.27 “Withdrawal” means a Member’s resignation from the Company by such Member’s express will or other voluntary act (other than a Transfer).

ARTICLE II.

GENERAL TERMS

§2.01 **Formation.** The Company has been formed as a Delaware limited liability company under and pursuant to Act.

§2.02 **Term.** The term of the Company commenced at the time the Articles were marked “Filed” by the Secretary of State of Delaware and shall continue in existence in perpetuity unless its existence is sooner terminated as provided herein.

§2.03 Office of and Agent for Service of Process. The registered office of the Company in Delaware shall be maintained at 1679 South DuPont Highway, Suite 100, Dover, Delaware 19801. The Company's agent for service of process on the Company at such address shall be Registered Agent Solutions, Inc.

§2.04 No State-Law Partnership. No provisions of this Agreement shall be deemed or construed to constitute the Company a partnership (including, without limitation, a limited partnership) or joint venture for state law purposes.

§2.05 Purposes. The purposes of the Company shall be to (a) engage in the development, ownership and operation of an exchange (the "**Exchange**") for the trading of financial instruments for commodities, and (b) engage in any other lawful act or activity for which limited liability companies may be organized under the Act as authorized by the Member pursuant to Section 5.03. The Company shall have all the powers necessary or convenient to carry out the purposes for which it is formed, including the powers granted by the Act.

§2.06 Powers. The Company shall have the power and authority to take any and all actions necessary, appropriate, proper, advisable, incidental or convenient to or in furtherance of the purposes of the Company, including all powers granted by the Act.

§2.07 The Rulebook. Activities conducted on the Exchange shall be subject to the rules of the Exchange as in effect from time to time (the "**Rulebook**"). To the extent there is any conflict between the Rulebook and this Agreement, this Agreement shall govern with respect to the subject matter hereof.

ARTICLE III.

MEMBERS

§3.01 Member. Bitnomial, Inc., a Delaware corporation, is the sole member of the Company (the "**Member**").

§3.02 Admission of Additional Members. Additional members of the Company may be admitted to the Company only by the affirmative vote or written consent of the Member. For purposes of this Agreement, references to "**Member**" mean the sole Member and all other persons who become a member of the Company (if any) in accordance with this Agreement.

§3.03 Interests. The capital of the Company will be represented by membership interests ("**Interests**"). The Interests of the Member are reflected on Exhibit A, as the same may be amended from time to time. Unless the Member resolves otherwise, Interests will be issued without certificates.

§3.04 Capital Contributions. Concurrently with the execution of this Agreement, the Member has contributed to the Company such Member's initial capital contribution in the amount set forth in the books and records of the Company and will hold an interest in the Company represented by the Interests set forth opposite the Member's name on Exhibit A.

ARTICLE IV.
ALLOCATIONS, DISTRIBUTIONS AND CAPITAL ACCOUNTS

§4.01 Allocations of Net Profits and Net Losses. The profits, losses and other items of the Company will be allocated solely to the Member. There will be no “special allocations.”

§4.02 Distributions. The Member shall be entitled (a) to receive all distributions (including, without limitation, liquidating distributions) made by the Company and (b) to enjoy all other rights, benefits and interests in the Company.

§4.03 Capital Accounts. A Capital Account shall be maintained for the Member on the books of the Company and shall be adjusted from time to time pursuant to the terms of this Agreement. The Member’s Capital Account shall be increased by the value of each capital contribution made by the Member (net of any liability secured by such contributed property that the Company is considered to assume or take subject to) and allocations to such Member of net profits or other income. The Member’s Capital Account shall be decreased by the value of each Distribution made to the Member and allocations to such Member of net losses. If any property other than cash is distributed to the Member, the Capital Account of the Member shall be adjusted as if the property had been sold by the Company for a price equal to its fair market value (as determined solely by the Member in its reasonable discretion) and the proceeds distributed.

§4.04 Loans. The Member may make or cause a loan to be made to the Company in any amount and on those terms upon which the Company and such Member agree.

ARTICLE V.
MANAGEMENT

§5.01 Management by the Member. Except as otherwise provided in this Agreement, all decisions regarding the Company shall be made by the Member and the Member shall have the authority to delegate any decision making authority to the Board (as defined below).

§5.02 Delegation of Authority to Board of Directors. The management of the business and affairs of the Company shall be delegated by the Member to the board of directors (the “**Board**”). The Board shall have authority, power and discretion to manage and control the business and affairs of the Company, to make all decisions with respect thereto and to perform any and all other acts or activities customary or incident to the management of the Company’s business and affairs. Subject to the foregoing, the Board (acting on behalf of the Company) shall have the right, power and authority, in the management of the business and affairs of the Company, to do or cause to be done any and all acts, at the expense of the Company, deemed by the Board to be necessary or appropriate to effectuate the purposes of the Company. The Board shall have the power and authority to approve any revision to the Rulebook or the Company’s compliance procedures as in effect on the date of this Agreement or of any procedures in lieu of, or in addition to, the Rulebook or any compliance procedures of the Company. The Member may revoke the delegation of authority granted to the Board in this Section 5.02 at any time upon written notice to the Board.

§5.03 Acts Requiring the Consent of the Member. As a limitation on the powers of the Board as referenced in Section 5.02 above, the Board shall not have the power and authority to

approve or undertake any of the following actions, and only the Member's prior written consent shall be required for the following:

- (a) the entry by the Company into any line of business other than that set forth in Section 2.05(a) above;
- (b) the incurrence or issuance by the Company of indebtedness for borrowed money;
- (c) the sale, transfer or pledge by the Company for aggregate consideration greater than \$50,000 of (A) intellectual property or (B) assets or agreements of the Company;
- (d) the formation or dissolution of any subsidiary of the Company, and any sale or transfer by the Company of equity interests in any such subsidiary;
- (e) the annual approval of any business plan of the Company and any material changes to such approved business plan;
- (f) the annual approval of the budget of the Company, and any material changes to such approved annual budget;
- (g) the compensation (including, but not limited to, salaries, bonuses and awards under any incentive plans) of any Director, Officer, employee or agent of the Company;
- (h) any transaction between (A) the Company, on the one hand, and (B) any Person with an equity interest in the Member or any Affiliate thereof, on the other hand, other than (x) trading transactions conducted on the Exchange, and (y) transactions undertaken in the normal course of the Company's business at a price and on other material terms that are not less favorable to the Company than the price and other material terms generally prevailing with respect to comparable transactions between unrelated parties, as reasonably determined by the Member;
- (i) the appointment of any attorneys, independent certified accountants, tax counsel or other consultant to the Company;
- (j) the entry by the Company into any joint venture, strategic alliance, exclusive dealing, non-competition or similar commitment, other than as contemplated by a business plan and budget previously approved by the Member;
- (k) any recapitalization or any reorganization, any other change in organizational form, or any change in jurisdiction of organization of the Company;
- (l) any sale of the Company, or any sale, transfer or pledge of all or substantially all of the Company's assets;
- (m) any merger of the Company with or into, or any consolidation of the Company with, any other Person;
- (n) any acquisition by the Company of another Person or of any equity interest in another Person;

- (o) any amendment to this Agreement;
 - (p) any commencement by the Company of a voluntary case under any applicable bankruptcy, insolvency or other similar law or procedure, or the consent by the Company to the entry of an order for relief in an involuntary case under any such law or procedure;
 - (q) the authorization, issuance or sale by the Company of any equity interest in the Company, including options and warrants, pursuant to any plan or agreement adopted from and after the date of this Agreement;
 - (r) the adoption of any equity incentive plan by the Company;
 - (s) the appointment of any Officers, or the change of responsibility of the Officers;
- or
- (t) any liquidation or dissolution of the Company.

§5.04 Director Qualifications. Each Person elected or appointed as a Director, prior to serving on the Board, shall certify in writing to the Company that he (a) is not subject to a statutory disqualification under Section 8a(2) or (3) of the CEA, (b) does not have a history of disciplinary offenses as defined in CFTC Regulation 1.63(a)(6), and (c) meets the fitness standards as set forth in the Rulebook.

§5.05 Board Composition; Vacancies.

(a) Composition. The size and composition of the Board are determined by the Member, in its sole discretion. Initially, on the date of this Agreement, the Board shall be comprised of three Board members (each, a “**Director**”). The Member may expand the Board to allow for additional Directors provided that at all times not less than 35% of the Directors, but not fewer than two individuals, shall be “Public Directors”, as such term is defined by, and as such Board composition is required by, the CEA and regulations promulgated thereunder.

(b) Vacancies. In the event that a vacancy is created on the Board at any time due to the death, disability, retirement, resignation or removal of a Director, then the Member shall appoint a Person to fill the vacancy. If the vacancy is for a seat filed by a Public Director, the Member shall appoint a Person that satisfies the definition of a Public Director.

§5.06 Resignation; Removal.

(a) Resignation. A Director may resign at any time from the Board by delivering his written resignation to the Board. Any such resignation shall be effective upon receipt thereof unless it is specified to be effective at some other time or upon the occurrence of some other event. Neither the Member’s nor the Board’s acceptance of a resignation shall be necessary to make it effective.

(b) Removal. A Director may be removed at any time from the Board, with or without cause, by the Member.

§5.07 Meetings.

(a) Generally. The Board shall meet at such time and at such place as the Board may designate, but not less frequently than once each calendar quarter. Meetings of the Board may be held either in person, at the offices of the Company or such other place (either within or outside the State of Delaware) as may be determined from time to time by the Board, or by means of telephone, video conference, or other communications device that permits all Directors and other Persons participating in the meeting to hear each other, and a Director's participation in a meeting by such means shall constitute attendance in person at such meeting. Except as provided in Section 5.07(c), written notice of each meeting of the Board shall be given to each Director at least 24 hours prior to such meeting.

(b) Special Meetings. Special meetings of the Board shall be held on the call of the Member, the Chief Executive Officer, or any two Directors upon at least 5 days written notice (if the meeting is to be held in person) or upon 24 hours' written notice (if the meeting is to be held by telephone, video conference, or other communication device) to the Directors, or upon such shorter notice as may be approved by all of the Directors then in office or is practicable in the case of an emergency.

(c) Attendance and Waiver of Notice. Any Director may waive notice as to himself. Attendance by a Director at any meeting shall constitute a waiver of notice of such meeting, except where a Director attends a meeting solely for the express purpose of objecting to the transaction of any business on the ground that the meeting is not lawfully called or convened. Neither the business to be transacted at, nor the purpose of, any regular or special meeting of the Board need to be specified in the notice or waiver of such notice of such meeting.

§5.08 Quorum; Manner of Acting.

(a) Quorum. A majority of the Directors serving on the Board, including at least 1 Public Director, shall constitute a quorum for the transaction of business of the Board. At all times when the Board is conducting business at a meeting of the Board, a quorum of the Board must be present at such meeting. If a quorum shall not be present at any meeting of the Board, then the Directors present at the meeting may adjourn the meeting from time to time, without notice other than an announcement at the meeting, until a quorum shall be present.

(b) Binding Act. Each Director shall have 1 vote on all matters submitted to the Board (or any committee or subcommittee of the Board of which he is a member). With respect to any matter before the Board (or any committee or subcommittee), the act of a majority of the Directors constituting a quorum shall be the act of the Board (or committee or subcommittee).

§5.09 Action by Written Consent. Any action that may be taken by the Member or the Board under this Agreement may be taken without a meeting, without a vote and without prior notice, if a written consent or consents, including consents by facsimile or electronic mail, setting forth the action so taken are signed by an authorized representative of the Member or a minimum number of Directors who would be required to take such action if such action were taken by the Board at a

meeting at which all of the Directors were present.

§5.10 Compensation; No Employment Rights; Directors' Powers.

(a) Compensation. No Director shall be entitled to compensation for any services provided to the Company, except as authorized in writing by the Member. The Member may authorize the payment to Directors of a fixed sum and reimbursement of expenses for attendance, if any, at each regular or special meeting of the Board attended by such Directors. Nothing contained in this Section 5.10(a) shall be construed to preclude any Director from serving the Company in any other capacity and receiving compensation for such services.

(b) No Employment Rights. This Agreement does not, and is not intended to, confer upon any Director any rights with respect to employment or other retention by the Company, and nothing herein shall be construed to have created any employment or other agreement with any Person in his capacity as Director.

(c) Directors' Powers. Except as otherwise specifically provided by this Agreement or required by the Rulebook or the CEA, or any regulation promulgated thereunder, no Director, in his capacity as a Director, shall have the power to act for or on behalf of, or to bind, the Company without prior written authorization of the Member.

§5.11 Committees.

(a) General. The Board shall have the power and authority to establish committees and appoint Directors to serve on one or more committees of the Board, subject to any requirements under applicable law, including the CEA and regulations promulgated thereunder. The Board shall authorize and adopt a charter for each committee setting forth the committee's powers, authorities, and responsibilities ("**Charter**"). Each committee of the Board may determine the procedural rules for meeting and conducting its business and shall act in accordance therewith; provided however, that:

- (i) notice of the date, time and place of all meetings and the agenda for such meetings shall be given to all committee members, and waivers of notice may be effected, consistent with the notice provisions for Board meetings set forth in Section 5.07;
- (ii) a majority of the members of any committee shall constitute a quorum for any meeting of such committee;
- (iii) no committee member subject to a conflict of interest with respect to a matter, as reasonably determined by the Board or such committee, shall be entitled to vote on such matter;
- (iv) all matters to be decided upon at any meeting of a committee shall be determined by a vote or consent of a majority of the members of such committee then in office and entitled to vote on such matters;
- (v) action may be taken by any committee without a meeting, without prior

notice and without a vote, if all of the members of such committee consent to such action in writing (including by facsimile and electronic mail) and the writing or writings evidencing such consent are filed with the minutes of the proceedings of such committee;

- (vi) each committee shall keep minutes of its meetings and report its proceedings to the Board as and when required by the Board; and
- (vii) the Board has the power to call for review, and to affirm, modify, suspend or overrule, any and all decisions and actions of standing committees or special committees of the Board related to the day-to-day business operations of the Exchange.

(b) Nominating Committee. The Board shall appoint a nominating committee (“**Nominating Committee**”). The Nominating Committee shall have those powers, authorities, and responsibilities delegated to it by the Board in its Charter.

(c) Regulatory Oversight Committee. The Board shall appoint a Regulatory Oversight Committee (“**ROC**”), which shall be composed of only (100%) Public Directors. The ROC shall have those powers, authorities, and responsibilities delegated to it by the Board in its Charter.

(d) Participant Committee. The Board shall appoint an Exchange participation committee (“**Participant Committee**”), which shall be composed of at least 35% Public Directors. The Participant Committee shall have those powers, authorities, and responsibilities delegated to it by the Board in its Charter.

§5.12 Officers.

(a) General. The Member shall have the power and authority to appoint from time to time one or more individuals to serve as officers (“**Officers**”) of the Company, with such titles, duties and authority as the Member shall approve, to carry out the business of the Company upon such terms and conditions as the Member shall determine. The Officers of the Company as of the date of this Agreement shall continue to act in such capacity and consist of: (a) a Chief Executive Officer and President, (b) a Chief Financial Officer, (c) a Director of Market Operations & Surveillance, (d) a Director of Information Technology, and (e) a Chief Regulatory Officer. Any number of offices may be held by the same Person. Unless otherwise specified by the Member or this Agreement or required by the Act, the duties and authority of an Officer of the Company to act on behalf of the Company shall include the same duties and authority as an officer of a Delaware corporation (other than fiduciary duties) with the same title would have to act on behalf of a Delaware corporation in the absence of a specific delegation of authority. Any such Officer or agent shall hold office until the death, disability, retirement, resignation or removal of such Officer or agent.

(b) Resignation. Any Officer or agent of the Company may resign at any time by giving written notice to the Member or Board. Any such resignation shall take effect at the time specified therein, or if no time is specified, upon receipt thereof, and unless otherwise specified therein, acceptance of such resignation shall not be necessary to make it effective.

(c) Removal; Vacancies; Transfer of Duties. Any Officer may be removed from office, with or without cause, by the Member. The power and duties of any officer may be transferred in whole or in part by the Member to any other Officer or other individual, notwithstanding the other provisions of this Agreement.

(d) Compensation. The Officers shall be entitled to such salary or other compensation, including salaries, bonuses and any awards under an equity incentive plan at the discretion of the Member. The Member shall determine employee compensation matters including salaries, bonuses and any awards under an equity incentive plan.

(e) Third Party Reliance. Third parties dealing with the Company shall be entitled to rely conclusively upon the power and authority of any Officer acting within his or her authority on behalf of the Company.

§5.13 Disciplinary Panels. The Board may, in its discretion, but subject to any requirements under applicable law, including the CEA and regulations promulgated thereunder, establish one or more disciplinary panels (each a “**Disciplinary Panel**”), each of which generally shall be responsible for conducting hearings, rendering decisions, imposing sanctions, and reviewing appeals with respect to disciplinary matters as determined by the Board. Except as the Board may otherwise determine from time to time, each Disciplinary Panel shall be comprised of 3 individuals, at least one of whom would qualify as a Public Director, and such Person will chair the Disciplinary Panel. The number of individuals serving on any Disciplinary Panel (each a, “**Disciplinary Panel Member**”) may, subject to any requirements under applicable law, be increased or decreased from time to time by the Board. The Disciplinary Panel Members shall be appointed by the Board and may be removed from such position, either with or without cause, at any time by the Board.

ARTICLE VI.

DUTIES, INDEMNIFICATION AND EXCULPATION

§6.01 Interests to Consider; No Implied Duties.

(a) Interests to Consider. The Member and the Company hereby acknowledge and agree that, whenever a Covered Person is permitted or required to act or refrain from acting, or to make any other decision (solely in such Person’s capacity as a Covered Person) pursuant to any power or authority of such Person under this Agreement or the Act, he shall make such decision in a manner which he believes to be in the best interests of the Company and its Member.

(b) No Implied Duties. The provisions of this Agreement, including, but not limited to, the extent that they restrict or eliminate the duties, responsibilities, and liabilities of a Covered Person (acting solely in such Person’s capacity as a Covered Person) otherwise existing at law or in equity, are hereby acknowledged and agreed by the Member and the Company to replace, to the fullest extent permitted by law and equity, such other duties, responsibilities, and liabilities of such Covered Person. This Agreement is not intended to, and does not, create or impose on any Covered Person any duty, responsibility, or liability, including, but not limited to, any fiduciary duty, other than those expressly set forth herein. For the avoidance of doubt, the Member and the Company hereby acknowledge and agree that they

waive any and all fiduciary and other duties existing at law or in equity that, absent such waiver, may be implied under the Act, and in doing so, hereby acknowledges and agrees that the duties, responsibilities, and liabilities of each Covered Person (solely in such Person's capacity as a Covered Person) to the Company and the Member are only as expressly set forth in this Agreement.

§6.02 Limitation of Duties and Liabilities; Delegation; Reliance; Indemnification; Advancement; Effect of Amendment

(a) Limitation of Duties and Liabilities. Except as otherwise provided in the Act, to the fullest extent permitted by law, no Covered Person (solely in such Person's capacity as a Covered Person) shall have any duty or be responsible or liable to the Company or any Member, or to any other Person making claims on behalf of the Company (including, but not limited to, its creditors) or any Member, for any damages, expenses, liabilities, or losses as a result of any act or omission (in relation to the Company, any transaction, any investment, or any other action or inaction, including, but not limited to, for breach of contract, tort (including negligence), strict liability, violation of any applicable legal or equitable principle, or breach of duties (including fiduciary duties)), taken or omitted by the Covered Person, unless there has been a final and non-appealable judgment entered by a court of competent jurisdiction determining that, in respect of such act or omission, and taking into account the acknowledgments and agreements set forth in this Agreement, such Covered Person acted in bad faith, knowingly engaged in fraud or willful misconduct (including, but not limited to, acting beyond the scope of its or his authority) or, in the case of a criminal matter, acted with actual knowledge that such Covered Person's conduct was unlawful.

(b) Delegation. Subject to its duties and responsibilities as set forth in this Agreement, the Rulebook, and Regulatory Requirements, the Board may exercise any of the powers and authority granted to it by this Agreement and perform any of the duties and responsibilities imposed upon it hereunder either directly or by or through its committees, subcommittees, and agents, and neither the Board nor any Covered Person (acting solely in such Person's capacity as a Covered Person) shall have any duty or be responsible or liable to the Company or any Member, or to any other Person making claims on behalf of the Company (including, but not limited to, its creditors) or any Member, for any mistake, action, inaction, misconduct, negligence, fraud, or bad faith on the part of any such committee, subcommittee, or agent appointed by the Board unless, with respect to an individual Covered Person only, there has been a final and non-appealable judgment entered by a court of competent jurisdiction determining that, in respect of such delegation, and taking into account the acknowledgments and agreements set forth in this Agreement, such Covered Person had actual knowledge that such committee, subcommittee, or agent was acting in bad faith, knowingly engaging in fraud or willful misconduct (including, but not limited to, acting beyond the scope of its or his authority) or, in the case of a criminal matter, acting with actual knowledge that its or his conduct was unlawful.

(c) Reliance. Any Covered Person acting for, on behalf of, or in relation to the Company, any transaction, any investment, or any other action or inaction shall be entitled to rely upon the provisions of this Agreement and upon the advice of counsel, accountants, and other professionals or advisors that is provided to the Company, the Board, any committee or

subcommittee thereof, or such Covered Person (acting solely in such Person's capacity as a Covered Person), or upon any resolution, certificate, statement, instrument, opinion, report, notice, request, consent, order, bond, debenture, paper, document, signature, or writing reasonably believed by such Covered Person to be genuine, including, but not limited to, any certificate signed by an officer, agent, or representative of any Person, in order to ascertain any fact with respect to such Person or within such Person's knowledge, and such Covered Person shall not have any duty or be responsible or liable to the Company or to the Member, or to any other Person making claims on behalf of the Company (including, but not limited to, its creditors) or the Member, for such Covered Person's reliance thereon; *provided that*, in each case, there has not been a final and non-appealable judgment entered by a court of competent jurisdiction determining that, in respect of such reliance, and taking into account the acknowledgments and agreements set forth in this Agreement, such Covered Person acted in bad faith, knowingly engaged in fraud or willful misconduct (including, but not limited to, acting beyond the scope of his authority) or, in the case of a criminal matter, acted with actual knowledge that such Covered Person's reliance was unlawful.

(d) Indemnification. Each Covered Person (regardless of such Person's capacity and regardless of whether another Covered Person is entitled to indemnification) shall be indemnified and held harmless by the Company (but only to the extent of the Company's property and assets), to the fullest extent permitted under the Act, from and against any and all damage, expense, liability, and loss (including, but not limited to, taxes, penalties, judgments, fines, amounts paid or to be paid in settlement, costs of investigation and preparations, and fees, expenses, and disbursements of attorneys, whether or not the dispute or proceeding involves the Company or any Director, Officer, or Member) reasonably incurred or suffered by such Covered Person (solely in such Person's capacity as a Covered Person) in connection with the Company, any transaction, any investment, or any other action or inaction; *provided that*, such Covered Person shall not be so indemnified and held harmless for any proceeding initiated by such Covered Person; and *provided further that*, such Covered Person shall not be so indemnified and held harmless if there has been a final and non-appealable judgment entered by a court of competent jurisdiction determining that, in respect of the matter for which such Covered Person is seeking indemnification or seeking to be held harmless hereunder, and taking into account the acknowledgments and agreements set forth in this Agreement, such Covered Person acted in bad faith, knowingly engaged in fraud or willful misconduct (including, but not limited to, acting beyond the scope of his authority) or, in the case of a criminal matter, acted with actual knowledge that such Covered Person's conduct was unlawful. The indemnification provided by this Section 6.02(d) shall be in addition to any other rights to which a Covered Person may be entitled under any agreement, as a matter of law or equity, or otherwise, both as to actions and inactions in such Covered Person's capacity as a Covered Person and as to actions and inactions in any other capacity, and shall continue as to a Covered Person who has ceased to serve in such capacity and shall inure to the benefit of the heirs, executors, administrators, personal and legal representatives, successors in interest, and permitted assigns of such Covered Person.

(e) Advancement. Reasonable, documented expenses incurred by a Covered Person in defending any civil, criminal, administrative, or investigative action, suit, or proceeding referred to in Section 6.02 (d) shall be paid by the Company in advance of the final disposition of such action, suit, or proceeding; *provided that*, any such advance shall only be made if the

Covered Person delivers a written affirmation by such Covered Person of his good faith belief that he is entitled to indemnification under Section 6.02(d) and agrees to repay all amounts so advanced if it shall ultimately be determined that such Covered Person is not entitled to such indemnification.

(f) Effect of Amendment. Any amendment, modification, or repeal of this Section 6.02 or any provision hereof shall be prospective only and shall not in any way affect the limitations on duty, responsibility, and liability of the Covered Persons, or terminate, reduce, or impair the right of any past, present, or future Covered Person, under and in accordance with the provisions of this Section 6.02 as in effect immediately prior to such amendment, modification, or repeal, with respect to claims arising from or relating to matters occurring, in whole or in part, prior to such amendment, modification, or repeal, regardless of when such claims may arise or be asserted.

§6.03 Insurance. The Company shall (through the Company or the Member) maintain insurance (including directors' and officers' insurance) at levels that are consistent with industry practice, at its expense, and the Company may maintain such insurance to protect itself and any Covered Person, in each case against any damage, expense, liability, or loss, whether or not the Company would have the power to indemnify such Person against such damage, expense, liability, or loss under the Act or this Agreement.

ARTICLE VII.

TRANSFERS AND WITHDRAWALS

§7.01 Transfers. The Member may Transfer its Interests in whole or in part to any Person at any time.

§7.02 Withdrawals. Upon the occurrence of the Withdrawal of a Member, the Member's successor shall thereupon become a Member.

ARTICLE VIII.

DISSOLUTION, LIQUIDATION AND TERMINATION OF THE COMPANY

§8.01 Dissolution. The Company shall dissolve and its affairs shall be wound up at such time, if any, upon the written consent of the Member. No other event (including, without limitation, an event described in Section 18-801(4) of the Act) shall cause the Company to dissolve.

§8.02 Winding Up. If the Company is dissolved, the affairs of the Company shall be wound up by the Member or a liquidating agent appointed by the Member. Upon the winding up of the Company, the property and assets of the Company shall be distributed, first, to creditors, including all amounts owing to the Member under any agreement entered into between the Company and the Member or any Affiliate thereof to the extent permitted by law, in satisfaction of the liabilities of the Company, and then to the Member (or its successor in interest) in accordance with Section 4.02.

§8.03 Certificate of Cancellation. Upon the dissolution and completion of winding up the Company, a Certificate of Cancellation shall be filed with the Delaware Secretary of State in accordance with the provisions of Section 18-203 of the Act.

ARTICLE IX.
BOOKS, RECORDS, ACCOUNTS AND ACCOUNTING

§9.01 Books and Records. The Board shall keep or cause to be kept complete and accurate books and records of the Company and supporting documentation of the transactions with respect to the conduct of the Company's business and affairs and the ownership and maintenance of its property and assets. The books and records shall be maintained and reported in accordance with GAAP and all Regulatory Requirements. The Member shall have reasonable access to the books and records of the Company at any reasonable time during regular business hours without charge (and shall have the right to copy such books and records at its own expense).

§9.02 Confidentiality.

(a) Obligations. The Member and each Director recognizes and acknowledges that each of them will be entrusted with or have access to confidential and proprietary information which is the property of the Company and/or third parties (including Affiliates of the Company) to which the Company owes a duty of confidentiality. The Member and each Director agrees that, during the time that he, she or it is a Member or Director, and at all times thereafter, such Member or such Director shall (i) not, unless authorized in writing by the Member on behalf of the Company, directly or indirectly use, copy or duplicate or, disclose or otherwise make available to any third party, any Confidential Information (as defined below) other than in the performance of such Member's or Director's duties with respect to the Company, (ii) not assert prior knowledge of any item of Confidential Information that such Member or Director cannot prove by clear and convincing documentary evidence, (iii) take such protective measures as may be reasonably necessary to preserve the secrecy and interest of the Company in the Confidential Information, and (iv) not, without the prior written consent of the Member on behalf of the Company, utilize or convert Confidential Information for such Member's or Director's own benefit or gain, of whatever nature. Upon ceasing to be a Director for any reason whatsoever, or at any time requested by the Member, each Director shall promptly deliver or cause to be delivered any and all Confidential Information in such Director's possession, custody or control.

(b) Confidential Information Defined.

- (i) The term "**Confidential Information**" shall mean trade secrets and other non-public information, technical data or know-how relating to the Company, which may include, but not be limited to: research, products, services, inventions, processes, designs, drawings, engineering, marketing plans, finances, business plans and strategies, pricing, profits, losses, expenses and other financial information; lists of customers, investors, vendors and suppliers; any confidential information of any such customers, investors, vendors or suppliers; contractual arrangements, personnel records and other information relating to employees, training materials, statistical data, source codes, algorithms, proprietary technologies and other proprietary information used by the Company in connection with its businesses and/or which the Company is obligated to any third party (including Affiliates of the Company) to maintain as confidential.

- (ii) The Member and each Director acknowledges that the Confidential Information is vital, sensitive, confidential and proprietary to the Company. Notwithstanding the generality of the foregoing, the definition of “Confidential Information” does not include any information, materials, or data that is or becomes generally available to the public other than as a result of the Member’s or a Director’s unauthorized direct or indirect acts. As between the Company and a Director, the Company is and shall remain the exclusive owner of all rights, title, and interest in and to the Confidential Information.

§9.03 Bank Accounts. All funds of the Company shall be deposited in a bank account or accounts maintained in the Company’s name. The Member shall determine the institution or institutions at which the accounts will be opened and maintained, the types of accounts, and the Persons who will have authority with respect to the accounts and the funds therein.

§9.04 Annual Accounting Period and Taxable Year. The annual accounting period of the Company shall be its Fiscal Year. The Company’s taxable year shall be selected by the Member, subject to the requirements and limitations of the Code.

§9.05 Accounting Decisions. All decisions as to the Company’s accounting matters, except as specifically provided to the contrary herein, shall be made by the Member.

§9.06 Tax Returns. The Board shall, at the expense of the Company, cause to be prepared in a timely fashion after the end of the Fiscal Year, all federal and state income tax return information for the Company for such Fiscal Year, and delivered to the Member, which shall be deemed the “tax matters partner” (as defined in the Code). The Member is hereby authorized and required to represent the Company (at the Company’s expense) in connection with all examinations and audits of the affairs of the Company by any federal, state or local tax authorities and in any resulting administrative and judicial proceedings, and to expend funds of the Company for professional services and costs associated therewith.

ARTICLE X.

GENERAL PROVISIONS

§10.01 Construction. Any reference to any federal, state, local or foreign statute or law shall be deemed also to refer to all rules and regulations promulgated thereunder, unless the context requires otherwise. Whenever the context requires, the gender of all words used in this Agreement includes the masculine, feminine and neuter, and the singular number includes the plural number and vice versa. Unless otherwise indicated, all references to Articles and Sections refer to articles and sections of this Agreement, and all references to schedules and exhibits are to schedules and exhibits attached hereto, each of which is made a part hereof for all purposes. Reference in this Agreement to “includes” and “include” shall be deemed to be followed by “without limitation”, and references to “hereof”, “herein”, and similar expressions shall be deemed to be a reference to this Agreement. All references to accounting terms used herein (and not otherwise defined) refer to those terms determined in accordance with GAAP.

§10.02 Compliance with the Act. The Company and the Member agree not to take any action

(or fail to take any action) in contravention of this Agreement that, considered alone or in the aggregate with other actions or events, would result in the termination of the Company under the Act.

§10.03 Notices. Any notice, demand, consent, election, offer, approval, request, or other communication (collectively, a “notice”) required or permitted under this Agreement must be in writing and either delivered personally, sent by certified or registered mail, postage prepaid, return receipt requested, or sent by recognized overnight delivery service. A notice must be addressed to the Member at such Member’s address set forth in the books and records of the Company. A notice to the Company must be addressed to the Company’s principal office. A notice that is sent by mail will be deemed given: (i) five (5) Business Days to an address within the U.S. or (ii) seven (7) Business Days to an address outside of the U.S. after it is mailed. A notice sent by recognized overnight delivery service will be deemed given when received or refused. Any party may designate, by notice to all of the others, substitute addresses or addressees for notices; and, thereafter, notices are to be directed to those substitute addresses or addressees.

§10.04 Severability. The invalidity of any one or more provisions hereof or of any other agreement or instrument given pursuant to or in connection with this Agreement shall not affect the remaining portions of this Agreement or any such other agreement or instrument or any part thereof. In the event that one or more of the provisions contained herein or therein should be invalid, or should operate to render this Agreement or any such other agreement or instrument invalid, this Agreement and such other agreements and instruments shall be construed as if such invalid provisions had not formed part of this Agreement.

§10.05 Survival. It is the express intention and agreement of the parties that all covenants, agreements, statements, representations, warranties and indemnities made in this Agreement shall survive the execution and delivery of this Agreement.

§10.06 Waivers. No failure of the parties, on one or more occasions, to enforce any of the provisions of this Agreement or to exercise any right, remedy or privilege hereunder, shall be construed as a waiver of any such provisions, rights, remedies or privileges hereunder, nor shall any waiver by the parties of a breach of or a default under any of the provisions of this Agreement be construed as a waiver of any subsequent breach or default of a similar or other nature.

§10.07 Exercise of Rights. No failure or delay on the part of the parties in exercising any right, power or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise of any right, power or privilege hereunder preclude any other or further exercise thereof of the exercise of any other right, power or privilege. The rights and remedies herein expressly provided are cumulative and not exclusive of any other rights or remedies which the parties would otherwise have at law or in equity or otherwise.

§10.08 Binding Provisions. This Agreement is binding upon, and inures to the benefit of, the parties hereto and their respective shareholders, heirs, executors, administrators, personal and legal representatives, successors, and permitted assigns.

§10.09 No Third Party Beneficiaries. Nothing contained in this Agreement is intended to confer upon any Person, other than the parties hereto and any successors and assigns described herein, any rights or remedies under or by reason of this Agreement.

§10.10 Amendment. Any amendment of this Agreement may be made only in writing by the Member.

§10.11 Entire Agreement. This Agreement contains the entire agreement between the Member and the Company with respect to matters contemplated herein and supersedes all prior oral or written agreements, commitments or understandings with respect to the matters provided for herein and therein.

§10.12 Headings. The headings contained in this Agreement are inserted for convenience only and shall not be used to interpret or construe any provision of this Agreement.

§10.13 Governing Law. This Agreement, the rights and obligations of the parties hereto, and any claims or disputes relating thereto, shall be governed by and construed in accordance with the laws of the State of Delaware without regard to principles of conflict of laws.

§10.14 Specific Performance. Without limiting or waiving in any respect any rights or remedies of the parties under this Agreement now or hereinafter existing at law or in equity or by statute, each of the parties hereto shall be entitled to seek specific performance of the obligations to be performed by the other in accordance with the provisions of this Agreement.

§10.15 Submission to Jurisdiction; Waivers. Each party hereto hereby irrevocably and unconditionally:

(a) submits for itself and its property in any legal action or proceeding relating to this Agreement or for recognition and enforcement of any judgment in respect thereof, to the non-exclusive general jurisdiction of the courts of the State of Illinois, the courts of the United States of America for the Northern District of Illinois and appellate courts from any thereof;

(b) consents that any such action or proceeding may be brought in such courts and waives any objection that it may now or hereafter have to the venue of any such action or proceeding in any such court or that such action or proceeding was brought in an inconvenient court and agrees not to plead or claim the same;

(c) agrees that service of process in any such action or proceeding may be effected by mailing a copy thereof by registered or certified mail (or any substantially similar form of mail), postage prepaid, to such party; and

(d) agrees that nothing herein shall affect the right to effect service of process in any other manner permitted by law or shall limit the right to sue in any other jurisdiction.

§10.16 Waiver of Jury Trial. EACH OF THE PARTIES HERETO WAIVES ANY RIGHT TO TRIAL BY JURY IN ANY DISPUTE, WHETHER SOUNDING IN CONTRACT, TORT OR OTHERWISE, BETWEEN ANY OF THE PARTIES HERETO ARISING OUT OF OR RELATED TO THE TRANSACTIONS CONTEMPLATED BY THIS AGREEMENT OR ANY OTHER INSTRUMENT, DOCUMENT OR AGREEMENT EXECUTED OR DELIVERED IN CONNECTION HEREWITH. ANY PARTY HERETO MAY FILE AN ORIGINAL COUNTERPART OR A COPY OF THIS AGREEMENT WITH ANY COURT AS WRITTEN EVIDENCE OF THE CONSENT OF THE PARTIES HERETO TO THE WAIVER OF THEIR

RIGHT TO TRIAL BY JURY.

IN WITNESS WHEREOF, the undersigned, intending to be legally bound hereby, has duly executed this Agreement as of the date and year first written above.

MEMBER:

BITNOMIAL, INC.

By: _____

Name: _____

Title: _____

EXHIBIT A

LIST OF MEMBERS AND MEMBERSHIP INTERESTS

Member	Address	Percentage Interest
Bitnomial, Inc.	318 W. Adams St. Chicago, IL 60606	100%

Exhibit B-1

Bitnomial Exchange, LLC & Bitnomial Clearinghouse, LLC

Rulebook

Effective Date: August 04, 2026

By initiating, executing, or clearing any transaction on or subject to the Rules of the Exchange or the Clearinghouse, and without any need for any further action, undertaking or agreement, each Participant, Authorized User, Customer and Clearing Member agrees: (1) to be bound by, and comply with, the Rules and Applicable Law, in each case to the extent applicable, and (2) to become subject to the jurisdiction of the Exchange and the Clearinghouse with respect to any and all matters arising from, related to, or in connection with, the status, actions or omissions of such Participant, Authorized User, Customer or Clearing Member.

Chapter 1: Definitions And Interpretations	5
Rule 101: Definitions	5
Rule 102: Scope and Interpretation	9
Chapter 2: Governance	10
Rule 201: Ownership	10
Rule 202: Board	10
Rule 203: Officers	11
Rule 204: Qualifications of Directors; Eligibility/Fitness	11
Rule 205: Standing Committees	12
Rule 206: Confidentiality	13
Rule 207: Conflicts of Interest	13
Rule 208: Maintenance of Books and Records	15
Rule 209: Information-Sharing Arrangements	15
Rule 210: Regulatory Services Provider	15
Rule 211: Use of Proprietary Data and Personal Information	16
Rule 212: Reporting Requirements	16
Rule 213: Emergency Rules	16
Chapter 3: Participation	18
Rule 301: Jurisdiction	18
Rule 302: Participants	18
Rule 303: Requirements for Participants	18
Rule 304: Compliance with Minimum Financial Requirements, Financial Reporting Requirements, and Requirements Relating to Protection of Customer Funds	19
Rule 305: Duties and Responsibilities of Participants	21
Rule 306: Authorized Users	21
Rule 307: Duties and Responsibilities of Authorized Users	22
Rule 308: Clearing Members Accessing the Exchange	22
Rule 309: Required Notices	23
Rule 310: Account Administrators	23
Rule 311: Access Requirements and Terms	23
Rule 312: Dues and Fees	24
Rule 313: Inspections by the Exchange	24
Rule 314: Incentive Programs	24
Chapter 4: Business Conduct And Trading Practices	25
Rule 401: Business Conduct	25
Rule 402: General Trading Practices	25
Rule 403: Pre-Arranged, Pre-Negotiated, and Noncompetitive Trades Prohibited	27
Rule 404: Disciplinary Procedures; Termination of Connection	28
Rule 405: Position Limits	28
Rule 406: Position Accountability	28
Rule 407: Reports of Large Positions	29
Rule 408: Aggregation of Positions	29
Rule 409: Reporting Levels, Position Accountability Levels and Position Limits	29
Rule 410: Information Disclosure and Documentation	29
Rule 411: Compliance	29
Chapter 5: Market Operations	31

Rule 501: Market Hours and Operation	31
Rule 502: Contracts Offered	31
Rule 503: User IDs	33
Rule 504: Exchange Trading	33
Rule 505: Block Trades	35
Rule 506: Exchange for Related Position [Reserved]	36
Rule 507: Position Transfers	36
Rule 508: Trade Cancellations; Trade Reviews	36
Rule 509: Settlement Prices	36
Rule 510: Recordkeeping; Audit Trail	37
Rule 511: Customer Type Indicator Codes	37
Rule 512: Information Regarding Orders	38
Rule 513: Disaster Recovery; Business Continuity	38
Rule 514: Spot Trading	38
Chapter 6: Discipline And Enforcement	40
Rule 601: Disciplinary and Enforcement Procedures – General	40
Rule 602: Process Considerations	40
Rule 603: Disciplinary Matters	41
Rule 604: Summary Actions	45
Rule 605: Appeal from Hearing Panel Decisions and Summary Actions	48
Rule 606: Rights and Responsibilities After Suspension or Termination	49
Rule 607: Notice to the Respondent, the CFTC, and the Public	49
Chapter 7: Arbitration	51
Rule 701: In General	51
Rule 702: Exceptions	51
Rule 703: Penalties	51
Chapter 8: Clearing	53
Rule 801: Clearing	53
Rule 802: Participants	53
Rule 803: Clearing Members	53
Rule 804: Application for Clearing Membership	54
Rule 805: Withdrawal of Clearing Membership	54
Rule 806: Responsibilities of Clearing Members	56
Rule 807: Clearing Member Financial Reporting Requirements	57
Rule 808: Notices Required of Clearing Members	58
Rule 809: Clearinghouse Authority	59
Rule 810: Liquidity Events	59
Rule 811: Acceptance for Clearing and Novation	60
Rule 812: Liens Held by the Clearinghouse	61
Rule 813: Settlement and Delivery	61
Rule 814: Defaults	63
Rule 815: Application of Funds	63
Rule 816: Liquidation on Termination or Suspension of Clearing Member	64
Rule 817: Close-Outs	64
Rule 818: Close-Out Netting	65
Rule 819: Guaranty Fund	67

Rule 820: Margins and Liquidations	67
Rule 821: Transfers of Open Positions	67
Rule 822: Amounts Payable to the Clearinghouse	68
Rule 823: Clearing Fees	68
Rule 824: Public Information	68
Chapter 9: Reserved	69
Chapter 10: Miscellaneous	70
Rule 1001: Trading by Officials Prohibited; Misuse of Material, Non-Public Information	70
Rule 1002: Market Data	70
Rule 1003: Recording of Communications	72
Rule 1004: Confidentiality	72
Rule 1005: Force Majeure	72
Rule 1006: Extension or Waiver of Rules	72
Rule 1007: Effect of Amendment, Repeal or New Rule	73
Rule 1008: Signatures	73
Rule 1009: Governing Law; Legal Proceedings	73
Rule 1010: Indemnification	73
Rule 1011: Limitation of Liability; No Warranties	73
Rule 1012: Affiliate Participants and Clearing Members	75
Chapter 11: Digital Asset Delivery	76
Rule 1101: Digital Asset Delivery Definitions	76
Rule 1102: Participant and Clearing Member Delivery Obligations	76
Rule 1103: Delivery Procedures	77
Rule 1104: Cost of Delivery	77
Rule 1105: Delivery Infractions	77
Rule 1106: Digital Asset Delivery Eligibility	78
Rule 1107: Settlement Facility Reporting Requirements	78

Chapter 1: Definitions And Interpretations

Rule 101: Definitions

The following terms as used in the Rules have the meanings set forth in this Chapter, unless otherwise specifically provided elsewhere in the Rules or required by the context.

- **Account Administrator:** means an officer or employee of a Participant appointed pursuant to Rule 310.
- **Affiliate:** means a Person who directly or indirectly, controls, is controlled by, or is under common control with another Person.
- **Affiliate Participants and Clearing Members:** has a meaning set forth in Rule 1012.
- **API:** means Application Programming Interface, a programmatic software interface.
- **Applicable Law:** means, with respect to any Person, any statute, law, regulation, rule or ordinance of any governmental or self-regulatory authority applicable to such Person, including the CEA and CFTC Rules.
- **Approved Financial Institution:** has the meaning set forth in Rule 803.2.7.
- **Audit Trail:** has the meaning set forth in Rule 510.
- **Authorized User:** means a natural person, authorized by the Exchange as an Authorized User in accordance with Rule 306, who is either employed by or is an agent of a Clearing Member or a Participant.
- **Bankruptcy Code:** means Title 11 of the U.S. Code.
- **Bankruptcy Event:** has the meaning set forth in Rule 818.
- **Block Trade:** means a privately negotiated transaction in a Contract that meets certain quantity thresholds and that is permitted to occur away from the Exchange and reported in accordance with Rule 505.
- **Board:** means the Board of Directors of the Exchange and the Clearinghouse, which serves as a single governing body for both entities.
- **Board of Appeals:** means a panel comprised of a chair and two individuals appointed by the Board to consider appeals under Chapter 6.
- **Board of Trade:** means a board of trade as defined in CEA Section 1a(6) that has been approved by the Clearinghouse for the submission of Contracts for clearing, including the Exchange.
- **Business Day:** means any day on which the Exchange and Clearinghouse are open for trading and clearing.
- **CEA:** means the Commodity Exchange Act, as amended from time to time.
- **CFTC:** means the U.S. Commodity Futures Trading Commission or any successor agency.
- **CFTC Rules:** means the rules, regulations and orders of the CFTC, as amended from time to time.
- **Chair:** means the Chair of the Board.
- **Chief Executive Officer:** means the individual appointed by the Board to serve as the chief executive officer.
- **Chief Regulatory Officer:** means the individual appointed by the Board to serve as the chief regulatory officer.

- **Clearinghouse:** means Bitnomial Clearinghouse, LLC, a Delaware limited liability company registered by the CFTC as a derivatives clearing organization that is designated by the Exchange to provide clearing services with respect to any or all of the Contracts.
- **Clearinghouse Official:** means any Officer or Employee of the Clearinghouse and any member of the Board, a committee established by the Board, a Hearing Panel or Board of Appeals.
- **Clearing Member:** means a Person meeting the requirements of, and approved for, clearing membership at the Clearinghouse pursuant to Rule 803 that is authorized pursuant to the Rules to clear Contracts.
- **Clearing Member Agreement:** means an agreement between the Clearinghouse and a Clearing Member which must be signed in order for a Clearing Member to have access to the Clearinghouse for clearing services with respect to any or all of the Contracts.
- **Close-Out Value:** has the meaning set forth in Rule 818.
- **Collateral:** means such property as may be delivered by a Clearing Member to the Clearinghouse as collateral for the obligations of such Clearing Member to the Clearinghouse (including but not limited to Initial Margin and Variation Margin), and all proceeds of the foregoing and all proceeds of any of the foregoing, held in or for the accounts of a Clearing Member in connection with the financial obligations of such Clearing Member, however created, arising or evidenced, whether direct or indirect, absolute or contingent, existing, due or to become due. A list of Collateral accepted by the Clearinghouse is available on the Website.
- **Compliance Department:** has the meaning set forth in Rule 602.
- **Contract:** means any contract, agreement, or transaction approved for trading on the Exchange or for clearing by the Clearinghouse and pursuant to the Rules.
- **Contract Specifications:** means the descriptions of the contractual items for each Contract as set forth in the document available on the Website.
- **CPT:** means Central Prevailing Time.
- **Customer:** means any Person for whom a Participant carries an account (other than such Participant or any of its affiliates) or from whom a Participant solicits or accepts an order.
- **Customer Account:** means an account established by a Clearing Member with the Clearinghouse in which the Clearing Member maintains trades, positions and Margin solely for Customers of the Clearing Member.
- **Daily Settlement Price:** means the price for each Contract supplied by the Board of Trade to the Clearinghouse at the end of each trading day. For Exchange Contracts, has the meaning set forth in Rule 509.
- **Director:** means an individual serving on the Board.
- **Disciplinary Action:** has the meaning set forth in Rule 601.
- **Disciplinary Committee:** means a function of the Compliance Department to fulfill various adjudicative responsibilities and duties described in Rule 602.
- **ECM:** or Entity Clearing Member, means an entity approved as a Clearing Member pursuant to Rule 803.
- **Emergency:** means the occurrences or circumstances which, in the opinion of the Board, require immediate action to be taken in accordance with Rule 213.
- **Exchange:** means Bitnomial Exchange, LLC, a Delaware limited liability company designated by the CFTC as a designated contract market.

- **Exchange Official:** means any Officer or employee of the Exchange and any member of the Board, a committee established by the Board, a Hearing Panel or Board of Appeals.
- **Expiry:** means the Contract date of expiration.
- **FCM:** means a futures commission merchant as defined in the CEA and CFTC Rules and registered with the CFTC as such.
- **Fully Collateralized Swap:** means a swap contract cleared by the Clearinghouse that requires the Clearinghouse to hold, at all times, funds in the form of the required payment sufficient to cover the maximum possible loss that a party or counterparty could incur upon liquidation or expiration of the contract, as defined in 17 CFR § 39.2.
- **FDICIA:** has the meaning set forth in Rule 818.
- **Final Settlement Price:** means the price for each Contract supplied by the Board of Trade to the Clearinghouse as the Final Settlement Price for the Expiry. For Exchange Contracts, has the meaning set forth in Rule 509.
- **Governmental Authority:** means any domestic or foreign government (or political subdivision), governmental or regulatory authority, agency, court, commission or other governmental or regulatory entity (including any Self-Regulatory Organization).
- **Guaranty Fund:** means fund comprising the monies, securities and instruments capitalized by Clearinghouse, which fund shall be used as provided in Rule 815 to reimburse the Clearinghouse for losses sustained by the Clearinghouse as a result of the failure of any Clearing Member to discharge its financial obligations in accordance with the Rules.
- **House Account:** has the meaning set forth in CFTC Rule 39.2.
- **ICM:** or Individual Clearing Member, means a natural person approved as a Clearing Member pursuant to Rule 803.
- **Initial Margin:** means the initial amount of Collateral that must be deposited with or paid to the Clearinghouse by Clearing Members in accordance with the Rules as a performance bond in respect of the Contracts held in any house account and customer accounts of such Clearing Members.
- **Investigation Team:** means a group within the Compliance Department, whose function is to fulfill the investigative and enforcement responsibilities described in Rule 602.
- **Last Trading Day:** means the last day a Contract may be traded as defined in Rule 502.
- **Liquidity Event:** has the meaning given to it in Rule 809.
- **LLC Agreement:** means the Limited Liability Company Agreement of the Exchange and Clearinghouse as amended or restated from time to time.
- **Margin:** means Initial Margin and Variation Margin or either of them.
- **NFA:** means the National Futures Association.
- **Official:** means an Exchange Official and a Clearinghouse Official.
- **Officer:** has the meaning given to it in Rule 203.
- **Order:** means any order to buy or sell a Contract on or subject to the Rules of the Exchange.
- **Participant:** means an entity that has signed the Participant Agreement for purposes of entering into Contracts for its own account or accesses the Exchange on behalf of a Customer. In addition, a Clearing Member who does not enter into Contracts for its own account shall be deemed to be a Participant hereunder solely for the purpose of accessing the Exchange in order to liquidate Contracts and any resulting positions previously submitted to the Clearinghouse for the account of such Clearing Member on behalf of a Participant that is in default for failure to perform its obligations to the Exchange or such Clearing Member (to the extent applicable).

- **Participant Agreement:** means an agreement between the Exchange and a Participant which must be signed in order for a Participant to have access to the Exchange for the execution of trades involving commodity derivative products and related financial instruments.
- **Perpetual Futures:** means a perpetual-term futures contract that is perpetually priced, margined, and settled every eight (8) hours based on the index price as specified in the product specifications.
- **Person:** means an individual, sole proprietorship, partnership, limited liability company, association, firm, trust, corporation or other entity, as the context may require.
- **Position Transfer:** means a transaction in a Contract(s) that is executed by the Exchange or the Clearinghouse personnel for administrative purposes outlined in Rule 507.
- **Price Bands:** mean a price range for aggressive orders based on the last top-of-book price as defined in Rule 504.3.1.
- **Price Limits:** mean a price range at which new Orders will be accepted as defined in Rule 504.3.2.
- **Public Director:** means a Director having the qualifications set out in Rule 202.
- **Regulatory Services Agreement:** means the agreement(s) between the Exchange or the Clearinghouse and the Regulatory Service Provider(s) whereby certain functions mandated under the CEA, such as market monitoring and trade practice surveillance, are delegated to the Regulatory Services Provider(s).
- **Regulatory Services Provider:** means NFA and such other organizations, if any, that provide regulatory services to the Exchange or the Clearinghouse, together with any such organization's employees and agents.
- **Requirements:** means the Rules; other requirements implemented by the Exchange or the Clearinghouse pursuant to the Rules; each term of a Contract; and the documentation and other contractual obligations between a Participant (including its Authorized Users) and the Exchange or a Clearing Member and the Clearinghouse.
- **Respondent:** means a Participant or Clearing Member under investigation for alleged Rule violation(s) or against which charges have been filed.
- **Rule:** means any rule, interpretation, stated policy, or instrument corresponding to any of the foregoing, including these Rules, in each case as adopted from time to time by the Exchange or the Clearinghouse.
- **Self-Regulatory Organization:** has the meaning given to such term in CFTC Rule 1.3(ee) and includes a derivatives clearing organization that is registered as such with the CFTC.
- **Settlement Bank:** means a bank that maintains an account either for the Clearinghouse or for any of its Clearing Members, which is used for the purpose of any settlement activity described in 17 CFR § 39.14.
- **Settlement Facility:** means a facility authorized by the Exchange for the delivery or transfer of underlying assets for physically settled Contracts. For delivery of Digital Asset futures, the Settlement Facility is Bitnomial Settlement, LLC, or any successor organization authorized by the Exchange. Bitnomial Settlement, LLC is authorized by the Exchange and not licensed, approved, or registered with the CFTC. For delivery of Digital Asset spot, the Settlement Facility is Bitnomial Clearinghouse, LLC.
- **Settlement Price:** means the price for each Contract supplied by the Board of Trade to the Clearinghouse at the end of each trading day (Daily Settlement Price) or at the end of the Final Settlement Period on the expiration day of the Contract (Final Settlement Price).
- **Surveillance Team:** means the group within the Compliance Department that is responsible for real-time and post-trade surveillance of the Exchange's trading systems, as described in Rule 602.
- **Trade Risk Limit:** has the meaning set forth in Rule 504.

- **Trading Account:** means a trading account to be separately tracked and margined by a Participant's Clearing Member.
- **Trading Account ID:** means an Exchange assigned ID that represents a Trading Account for use by the Clearinghouse and its Clearing Members.
- **Market Hours:** means, for any Business Day, the hours specified on the trading calendar on the Website and the hours specified in Rule 501.
- **Transaction:** means a Contract executed on a Board of Trade.
- **Variation Margin:** means on the Business Day a Contract has been accepted for clearing by the Clearinghouse, the difference between the price at which such Contract was bought or sold and the Settlement Price for such Contract; obligations to pay, as applicable, any settlement variation payment and other Contract-related payments due including options premiums and upfront fees; and thereafter, the difference, as applicable, between: the Settlement Price on a given Business Day and the preceding Settlement Price for such Contract, or the price at which such Contract was closed on the books of the Clearinghouse and the preceding Settlement Price for such Contract.
- **Website:** means bitnomial.com/exchange.

Rule 102: Scope and Interpretation

As used in any Rule, terms in the singular include the plural and vice versa and references to the masculine, feminine or neuter gender includes each other gender, unless the context expresses a clear contrary intention. As used in any Rule, time references are to Central Prevailing Time.

Chapter 2: Governance

Rule 201: Ownership

The Exchange is a Delaware limited liability company. The management and operation of the Exchange is governed by the LLC Agreement. All of the equity interests of the Exchange are owned by Bitnomial, LLC.

The Clearinghouse is a Delaware limited liability company. The management and operation of the Clearinghouse is governed by the LLC Agreement. All of the equity interests of the Clearinghouse are owned by the Exchange.

Rule 202: Board

1. The Board shall manage the day to day business operations of the Exchange and the Clearinghouse. The Board has the power and authority to call for review, and to affirm, modify, suspend or overrule, any and all decisions and actions of standing committees or special committees of the Board or any panel of the Officers related to the day to day business operations of the Exchange and Clearinghouse.
2. The Board may act only by the decision of an absolute majority in number of the Directors by vote at a meeting, by unanimous written consent without a meeting, or as otherwise set forth in the LLC Agreement.
3. At all times, at least 35% of the Directors shall be Public Directors. Each Director (including Public Directors) shall be appointed in accordance with the LLC Agreement, and shall serve until their successor is duly appointed, or until their earlier resignation or removal, with or without cause.
4. Each Director is entitled to indemnification pursuant to the LLC Agreement with respect to matters relating to the Exchange and Clearinghouse.
5. To qualify as a Public Director, an individual must be found, by action of the Board, to have no material relationship with the Exchange or the Clearinghouse. The Board must make such finding upon the nomination or appointment of the Director and as often as necessary in light of all circumstances relevant to such Director, but in no case less than annually. A “material relationship” is one that reasonably could affect the independent judgment or decision-making of the Director. The Board need not consider previous service as a Director of the Exchange and the Clearinghouse to constitute a “material relationship.” A Director shall be considered to have a “material relationship” with the Exchange and/or the Clearinghouse if any of the following circumstances exist or have existed within the past year:
 1. such Director is or was an Officer or an employee of the Exchange or the Clearinghouse, or an officer or an employee of an Affiliate of the Exchange or the Clearinghouse;
 2. such Director is or was a Participant, Clearing Member or material owner of the Exchange or the Clearinghouse;
 3. such Director is or was a director, an officer, or an employee of a Participant, Clearing Member or owner of the Exchange or the Clearinghouse;
 4. such Director is or was an officer of another entity, which entity has a compensation committee (or similar body) on which any Officer of the Exchange or the Clearinghouse serves;
 5. such Director, or an entity with which the Director is a partner, an officer, an employee, or a director, receives or has received more than \$100,000 in combined annual payments for legal, accounting, or consulting services from the Exchange or the Clearinghouse or their Affiliates, any Participant, any Clearing Member or any Affiliate of such Participant or Clearing Member. Compensation for services as a Director of the Exchange or the Clearinghouse or as a director of an Affiliate thereof does not count toward the \$100,000 payment limit, nor does deferred compensation for services rendered prior to becoming a Director, so long as such compensation is in no way contingent, conditioned, or revocable; or,

6. in the case of a Public Director that is a member of the Regulatory Oversight Committee or the Exchange Participant Committee, such Public Director accepts or has accepted, directly or indirectly, any consulting, advisory, or other compensatory fee from the Exchange or its Affiliate or any Participant or any Affiliate of such Participant, other than deferred compensation for service rendered prior to becoming a member of the Regulatory Oversight Committee or the Exchange Participant Committee, provided that such compensation is in no way contingent, conditioned, or revocable.
7. Any of the “material relationships” set forth above apply to the “immediate family” of such Director, i.e., spouse, parents, children, and siblings, in each case, whether by blood, marriage, or adoption, or any person residing in the home of the director or that of their immediate family.
6. The compensation of the Public Directors and other non-executive members of the Board shall not be linked to the business performance of the Exchange or the Clearinghouse.
7. The Board shall have procedures, as may be further set forth in policies that the Exchange or the Clearinghouse may adopt, to remove a member from the Board where the conduct of such member is likely to be prejudicial to the sound and prudent management of the Exchange or the Clearinghouse.
8. The Board shall establish arrangements to permit consideration of Participants in connection with the functioning of the Exchange or the Clearinghouse and with additions or amendments to the Rules and shall make a description of such arrangements available to the public and to the CFTC.

Rule 203: Officers

1. Subject to the oversight of the Board, the Exchange and the Clearinghouse shall appoint from time to time one or more individuals to serve as the Chief Executive Officer, Chief Regulatory Officer and may further appoint such other officers of the Exchange, the Clearinghouse, or any subsidiary of the Exchange or the Clearinghouse (each, an “**Officer**”) as deemed necessary or appropriate, with such titles, duties, and authority as the Exchange and the Clearinghouse shall approve, to carry out the business of the Exchange, the Clearinghouse, or any subsidiary of the Exchange or the Clearinghouse, and upon such terms and conditions as the Board shall determine.
2. Any Officer may also be a director, officer, partner or employee of the Exchange, the Clearinghouse, or of any of its Affiliates.
3. The Officers shall have such powers and duties in the management of the Exchange or the Clearinghouse as the Board may prescribe from time to time, subject to the terms of the LLC Agreement.
4. Each Officer is entitled to indemnification pursuant to the LLC Agreement with respect to matters relating to the Exchange or the Clearinghouse.

Rule 204: Qualifications of Directors; Eligibility/Fitness

1. An individual may not serve as a Board member, or serve on a committee established by the Board, the Hearing Panel, or a Board of Appeals, or hold a 10% or more ownership interest in the Exchange or the Clearinghouse, if the individual:
 1. within the prior three (3) years has been found, by a final decision in any action or proceeding brought in a court of competent jurisdiction, the CFTC, or any Self-Regulatory Organization, to have committed a disciplinary offense;
 2. within the prior three (3) years has entered into a settlement agreement in which any of the findings or, in the absence of such findings, any of the acts charged, included a disciplinary offense;
 3. is currently suspended from trading on a Contract Market, is suspended or expelled from membership in a Self-Regulatory Organization, is serving any sentence or probation, or owes any portion of a fine or penalty related to either: (1) a finding of a disciplinary offense by a final decision in

- any action or proceeding brought in a court of competent jurisdiction, the CFTC, or any Self-Regulatory Organization; or (2) a settlement agreement in which any of the findings or, in the absence of such findings, any of the acts charged included a disciplinary offense;
4. is currently subject to an agreement with the CFTC or Self-Regulatory Organization not to apply for registration with the CFTC or for membership in the Self-Regulatory Organization;
 5. is currently, or within the past three (3) years has been, subject to a revocation or suspension of registration by the CFTC;
 6. has been convicted of a felony listed in Section 8a(2)(D)(ii) through (iv) of the CEA; or
 7. is currently subject to a denial, suspension or disqualification from serving on a disciplinary committee, arbitration panel or governing board of any Self-Regulatory Organization as that term is defined in Section 3(a)(26) of the Securities Exchange Act of 1934; or
 8. is subject to a statutory disqualification pursuant to Section 8a(2) of the CEA.
 9. For purposes of this Rule 204.1, the terms “disciplinary offense,” “final decision” and “settlement agreement” have the meaning given those terms in CFTC Rule 1.63(a).
2. Prior to nomination to the Board, each individual shall certify they are not disqualified pursuant to Rule 204.1. Upon appointment, each member of the Board shall provide to the Exchange or the Clearinghouse, where applicable, changes in registration information within 30 days and certification of compliance accordingly. In addition, each member will certify on at least an annual basis regarding their continued compliance with Rule 204.1. The Exchange and the Clearinghouse shall verify information supporting Board compliance with eligibility criteria.
 3. In addition, to serve as a member of the Board, an individual must possess the ability to contribute to the effective oversight and management of the Exchange and the Clearinghouse, taking into account the needs of the Exchange and the Clearinghouse and such factors as the individual’s experience, perspective, skills and knowledge of the industry in which the Exchange and the Clearinghouse operates. This shall include sufficient expertise, where applicable, in financial services, risk management, and clearing services.

Rule 205: Standing Committees

1. The Board shall have at least the four following standing committees: the Nominating Committee, the Exchange Participant Committee, the Regulatory Oversight Committee, and the Risk Committee, each with the roles and responsibilities set out below.
2. **Nominating Committee.** The Nominating Committee of the Board shall consist of at least 51% Public Directors. The Nominating Committee reports to the Board and shall be chaired by a Public Director. The Nominating Committee shall have authority and responsibility to (1) identify individuals qualified to serve on the Board, consistent with the criteria that the Board requires and any composition requirement that the Commission promulgates; and (2) administer a process for the nomination of individuals to the Board.
3. **Exchange Participant Committee.** The Exchange Participant Committee of the Board reports to the Board and shall consist of at least 35% Public Directors. The Exchange Participant Committee is responsible for (1) determining the standards and requirements for initial and continuing Participant eligibility, (2) reviewing appeals of staff denials of Participant applications, and (3) approving Rules that would result in different categories or classes of Participants receiving disparate access to the Exchange. The Exchange Participant Committee shall not, and shall not permit the Exchange to, restrict access or impose burdens on access in a discriminatory manner, within each category or class of Participants or between similarly situated categories or classes of Participants.
4. **Regulatory Oversight Committee.** The Regulatory Oversight Committee of the Board shall report to the Board and consist of 100% Public Directors. The Regulatory Oversight Committee shall oversee the Exchange’s regulatory program on behalf of the Board with the authority to (1) monitor the

regulatory program of the Exchange for sufficiency, effectiveness, and independence and (2) oversee all facets of the regulatory program, including:

1. trade practice and market surveillance; audits, examinations, and other regulatory responsibilities with respect to Participants (including compliance with, if applicable, financial integrity, financial reporting, sales practice, recordkeeping, and other requirements); and the conduct of investigations;
 2. reviewing the size and allocation of the regulatory budget and resources, and the number, hiring, termination, and compensation of regulatory personnel;
 3. supervising the Chief Regulatory Officer of the Exchange, who will report directly to the Regulatory Oversight Committee;
 4. recommending changes that would ensure fair, vigorous, and effective regulation; and
 5. reviewing all regulatory proposals prior to implementation and advising the Board as to whether and how such changes may impact regulation.
5. **Risk Committee.** The Risk Committee of the Board shall determine the standards and requirements for the Financial Risk Management and Information Security frameworks. The Risk Committee shall review any exceedances of thresholds on various reporting and review the plan to mitigate the risk. If a Clearing Member is placed on higher Margin or other increased requirements, the Risk Committee will process the appeals of the Clearinghouse. The Risk Committee shall not approve any provision of the Clearinghouse Rulebook that would result in different categories or classes of Risks receiving disparate access.
6. In addition to the standing committees, the Board shall have the power and authority to create and terminate, in accordance with the LLC Agreement, special committees of the Board and designate their composition, responsibilities and powers.

Rule 206: Confidentiality

1. No member of the Board or any committee established by the Board or by or pursuant to the Rules will use or disclose any material non-public information obtained in connection with such member's participation in the Board or such committee for any purpose other than the performance of their official duties as a member of the Board or such committee.
2. No Exchange Official or Clearinghouse Official will:
 1. trade in any commodity interest if such officer, employee or agent obtained material non-public information concerning such financial instrument in connection with such employee's, officer's or agent's employment or
 2. disclose to any other Person material non-public information obtained in connection with such employee's, officer's or agent's employment, if such employee, officer or agent could reasonably expect that such information might assist another Person in trading any commodity interest.

Rule 207: Conflicts of Interest

1. **Named Party In Interest Conflict**
 1. No member of the Board, the Hearing Panel, any Board of Appeals or any other disciplinary committee of the Exchange or the Clearinghouse will knowingly participate in such body's deliberations or voting in any matter involving a named party in interest where such member (1) is the named party in interest in the matter, (2) is an employer, employee or fellow employee of a named party in interest, (3) has any other significant, ongoing business relationship with a named party in interest, excluding relationships limited to Contracts, or (4) has a family relationship with a named party in interest.

2. Prior to consideration of any matter involving a named party in interest, each member of the deliberating body who does not choose to abstain from deliberations and voting will disclose to the Chief Regulatory Officer whether such member has one of the relationships listed in paragraph 1 above with a named party in interest.
 3. The Chief Regulatory Officer will determine whether any member of the relevant deliberating body who does not choose to abstain from deliberations and voting is subject to a conflicts restriction under this paragraph 3. Such determination will be based upon a review of the following information: (1) information provided by such member pursuant to paragraph 2 above; and (2) any other source of information that is held by and reasonably available to the Exchange.
2. Financial Interest in a Significant Action Conflict
1. No member of the Board, the Hearing Panel, any Board of Appeals or any other disciplinary committee of the Exchange or the Clearinghouse will participate in such body's deliberations and voting on any significant action if such member has a direct and substantial financial interest in the result of the vote, as determined pursuant to paragraph 3 below.
 2. Prior to consideration of any significant action, each member of the deliberating body who does not choose to abstain from deliberations and voting will disclose to the Chief Regulatory Officer any information that may be relevant to a determination of whether such member has a direct and substantial financial interest in the result of the vote.
 3. The Chief Regulatory Officer will determine whether any member of the relevant deliberating body who does not choose to abstain from deliberations and voting is subject to a conflicts restriction under this paragraph 3. Such determination will be based upon a review of the following information: (1) the most recent large trader reports and clearing records available to the Exchange; (2) information provided by such member pursuant to paragraph 2 above; and (3) any other information reasonably available to the Exchange or the Clearinghouse, taking into consideration the exigency of the significant action being contemplated.
 4. Any member of the Board, the Hearing Panel, any Board of Appeals or any other disciplinary committee of the Exchange or the Clearinghouse who would otherwise be required to abstain from deliberations and voting pursuant to paragraph 1 above may participate in deliberations, but not voting, if the deliberating body, after considering the factors specified below, determines that such participation would be consistent with the public interest; provided, however, that before reaching any such determination, the deliberating body will fully consider the information specified in paragraph 2 above which is the basis for such member's substantial financial interest in the significant action that is being contemplated. In making its determination, the deliberating body will consider: (1) whether such member's participation in the deliberations is necessary to achieve a quorum; and (2) whether such member has unique or special expertise, knowledge or experience in the matter being considered.
3. The minutes of any meeting to which the conflicts determination procedures set forth in this Rule apply will reflect the following information:
1. the names of all members of the relevant deliberating body who attended such meeting in person or who otherwise participated in such meeting;
 2. the name of any member of the relevant deliberating body who voluntarily recused themselves or was required to abstain from deliberations or voting on a matter and the reason for the recusal or abstention, if stated;
 3. the information that was reviewed for each member of the relevant deliberating body; and
 4. any determination made in accordance with Rule 207.2.4 above.

Rule 208: Maintenance of Books and Records

1. Each of the Exchange and the Clearinghouse shall keep, or cause to be kept, complete and accurate books and records of accounts of the Exchange and the Clearinghouse, including all books and records required to be maintained pursuant to the CEA, and the CFTC Rules, including CFTC Rule 38.707(a)(6).
2. The Exchange and the Clearinghouse shall retain all such books and records for at least five (5) years, and shall make such books and records readily accessible for inspection by the CFTC and the U.S. Department of Justice during the first two (2) years of such five-year period.

Rule 209: Information-Sharing Arrangements

1. The Exchange and the Clearinghouse may each enter into information-sharing agreements or other arrangements or procedures to coordinate surveillance with other markets on which financial instruments related to the Contracts trade or are cleared. As part of any information-sharing agreements or other arrangements or procedures adopted pursuant to this Rule, the Exchange and the Clearinghouse may:
 1. provide market surveillance reports to other markets;
 2. share information and documents concerning current and former Participants or Clearing Members with other markets;
 3. share information and documents concerning ongoing and completed investigations with other markets; or
 4. require its current or former Participants or Clearing Members to provide information and documents to the Exchange or the Clearinghouse at the request of other markets with which the Exchange or the Clearinghouse has an information-sharing agreement or other arrangements or procedures.
2. The Exchange or the Clearinghouse may enter into any arrangement with any Person or body (including the CFTC, the NFA, any Self-Regulatory Organization, any exchange, market, or clearing organization, or foreign regulatory authority) if the Exchange or the Clearinghouse considers such arrangement to be in furtherance of the Exchange's or the Clearinghouse's purpose or duties under the Rules or any law or regulation.
3. The Exchange or the Clearinghouse may provide information to a duly authorized foreign Governmental Authority, as directed by the CFTC, in accordance with an information-sharing agreement executed with the CFTC.

Rule 210: Regulatory Services Provider

1. The Exchange or the Clearinghouse may, in its sole discretion, contract with a Regulatory Services Provider to provide certain regulatory services to the Exchange or the Clearinghouse pursuant to a Regulatory Services Agreement. In accordance with the relevant Regulatory Services Agreement, a Regulatory Services Provider may perform certain surveillance, investigative, and regulatory functions under the Rules and the Exchange or the Clearinghouse may provide information to such Regulatory Services Provider in connection with the performance by such Regulatory Services Provider of those functions.
2. Any of the powers or functions of the Exchange or the Clearinghouse under the Rules may be delegated to a Regulatory Services Provider pursuant to the relevant Regulatory Services Agreement in such manner and on such terms as the Exchange or the Clearinghouse and such Regulatory Services Provider may mutually agree; provided, however, that the Exchange and the Clearinghouse shall retain ultimate decision-making authority with respect to any powers or functions that are delegated to such Regulatory Services Provider.

Rule 211: Use of Proprietary Data and Personal Information

1. The Exchange and the Clearinghouse may not use for business or marketing purposes any proprietary data or personal information collected or received, from or on behalf of any Person, for the purpose of fulfilling its regulatory obligations; provided, however, that the Exchange and the Clearinghouse may use such data or information for such purposes with the consent of the Person from whom such data or information is collected or received.
2. Notwithstanding the provisions of Rule 211.1, each Participant, Authorized User and Clearing Member agrees that the Exchange and the Clearinghouse may share such proprietary data and personal information with one or more registered entities (as such term is defined in CFTC Rules).
3. Access to the Exchange may not be conditioned upon the use of proprietary data or personal information for business or marketing purposes.

Rule 212: Reporting Requirements

1. In the event the Board rejects a recommendation or supersedes an action of the Regulatory Oversight Committee or the Exchange Participant Committee, the Exchange or the Clearinghouse shall submit a written report to the CFTC detailing:
 1. the recommendation or action of the Regulatory Oversight Committee or the Participation Committee;
 2. the rationale for such recommendation or action;
 3. the rationale of the Board for rejecting such recommendation or superseding such action; and
 4. the course of action that the Board decided to take contrary to such recommendation or action.

Rule 213: Emergency Rules

1. **Emergencies.** The occurrences or circumstances which, in the opinion of the Board, require immediate action to be taken (“Emergency”), and which threaten, or may threaten, the fair and orderly trading in, or the settlement or integrity of, any Contract, including, without limitation, the following:
 1. any circumstance that may materially affect the performance of a Contract, including failure of the Clearinghouse system;
 2. any action taken by any United States or foreign regulatory, self-regulatory, judicial, arbitral, or governmental (whether national, state or municipal) or quasi-governmental authority, or any agency, department, instrumentality, or sub-division thereof; or other Person exercising, or entitled to exercise any administrative, executive, judicial, legislative, police, regulatory or taxing authority or power; or any other contract market, clearinghouse, board of trade, or other exchange or trade association (foreign or domestic) that may have a direct impact on trading on the Exchange or the settlement legality or enforceability of any Contract;
 3. any actual, attempted or threatened corner, squeeze, congestion, manipulative activity or undue concentration of positions in a Contract;
 4. any circumstance that may have a severe, adverse effect upon the functions and facilities of the Exchange, including, but not limited to, acts of God, fire, flood or other natural disasters, bomb threats, acts of terrorism or war, severely inclement weather, or failure or malfunction of all or a portion of the Exchange’s trading systems, or other system breakdowns or interruptions such as power, computer, communication or transportation systems or the Internet;
 5. the bankruptcy or insolvency of any Clearing Member or the imposition of any injunction or other restraint by any government agency, clearinghouse, court or arbitrator upon a Clearing Member which may affect the ability of a Clearing Member to trade in or perform on a Contract;

6. any circumstance in which it appears to the Board that a Clearing Member or any other Person: has failed to perform on a Contract; is insolvent; or is in a financial or operational condition or is conducting business such that the Clearing Member or Person cannot be permitted to continue in business without jeopardizing the safety of Participants, other Clearing Members, the Exchange or the Clearinghouse;
 7. or any other unusual, unforeseeable or adverse circumstance as determined by the Exchange
2. **Emergency Rules.** During an Emergency, the Board may implement temporary emergency procedures and Rules (“**Emergency Rules**”), subject to the applicable provisions of the CEA and CFTC Rules. Emergency Rules may require or authorize the Exchange, the Clearinghouse, the Board, any committee of the Board, the Chief Executive Officer or, in their absence, any other Officer to take actions necessary or appropriate to respond to the Emergency, including, but not limited to, the following actions:
1. suspending or curtailing trading or limiting trading to liquidation only (in whole or in part);
 2. extending or shortening the last trading date for Contracts;
 3. providing alternative settlement mechanisms;
 4. ordering the liquidation or transfer of Contracts, the fixing of a Settlement Price, or the reduction of positions;
 5. extending, limiting or changing the Market Hours;
 6. temporarily modifying or suspending any provision of the Rules;
 7. requiring Participants to meet special Margin requirements;
 8. imposing or modifying trading limits, price limits and/or position limits; and/or
 9. any other action as directed by the CFTC.

Before any Emergency Rule may be adopted and enforced, a required vote of the Board must approve the enforcement of such Emergency Rule at a duly convened meeting. Directors may attend such a meeting by teleconference. If the Chief Executive Officer, or another authorized Officer, determines that Emergency Rules must be implemented with respect to an Emergency before a meeting of the Board can reasonably be convened, then the Chief Executive Officer or such Officer shall have the authority, without Board action, to implement any Emergency Rules with respect to such Emergency that they deem necessary or appropriate to respond to such Emergency. In such circumstances, the Chief Executive Officer or such Officer must convene a meeting as soon as practicable.

3. **Participant Notification.** Whenever the Exchange, the Clearinghouse, the Board, any committee of the Board, the Chief Executive Officer or authorized Officer takes actions necessary or appropriate to respond to an Emergency a duly authorized representative of the Exchange or the Clearinghouse, where possible, will post an announcement in a notice to Participants and Clearing Members. When the Board, any committee of the Board, the Chief Executive Officer or other authorized Officer determines that the Emergency has been reduced sufficiently to allow the Exchange and the Clearinghouse to resume normal functioning, any such actions responding to an Emergency will be terminated.
4. **CFTC Notification.** The Exchange or the Clearinghouse, as applicable, will notify the CFTC prior to implementing, modifying or terminating an Emergency Rule. If such prior notification is not practicable, the Exchange or the Clearinghouse, as applicable, will notify the CFTC at the earliest possible time after implementation, but in no event more than twenty-four hours after implementation.
5. **Documentation.** Upon taking any action in response to an Emergency, the Exchange or the Clearinghouse, as applicable, will document the decision-making process related to such action. Such documentation will be kept for at least five (5) years following the date on which the Emergency ceases to exist or to affect the Exchange or the Clearinghouse, as applicable, and all such documentation will be provided to the CFTC upon request.

Chapter 3: Participation

Rule 301: Jurisdiction

1. Any Person initiating or executing a transaction on or subject to the Rules of the Exchange or the Clearinghouse directly or through an intermediary, and any Person for whose benefit such a transaction has been initiated or executed, expressly consents to the jurisdiction of the Exchange and the Clearinghouse and agrees to be bound by and comply with the Rules of the Exchange and the Clearinghouse in relation to such transactions, including, but not limited to, rules requiring cooperation and participation in investigatory and disciplinary processes. Any FCM, Introducing Broker, Associated Person, or foreign Person performing a similar role that charges a commission or fee in connection with transactions on or subject to the Rules of the Exchange or the Clearinghouse also expressly consent to the Exchange's and the Clearinghouse's jurisdiction.
2. Any Participant, Authorized User, Customer or Clearing Member whose right to access the Exchange or the Clearinghouse is revoked or terminated pursuant to these Rules will remain bound by the Rules and Applicable Law, in each case to the extent applicable, and subject to the jurisdiction of the Exchange and the Clearinghouse with respect to any and all matters arising from, related to, or in connection with, the status, actions or omissions of such Participant, Authorized User or Clearing Member prior to such revocation or termination.

Rule 302: Participants

1. Each Participant will have the right to access the Exchange, including the right to place Orders for each of its proprietary accounts. The access rights of a Participant hereunder may not be transferred, assigned, sold or leased.
2. A Participant will not become a partner, shareholder or limited liability company member of the Exchange or the Clearinghouse and will not obtain any equity, ownership or other interest in the Exchange or Clearinghouse, including voting rights or rights to receive any dividends or other distributions, whether arising from a dissolution, merger or consolidation involving the Exchange, the Clearinghouse, or otherwise.

Rule 303: Requirements for Participants

1. A Participant must be admitted to the Exchange and deliver an executed Participant Agreement. To be eligible for admission, the Participant must demonstrate to the Exchange that it:
 1. is of good reputation and business integrity;
 2. complies with the financial responsibility, recordkeeping and reporting requirements set out in Rule 304;
 3. is validly organized, in good standing, and authorized by its governing body and, if relevant, documents of organization, to trade Contracts;
 4. is not insolvent;
 5. is not prohibited from using the services of the Exchange for any reason whatsoever;
 6. holds all registrations required under Applicable Law, if any, including any FCM, Supervisory Person and/or Associated Person registration, as applicable;
 7. is not subject to statutory disqualification under Section 8a(2) of the CEA;
 8. satisfies any other criteria that the Exchange may require from a Participant.
2. As part of the application procedure, the Exchange may request such information and documentation as it may reasonably require in order to determine whether the Exchange's eligibility requirements have been satisfied. Any Participant organized or located outside of the United States shall enter

into a written agreement acceptable to the Exchange appointing a third party as its U.S. agent for service of process for purposes of CFTC Rule 15.05, and shall provide the Exchange with a copy of the agreement.

3. The Exchange may deny, condition, suspend, or terminate Participant status of any entity that:
 1. is unable to satisfactorily demonstrate its ability to satisfy the eligibility criteria to become or remain compliant as a Participant;
 2. is unable to satisfactorily demonstrate its capacity to adhere to all applicable Rules;
 3. would bring the Exchange into disrepute as determined by the Exchange in its sole discretion; or
 4. shows such other cause as the Exchange may reasonably determine.
4. If the Exchange decides to deny or condition an applicant's application, the Exchange shall promptly notify the applicant in writing to the address provided by the applicant on the Exchange application form.
5. If the Participant is not itself a Clearing Member, the Participant must also be party to an agreement with a Clearing Member in accordance with Rule 802.
6. A person approved as a Participant shall be subject to all of the Rules of the Exchange.
7. Each applicant and each Participant agrees (i) promptly to provide, or procure the provision of, such information and documents as the Exchange may reasonably request, and (ii) that the Exchange, without being prevented by any duty of confidentiality by any holder of information, may obtain such information and documents from any Clearing Member or from the Clearinghouse.
8. The Exchange shall grant access to independent software vendors that meet the requirements for Participants set out in this Rule 303.

Rule 304: Compliance with Minimum Financial Requirements, Financial Reporting Requirements, and Requirements Relating to Protection of Customer Funds

1. Participants and Clearing Members shall comply with Commission Regulations relating to minimum financial requirements, financial reporting requirements, and protection of customer funds, including Commission Regulations 38.605 and 1.52 and those Commission Regulations specified herein.
2. Any Participant or Clearing Member subject to Commission Regulation 1.10 - *Financial Reports of Futures Commission Merchants and Introducing Brokers*- that violates Commission Regulation 1.10 shall be deemed to have violated this Rule 304.2. A copy of any notice or written report that a Participant or Clearing Member is required to file with the Commission pursuant to Commission Regulation 1.10 must also be filed with the Exchange within the time periods proscribed for such filing or delivery in CFTC Regulation 1.10.
3. Any Participant or Clearing Member subject to Commission Regulation 1.11 - *Risk Management Program for Futures Commission Merchants*- that violates Commission Regulation 1.11 shall be deemed to have violated this Rule 304.3.
4. Any Participant or Clearing Member subject to Commission Regulation 1.12 - *Maintenance of Minimum Financial Requirements by Futures Commission Merchants and Introducing Brokers*- that violates Commission Regulation 1.12 shall be deemed to have violated this Rule 304.4. A copy of any notice or written report that a Participant or Clearing Member is required to file with the Commission pursuant to Commission Regulation 1.12 must also be filed with the Exchange within the time periods proscribed for such filing or delivery in CFTC Regulation 1.12.
5. Any Participant or Clearing Member subject to Commission Regulation 1.17- *Minimum Financial Requirements for Futures Commission Merchants and Introducing Brokers*- that violates Commission Regulation 1.17 shall be deemed to have violated this Rule 304.5.

6. Any Participant or Clearing Member subject to Commission Regulation 1.18- *Records for and relating to Financial Reporting and Monthly Computation by Futures Commission Merchants and Introducing Brokers*- that violates Commission Regulation 1.18 shall be deemed to have violated this Rule 304.6.
7. Any Participant or Clearing Member subject to Commission Regulation 1.20 – *Futures Customer Funds to Be Segregated and Separately Accounted For*- that violates Commission Regulation 1.20 shall be deemed to have violated this Rule 304.7.
8. Any Participant or Clearing Member subject to Commission Regulation 1.21- *Care of Money and Equities Accruing to Customers*- that violates Commission Regulation 1.21 shall be deemed to have violated this Rule 304.8.
9. Any Participant or Clearing Member subject to Commission Regulation 1.22- *Use of Futures Customer Funds Restricted*- that violates Commission Regulation 1.22 shall be deemed to have violated this Rule 304.9.
10. Any Participant or Clearing Member subject to Commission Regulation 1.23- *Interest of Futures Commission Merchants in Segregated Futures Customer Funds; Additions and Withdrawals*- that violates Commission Regulation 1.23 shall be deemed to have violated this Rule 304.10.
11. Any Participant or Clearing Member subject to Commission Regulation 1.24- *Segregated Funds; Exclusions Therefrom*- that violates Commission Regulation 1.24 shall be deemed to have violated this Rule 304.11.
12. Any Participant or Clearing Member subject to Commission Regulation 1.25- *Investment of Customer Funds*- that violates Commission Regulation 1.25 shall be deemed to have violated this Rule 304.12.
13. Any Participant or Clearing Member subject to Commission Regulation 1.26- *Deposit of Instruments Purchased with Futures Customer Funds*- that violates Commission Regulation 1.26 shall be deemed to have violated this Rule 304.13.
14. Any Participant or Clearing Member subject to Commission Regulation 1.27- *Record of Investments*- that violates Commission Regulation 1.27 shall be deemed to have violated this Rule 304.14.
15. Any Participant or Clearing Member subject to Commission Regulation 1.28- *Appraisal of Instruments Purchased with Customer Funds*- that violates Commission Regulation 1.28 shall be deemed to have violated this Rule 304.15.
16. Any Participant or Clearing Member subject to Commission Regulation 1.29- *Gains and Losses Resulting from Investment of Customer Funds*- that violates Commission Regulation 1.29 shall be deemed to have violated this Rule 304.16.
17. Any Participant or Clearing Member subject to Commission Regulation 1.30- *Loans by Futures Commission Merchants; Treatment of Proceeds*- that violates Commission Regulation 1.30 shall be deemed to have violated this Rule 304.17.
18. Any Participant or Clearing Member subject to Commission Regulation 1.31- *Regulatory Records; Retention and Production*- that violates Commission Regulation 1.31 shall be deemed to have violated this Rule 304.18.
19. Any Participant or Clearing Member subject to Commission Regulation 1.32- *Reporting of Segregated Account Computation and Details Regarding the Holding of Futures Customer Funds*- that violates Commission Regulation 1.32 shall be deemed to have violated this Rule 304.19.
20. Any Participant or Clearing Member subject to Commission Regulation 22.2- *Requirements for Segregation of Cleared Swaps Customer Collateral*- that violates Commission Regulation 22.2 shall be deemed to have violated this Rule 304.20.
21. Any Participant or Clearing Member subject to Commission Regulation 22.3- *Cleared Swaps Customer Collateral to Be Segregated and Separately Accounted For*- that violates Commission Regulation 22.3 shall be deemed to have violated this Rule 304.21.

22. Any Participant or Clearing Member subject to Commission Regulation 22.5- *Segregation Acknowledgment Letter Requirements*- that violates Commission Regulation 22.5 shall be deemed to have violated this Rule 304.22.
23. Any Participant or Clearing Member subject to Commission Regulation 22.11- *Investment of Cleared Swaps Customer Collateral*- that violates Commission Regulation 22.11 shall be deemed to have violated this Rule 304.23.
24. Any Participant or Clearing Member subject to CEA section 4d(f) - *Cleared Swaps Customer Collateral Protection*- that violates CEA section 4d(f) shall be deemed to have violated this Rule 304.24.

Rule 305: Duties and Responsibilities of Participants

1. Each Participant shall, and shall cause its Authorized Users to:
 1. access the Exchange in a responsible manner and not for any improper purpose;
 2. access the Exchange only to conduct business that is subject to the Rules and the Requirements and in a manner consistent with the Rules and the Requirements;
 3. comply with the Rules and the Exchange Requirements and act in a manner consistent with the Rules and the Requirements;
 4. comply with the rules of the Clearinghouse that accepts for clearing a Contract traded by the Participant on the Exchange, to the extent applicable to such Participant and such Contract;
 5. observe high standards of integrity, market conduct, commercial honor, fair dealing, and just and equitable principles of trade while conducting or seeking to conduct any business connected with or concerning the Exchange;
 6. not knowingly mislead or conceal any material fact or matter in any dealings or filings with the Exchange or in connection with a Disciplinary Action;
 7. cooperate promptly and fully with the Exchange in any investigation, inquiry, audit, examination or proceeding regarding compliance with the Rules or any Disciplinary Action or arbitration;
 8. comply with any order issued by the Exchange;
 9. employ practices to monitor and enforce compliance with risk limits;
 10. keep all User IDs, account numbers and passwords related to the Exchange confidential;
 11. keep, or cause to be kept, complete and accurate books and records, including, without limitation, all books and records required to be maintained pursuant to the Applicable Law, for at least five (5) years, and make such books and records available for inspection by a representative of the Exchange, the CFTC or the U.S. Department of Justice; and
 12. operate electronic trading systems and conduct activity on the Exchange in a manner that is reasonably intended to prevent, detect, and mitigate market disruptions or system anomalies associated with electronic trading.
2. In addition to the requirements of Rule 305.1, each Participant shall employ practices to monitor and enforce compliance with its internal risk limits and shall be responsible for all Orders and Transactions effected on the Exchange by or for the account of such Participant, its Authorized Users or by any Person using its or their User IDs.

Rule 306: Authorized Users

1. All Participants must have at least one Authorized User.
2. A Participant who is not a natural Person must designate one of its employees as an Authorized User.

3. By agreeing to become an Authorized User, an individual agrees to be bound by the duties and responsibilities of an Authorized User set out in Rule 307 and to be subject to, and comply with Applicable Law and the Rules.
4. To designate an Authorized User, a Participant must follow the procedures established by the Exchange. The Exchange may establish criteria that individuals must fulfill to become an Authorized User. Without limiting the generality of the foregoing, each Participant will ensure on an ongoing basis that (i) none of its Authorized Users is subject to a disqualification pursuant to any Applicable Law (unless an appropriate exemption has been obtained with respect thereto) and (ii) each of its Authorized Users is technically proficient and conducts its business in a fair and equitable manner.
5. The Exchange will promptly notify a Participant in writing of the approval of designated Authorized User(s) or if the Exchange declines to approve the nomination of an Authorized User.
6. The Exchange will maintain a list of all designated Authorized Users for each Participant.
7. The Exchange may, in its sole discretion and/or pursuant to CEA Section 8a(2), revoke or suspend the designation of an individual as an Authorized User and shall promptly notify the Participant and its Clearing Member of such action.
8. To request the termination of the designation of an individual as an Authorized User, the Participant must follow the procedures established by the Exchange. The Exchange may, in its sole discretion, refuse to accept a request to terminate the registration of an Authorized User or may postpone the effective date of the termination of registration if the Exchange considers it necessary for the protection of the Participant or in the Exchange's best interest. Based on the information provided to, and other information gathered by, the Exchange regarding the request to terminate the registration of an Authorized User, the Exchange will determine whether to:
 1. accept the request to terminate such registration;
 2. postpone the effective date of termination of the registration; and/or
 3. impose any terms or conditions before or after the effective date of termination of the registration.

Rule 307: Duties and Responsibilities of Authorized Users

1. By agreeing to act as an Authorized User, such Person agrees to be bound by the duties and responsibilities of an Authorized User and to be subject to, and comply with, the Rules.
2. An Authorized User must:
 1. ensure that activity conducted under its User ID complies with Applicable Law and the Rules;
 2. have the authority, at the Exchange's request, to adjust or withdraw any Order submitted under such User ID;
 3. have and maintain during all necessary regulatory approvals and/or licenses to operate as an Authorized User;
 4. cooperate promptly and fully with the Exchange in any investigation, inquiry, audit, examination or proceeding regarding compliance with the Rules or any Disciplinary Action or arbitration proceeding;
 5. comply with any order issued by the Exchange; and
 6. agree to such other terms and conditions as may be established by the Exchange from time to time.

Rule 308: Clearing Members Accessing the Exchange

A Clearing Member may trade an account on behalf of a Participant hereunder solely for the purpose of liquidating Contracts and any resulting positions previously submitted to the Clearinghouse for the account

of such Clearing Member on behalf of a Participant that has failed to perform its obligations to the Exchange or such Clearing Member (to the extent applicable).

Rule 309: Required Notices

1. Each Participant shall immediately notify the Exchange upon becoming aware of any of the following events:
 1. any material changes to the information provided to the Exchange by the Participant;
 2. any damage to, or failure or material inadequacy of, the systems, facilities or equipment of the Participant used to effect Transactions on the Exchange;
 3. any refusal of admission to, or withdrawal by the Participant of any application for membership in, any Self-Regulatory Organization;
 4. any denial or withdrawal of an application for registration or license by or from any Governmental Authority, and any revocation, suspension or conditioning of a registration or license granted by any Governmental Authority;
 5. the commencement of any judicial or administrative proceeding against the Participant by a Governmental Authority or the imposition of any fine, cease and desist order, denial of trading privileges, censure or other sanction or remedy (whether through an adverse determination, voluntary settlement or otherwise) imposed by any Governmental Authority;
 6. the indictment or conviction of, or any confession of guilt or plea of guilty or nolo contendere by, the Participant or any of its officers for any felony or misdemeanor involving, arising from, or related to, the purchase or sale of any commodity, security, futures contract, option or other financial instrument, or involving or arising from fraud or moral turpitude; and
 7. the insolvency of the Participant or any of its Affiliates.
2. Each Participant that is not a natural person shall notify the Exchange at least ten business days prior to any merger, sale or transfer of substantially all of its assets, acquisition, consolidation, combination, sale or other material change of ownership.
3. Nothing in this Rule 309 is intended to substitute for or limit any other reporting obligations that a Participant may have to the Exchange or any regulatory agency or Self-Regulatory Organization.

Rule 310: Account Administrators

1. Each Participant shall appoint at least one Account Administrator, who shall (1) be responsible for monitoring the Participant's participation on the Exchange, the compliance of the Participant with the Rules and communication with the Exchange, and (2) be entitled to access the Exchange for risk management, audit and other back-office purposes as specified by the Exchange from time to time.
2. A Participant shall promptly notify the Exchange of a change in the identity of any of its Account Administrators.

Rule 311: Access Requirements and Terms

1. Access to the Exchange will be Internet-based. Participant accounts will be issued User IDs, passwords, and digital certificates for secure access. The Participant is responsible for the security of these items, and any misuse is the responsibility of the Participant.
2. Certificates, User IDs, and passwords are for the Participant's use only and shall not be shared with other parties.
3. A Participant must notify the Exchange immediately upon any suspicion of theft of a password, User IDs or certificate, or any unauthorized access.

Rule 312: Dues and Fees

Exchange and Clearinghouse dues and fees are posted at the Website, which may be amended from time to time without advance notice to any person.

Rule 313: Inspections by the Exchange

1. The Exchange and the Regulatory Services Provider, if any, shall have the right, in connection with determining whether the Rules are being, will be, or have been complied with by the Participant, to:
 1. inspect systems, equipment and software operated by the Participant in connection with business that is or may be subject to the Rules, wherever located;
 2. access the systems, equipment, software, and the premises on which the systems, equipment, and software are located, any data stored in any of the systems or equipment, during the regular business hours of the Exchange, without prior notice to the Participant; and/or
 3. copy and/or reproduce any data to which the Exchange has access under this rule.
2. Each Participant shall provide the Regulatory Services Provider with the same access as it would be required to provide to the Exchange.
3. The Exchange may require a Participant to furnish such information concerning the Participant's business that is subject to the Rules of the Exchange as the Exchange deems necessary to enable the Exchange to perform its obligations under Applicable Law, including information relating to (i) Contracts executed on the Exchange and in related derivatives markets, including in the products underlying those Contracts, and (ii) information requested by a Governmental Authority relating to the Exchange's business as a designated contract market and/or the Exchange's compliance with Applicable Law that the Exchange believes is maintained by, or otherwise in the possession of, a Participant.

Rule 314: Incentive Programs

At its discretion, the Exchange may offer programs that provide incentives to Participants, Clearing Members, and Customers willing to increase market liquidity and promote robust markets. These programs may offer incentives, as determined by the Exchange.

Chapter 4: Business Conduct And Trading Practices

Rule 401: Business Conduct

1. **Regulatory Compliance.** No Participant or any of its Authorized Users and no Clearing Member shall engage in conduct that is a violation of the CEA or CFTC Rules, the Rules of the Exchange or the Rules of the Clearinghouse and will conduct its business in accordance with all applicable laws, regulations, tariffs and rules, and in good faith, with a commitment to honest dealing.
2. **Fraud.** No Participant or any of its Authorized Users and no Clearing Member shall engage or attempt to engage in any fraudulent act or engage or attempt to engage in any scheme to defraud, deceive, trick or mislead in connection with or related to any Exchange or Clearinghouse activity.
3. **Good Faith.** No Participant or any of its Authorized Users shall knowingly enter, or cause to be entered, bids or offers into the system other than in good faith for the purpose of executing bona fide transactions.
4. **Transaction Integrity.** Participants and their Authorized Users shall honor the terms and conditions of the Participant Agreement and will transact in Contracts only for legitimate business purposes, such as managing business risk or that otherwise have economic substance.
5. **Antitrust.** No Participant or any of its Authorized Users and no Clearing Member shall collude with other market participants to affect the price or supply of any commodity or Contracts, or otherwise unlawfully restrain competition.
6. **Risk Management.** Participants and Clearing Members shall adopt, adhere to and enforce risk management and other policies and structures that are designed to ensure that trading activities are conducted in accordance with the Rules.

Rule 402: General Trading Practices

1. **Skills.** Each Participant and Authorized User is responsible for understanding all factors that influence the markets in Contracts in order to maintain a high level of competence in its trading.
2. **Rules.** The Exchange will provide updates and amendments to these Rules and notices or advisories regarding the application and interpretation of these Rules. It is the obligation of each Participant and its Authorized User to ensure these documents are read and understood. It shall be prohibited for a Participant and its Authorized Users to violate any Rule or any agreement made with the Exchange, or to engage in fraud, dishonorable or dishonest conduct, or conduct which is inconsistent with just and equitable principles of trade, even where a Rule does not specifically reference “Participant” or “Authorized User.”
3. **Price Manipulation, Fictitious, Non-Competitive or Artificial Transactions.** No Participant or Authorized User shall (1) effect or induce (or attempt to effect or induce) the purchase or sale of any Contract for the purpose of creating or inducing a false, misleading, or artificial appearance of activity in such Contract, or for the purpose of unduly or improperly influencing the market price of such Contract or for the purpose of making a price which does not reflect the true state of the market in such Contract, (2) effect or induce (or attempt to effect or induce) any conduct proscribed by CEA section 9(a)(2) in any Contract. No Participant or Authorized User shall arrange and execute simultaneous offsetting buy and sell Orders in a Contract with the intent to artificially affect reported revenues, trading volumes or prices.
4. **Market Manipulation.** No Participant or Authorized User shall (1) attempt to manipulate or manipulate the market in any Contract or (2) engage in any conduct proscribed by CEA section 9(a)(2). No Participant or Authorized User shall directly or indirectly participate in or have any interest in the profit of a manipulative operation or knowingly manage or finance a manipulative operation. This includes any pool, syndicate, or joint account, whether in corporate form or otherwise, organized or used intentionally for the purposes of unfairly influencing the market price of any Contract.

5. **Market Disruption.** Orders entered on the Exchange for the purpose of upsetting the equilibrium of the market in any Contract or creating a condition in which prices do not or will not reflect fair market values are prohibited, and any Participant or Authorized User who makes or assists in entering any such Order with knowledge of the purpose thereof or who, with such knowledge, in any way assists in carrying out any plan or scheme for the entering of any such Order, will be deemed to have engaged in an act detrimental to the Exchange.
6. **Disruptive Trading Practices.**
 1. No Participant or Authorized User shall knowingly enter, or cause to be entered, bids, or offers into the Exchange other than in good faith for the purpose of executing bona fide transactions.
 2. No Participant or Authorized User shall enter an Order or market message, or cause an Order or market message to be entered, with:
 1. The intent to cancel the Order before execution, or modify the Order to avoid execution;
 2. The intent to mislead other market participants;
 3. The intent to overload, delay, or disrupt the systems of the Exchange or other market participants;
 4. The intent to disrupt the orderly conduct of trading, or the fair execution of transactions; and/or
 5. Reckless disregard for the adverse impact of the Order or market message.
 3. No Participant or Authorized User shall knowingly enter any bid or offer for the purpose of making a market price which does not reflect the true state of the market, or knowingly enter, or cause to be entered bids or offers other than in good faith for the purpose of executing bona fide transactions.
7. **Prohibition on the Use or Attempted use of Manipulative and Deceptive Devices.** No Participant, Authorized User or Clearing Member shall:
 1. use or employ, or attempt to use or employ, any manipulative device, scheme, or artifice to defraud;
 2. make, or attempt to make, any untrue or misleading statement of a material fact or to omit to state a material fact necessary in order to make the statements made not untrue or misleading;
 3. engage, or attempt to engage, in any act, practice, or course of business, which operates or would operate as a fraud or deceit upon any Person; or
 4. deliver or cause to be delivered, or attempt to deliver or cause to be delivered a false or misleading or inaccurate report concerning market information or conditions that affect or tend to affect the price of any commodity in interstate commerce, knowing, or acting in reckless disregard of the fact that such report is false, misleading or inaccurate. Notwithstanding the foregoing, no violation of this subsection shall exist where the Person mistakenly transmits, in good faith, false or misleading or inaccurate information to a price reporting service.
8. **Gratuities.** Except with the prior written approval of the Chief Regulatory Officer, no Participant, Authorized User or Clearing Member shall, directly or indirectly, give or permit to be given anything of value, including gifts and gratuities, to an Official in an amount that exceeds the maximum value permitted by the Exchange and the Clearinghouse gifts and entertainment policy.
9. **Rumors.** No Participant, Authorized User or Clearing Member shall knowingly circulate, in any manner, rumors of a character which might affect market conditions in any Contract; provided, however, that this shall not prohibit discussion of unsubstantiated information, so long as its source and unverified nature are disclosed.

10. **False Reports.** No Participant, Authorized User or Clearing Member shall make any knowing misstatement of a material fact to the Exchange, the Clearinghouse, any Official, or any Board committee or panel.
11. **Wash Sales.** No Participant or Authorized User shall place or accept buy and sell Orders in the same Contract and expiration month, where known or reasonably should know that the purpose of the Orders is to avoid taking a bona fide market position exposed to market risk (transactions commonly known or referred to as wash sales). Buy and sell Orders by Participants or Authorized Users that are entered with the intent to negate market risk or price competition shall be deemed to violate the prohibition on wash trades. Additionally, no Participant or Authorized User shall knowingly execute or accommodate the execution of such Orders by direct or indirect means.
12. **Financial Condition.** No trading will be conducted for the purpose of misrepresenting the financial condition of a Participant or Authorized User.
13. **Acts Detrimental to the Exchange or the Clearinghouse.** No Participant, Authorized User or Clearing Member shall engage in any act that is detrimental to the Exchange or the Clearinghouse.
14. **Misuse of the Exchange or the Clearinghouse.** No Participant, Authorized User or Clearing Member shall permit the unauthorized use of the Exchange or the Clearinghouse, to assist any Person in obtaining unauthorized access to the Exchange or the Clearinghouse, to trade on the Exchange without an agreement and an established account with a Clearing Member, to alter the equipment associated with the Exchange or the Clearinghouse (except with the Exchange or the Clearinghouse written consent), to interfere with the operation of the Exchange or the Clearinghouse, to intercept or interfere with information provided thereby, or in any way to use the Exchange or the Clearinghouse in a manner contrary to the Rules.
15. **Supervision.** A Participant shall establish, maintain and administer reasonable supervisory procedures to monitor the compliance of Authorized Users and supervised persons with the Rules and any applicable provisions of the CEA and CFTC Rules and such Participant may be held accountable for the actions of such Authorized Users or supervised persons.
16. **Disclosing Order Information.** No Participant or Authorized User shall disclose an Order to buy or sell, except to a designated Exchange Official or the CFTC or as necessary to efficiently execute the Order nor shall any Participant solicit or induce another Participant or Authorized User to disclose Order information. No Person shall take action or direct another to take action based on non-public Order information, however acquired. The mere statement of opinions or indications of the price at which a market may open or resume trading does not constitute a violation of this rule.

Rule 403: Pre-Arranged, Pre-Negotiated, and Noncompetitive Trades Prohibited

1. No Person shall prearrange or pre-negotiate any purchase or sale or noncompetitively execute any Transaction, except as provided in Rule 403.2.
2. Participants and Authorized Users may engage in pre-execution communications with regard to transactions executed or to be executed on the Exchange if one party (the first party) wishes to be assured that a contra party (the second party) will take the opposite side of the first party's Order, subject to the following restrictions:
 1. A party may not engage in pre-execution communications with other market participants on behalf of another party unless the party for whose benefit the trade is being made has previously consented to permit such communications.
 2. Parties to pre-execution communications shall not disclose to a non-party the details of such communications or enter an Order to take advantage of information conveyed during such communications except in accordance with this rule.

3. The first party's Order must be entered into the Exchange first, and the second party's Order may not be entered into the Exchange until a period of fifteen (15) seconds has elapsed from the time entry of the first Order.
3. Each Participant and Clearing Member shall not engage in any conduct that has the intent or effect of creating a false or misleading appearance of market activity or market depth.
4. Each Participant and Clearing Member shall not engage in any conduct that has the intent or effect of manipulating the market or the price of any Contract.
5. Each Participant and Clearing Member shall not engage in any conduct that has the intent or effect of disrupting the market or the price of any Contract.

Rule 404: Disciplinary Procedures; Termination of Connection

1. All access denials, suspensions, expulsions, and other restrictions imposed upon a Participant or any of its Authorized Users or a Clearing Member by the Exchange or the Clearinghouse pursuant to a Disciplinary Action shall restrict with equal force and effect, access to, and use of, the Exchange or the Clearinghouse.
2. The Exchange, at its sole discretion, shall have the right to summarily terminate the connection of any Participant or the access of any Trading Account or User ID to the Exchange. Additionally, the Exchange, at its sole discretion, shall have the right to direct a Participant to immediately terminate access to the Exchange any of such Participant's Authorized Users.

Rule 405: Position Limits

1. The Exchange may adopt and require Participants to adhere to position limits for Contracts. If so adopted, the Exchange may, in its sole discretion, grant exemptions from position limits for bona fide hedging transactions and positions in accordance with CFTC Rules. A Person seeking an exemption from position limits must apply to the Compliance Department in the form and manner required by the Exchange.
2. The CFTC may also from time to time establish position limits for Contracts traded pursuant to these Rules. For any such Contract subject to a position limit set by the CFTC, the Exchange shall not set its position limit at a level higher than the CFTC's limit.
3. For purposes of aggregation, no market participant shall own or control any combination of futures, options, and cleared swaps contracts that exceeds the contract specification's net long or short in any single contract month. In determining whether any market participant has exceeded the position limits, all positions in accounts for which such market participant by power of attorney or otherwise directly or indirectly holds positions or controls trading will be included with the positions held by such market participant. Position limits will apply to positions held by two or more market participants acting pursuant to an expressed or implied agreement or understanding, the same as if the positions were held by a single market participant.
4. The position limit levels for those Contracts with position limits are set forth in the product rules.

Rule 406: Position Accountability

A Person who holds or controls aggregate positions in a Contract in excess of the position accountability levels relating to that Contract set out in the product rules shall be subject to the following provisions:

1. Such Person shall provide, in a timely manner upon request by the Compliance Department, information regarding the nature of the position, trading strategy, and hedging information if applicable.
2. Such Person shall, if so ordered by the Compliance Department, acting in its discretion, liquidate or not increase further the positions which exceed such levels.

3. Such positions must be initiated and liquidated in an orderly manner.
4. This Rule shall not limit the jurisdiction of the Exchange or the Clearinghouse to take action that it determines necessary or appropriate in respect of any positions on the Exchange or the Clearinghouse.

Rule 407: Reports of Large Positions

1. Upon request, Clearing Members must provide the Compliance Department with information, in a form and manner acceptable to the Compliance Department, identifying the owner, any controlling parties and any additional required information for each reportable account.
2. Each Clearing Member shall submit to the Exchange (i) a daily report of all positions that exceed the reportable position levels set forth in the product rules and (ii) a copy of the CFTC Form 102 filed by the Participant or Clearing Member with the CFTC for such Participant's or Clearing Member's Customers' reportable accounts. The Form 102 shall be submitted to the Exchange no later than the Business Day following the date on which the account becomes reportable.
3. Positions in Exchange products at or above the reportable level set forth in the product rules trigger reportable status. For a Participant in reportable status, all positions, regardless of size, in relevant Exchange products must be reported to the Exchange, in addition to any regulatory obligations a Participant may have separate and apart from these Rules.

Rule 408: Aggregation of Positions

For purposes of Rule 405, Rule 406 and Rule 407, positions in Contracts shall be aggregated in accordance with CFTC Rules.

Rule 409: Reporting Levels, Position Accountability Levels and Position Limits

The reporting levels, position accountability levels and position limits for Contracts are found in the product rules.

Rule 410: Information Disclosure and Documentation

Markets depend on trust in the accuracy of market information provided by Participants and Clearing Members and in the transparency of market behavior of all market participants.

Participants and Clearing Members will act in accordance with these practices for information disclosure and documentation with regard to its Exchange or Clearinghouse activity:

1. Provide information relating to Contracts to regulators in compliance with all applicable rules and requirements and continue to cooperate with regulators as reasonably necessary to assist in their understanding of the markets.
2. Ensure that any information disclosed to the Exchange or the Clearinghouse is accurate and consistent. No existing or prospective Participant or Clearing Member shall make any false statements or misrepresentations in any application, report or other communication to the Exchange or the Clearinghouse.

Rule 411: Compliance

Each Participant will have a compliance program commensurate with the size and scope of its trading activities on the Exchange and designed to ensure appropriate, timely and ongoing review of trading practices and compliance with the Rules.

Participants and Clearing Members will act in accordance with these practices for compliance and monitoring with regard to its Exchange and Clearinghouse activity:

1. Provide for proper training of personnel on the provisions of the Rules.

2. Maintain internal policies and procedures to promote compliance with the Rules.
3. Promptly disclose to the Exchange the details of any violations of the Rules involving Participant's activities on the Exchange or provision of market information to the Exchange or any of its Affiliates.
4. Provide an environment that encourages employees within the Participant's or Clearing Member's organization to engage in safe and confidential discussions and to disclose to senior management any trading practices that might violate the Rules.
5. Require any consultant, contractor and/or subcontractor to disclose all financial affiliations and conflict of interests with Participants, Clearing Members, the Exchange, the Clearinghouse and its affiliates. Ensure that consultants, contractors or subcontractors do not cause any disclosure of information in violation of any Rule and that confidentiality agreements are in effect where appropriate.
6. Establish clear lines of accountability for the Participant's or Clearing Member's trading practices, including provisions relating to the responsibilities of corporate officers, with appropriate oversight by the Participant's or Clearing Member's board of directors or other senior corporate management committee.

Chapter 5: Market Operations

Rule 501: Market Hours and Operation

1. **Market Hours.** The Exchange and the Clearinghouse will be open for, respectively, trading and clearing in all listed Contracts on all business days excluding holidays specified on the Website. Market hours shall be 19:00 to 16:00 CPT, Sunday through Friday unless otherwise specified in the Contract Specifications.
2. **Procedures.** With respect to trading on or through the Exchange, the Exchange and the Clearinghouse may adopt, without limitation, procedures relating to Transactions in Contracts on the Exchange, including procedures to:
 1. disseminate the prices of bids and offers and the prices of trades in Contracts;
 2. record and account for Contracts;
 3. perform market surveillance and regulation on matters affecting Contracts;
 4. establish limits on the number and/or size of Orders that may be submitted by a Participant or Authorized User to the Exchange;
 5. establish position limits on the number of Contracts that can be held by a Participant or customer on the Exchange;
 6. establish limits on the number of messages a Participant can send to the Exchange for a Contract in a given time frame;
 7. establish a limit on the maximum daily price fluctuations for any Contracts and provide for any related restriction or suspension of trading in such Contracts; and
 8. require a suspended or expelled Participant, or a Participant with restricted trading rights, to cause Contracts to be executed for such Participant's account to reduce or eliminate such Participant's open positions.
3. **Market Suspension and Emergencies.** The Exchange and the Clearinghouse reserve the right to adjust Market Hours and suspend market activities for all or a subset of Contracts in the case of extenuating market circumstances which include, but are not limited to, any occurrence or circumstance which threatens or may threaten such matters as the fair and orderly trading in, or the liquidation of or delivery pursuant to, any Contracts, and which is determined by the Exchange to require immediate action, or any Emergency as defined in Rule 213.
4. **Price Limit Timer.** If a trade occurs at the Price Limit for a side, the Exchange triggers a timer. If the timer elapses and no trades occur inside of the Price Limit, the Price Limits are re-calculated and reset. The resultant Price Limits are outside the original Price Limits to allow for additional price movement. The Exchange Market Operations & Risk Team may adjust the daily Price Limits at its sole discretion based on market conditions.

Rule 502: Contracts Offered

1. **Contracts/Expiries.** Contract Specifications are set forth on the Website. Contract Specifications are subject to revision or amendment from time to time. Revised Contract Specifications may be listed for trading by self-certification in accordance with CFTC Rule 40.2, sent electronically to the CFTC for receipt by the open of business on the business day preceding the Contract's listing, which shall include:
 1. a description of the Contract and its rules related to its terms and conditions,
 2. the intended listing date,
 3. certification by the Exchange that the Contract to be listed complies with the CEA and the CFTC Rules thereunder,

4. a concise explanation and analysis of the product and its compliance with applicable provisions of the CEA, including core principles, and the CFTC Rules thereunder, including supporting documentation, and
 5. certification that the Exchange posted a notice of pending product certification with the Commission on its Website with a copy of the submission, with confidential treatment requests as appropriate. The Exchange will permit trading only in Contracts that are not readily susceptible to manipulation.
2. **New Contracts.** To offer new products, the Exchange may request that the CFTC approve a new product prior to listing the product for trading. The submission to the CFTC shall be filed electronically in accordance with CFTC Rules 40.3 and include:
1. a description of the product with the rules that set forth the Contract's terms and conditions,
 2. an explanation and analysis of the product and its compliance with applicable provisions of the CEA, including core principles, and the CFTC Rules thereunder, including documentation relied upon to establish the basis for compliance with the applicable law, or incorporate information contained in such documentation, with appropriate citations to data sources,
 3. description of any agreements or Contracts entered into with other parties that enable the Exchange to carry out its responsibilities,
 4. certification that the Exchange posted on its Website a notice of its request for CFTC approval of the new product with a copy of the submission,
 5. a request for confidential treatment as permitted under CFTC Rule 40.8, if appropriate, and
 6. the filing fee required in accordance with CFTC Rules. If requested by CFTC staff, the Exchange will provide evidence, information or data demonstrating that the Contract meets, initially or on a continuing basis, the requirements of the CEA, or other requirements for designation or registration under the CEA or the CFTC Rules thereunder. The Exchange shall submit the requested information by the open of business on the date that is two business days from the date of request by CFTC staff, or at the conclusion of such extended period agreed to by CFTC staff after timely receipt of a written request from the Exchange.
3. **Contract Listing.**
1. **Futures.** The Exchange may list up to twelve consecutive Contract expiries for all non-Perpetual Futures.
 2. **Perpetual Futures.** The Exchange may list Perpetual Futures Contracts.
 3. **Options.** The Exchange may list options with at least one strike at the underlying Contract's previous Settlement Price, rounded down to the nearest minimum strike interval. The Exchange may list additional strikes, at its discretion, on any trading day.
 4. **Spot.** The Exchange may list spot Contracts that are offered subject to Rule 514.
 5. **Swaps.** The Exchange may list Fully Collateralized Swaps that are accepted for clearing by the Clearinghouse.
4. **Contract Trading Termination.** Trading in a Contract shall terminate ("Trading Termination") on the Last Trading Day and time as follows or as otherwise specified in the Contract Specifications. If the Last Trading Day is not both a London and U.S. business day, trading terminates on the prior London or U.S. business day.
1. **Futures & Options:** 10:00 CPT on the trading day on the last Friday of the expiry month.
5. **Options Exercise.** Options expiry is European style unless otherwise specified in the Contract Specifications. Following Trading Termination, any options Contract that is in the money shall be automatically exercised by the Clearinghouse and any options Contract that is out of the money shall be abandoned by the Clearinghouse. For the avoidance of doubt, no such options Contract that expires in the money may be abandoned, and no such options Contract that expires out of the money may be exercised.

Rule 503: User IDs

1. Each Participant must request one or more Trading Account ID as needed to accommodate the nature and volume of the Participant's business.
2. Each Participant and its Authorized Users must have a unique, Exchange-assigned, registered User ID.
3. Each Order entered will track to a User ID that identifies the Authorized User that entered the Order.
4. No Person may use a User ID to place any Order except as permitted by these Rules, nor may any Person knowingly permit or assist the unauthorized use of a User ID. Each Participant and Authorized User shall ensure that no User ID is used by any Person not authorized by these Rules. Each Participant that is not an individual must have in place policies and procedures acceptable to the Exchange to ensure the proper use and protection of User IDs.
5. Each Participant shall ensure the accuracy of the registration information of its Authorized Users at all times.
6. Each Participant shall be solely responsible for controlling and monitoring the use of all User IDs issued to it and its Authorized Users of the Exchange.
7. Each Participant shall notify the Exchange promptly upon becoming aware of:
 1. any unauthorized disclosure or use of any User ID assigned to it or any of its Authorized Users and of any other reason for deactivating a User ID; and
 2. any unauthorized access to the Exchange by any Authorized User or by any Person using a User ID assigned to such Participant or Authorized User.
8. Each Participant and its Authorized Users shall be bound by any actions taken through the use of a User ID assigned to such Participant or Authorized User (other than any such actions resulting from the fault or negligence of the Exchange), including the submission of Orders and/or execution of Transactions, whether or not such actions were taken or authorized by such Participant or Authorized User, as the case may be.
9. Each Participant must be able to identify all Orders submitted under an Authorized User's respective User ID at all times.

Rule 504: Exchange Trading

1. **Order Requirements.** To be valid, an Order must consist of the following information:
 1. **Contract:** The Order must be submitted for a Contract for which Orders may be placed.
 2. **Order ID:** Must be present for identification purposes.
 3. **Side:** Must be either buy or sell.
 4. **Quantity:** Number of Contracts to be traded. Must be a positive integer greater than zero and less than maximum Order Quantity as defined in Contract Specifications.
 5. **Price:** As defined by Contract Specification.
 6. **Time-In-Force:** Day, Immediate-or-Cancel ("IOC"), or as otherwise specified in the Contract Specifications. Day orders are cancelled at the end of the day's trading session. IOCs are Orders that are immediately executed against resting Orders. If the Order cannot be fully filled, the remaining Quantity is cancelled.
2. **Order Types.** The Exchange shall support at least the following types of Orders.
 1. **Limit Order.** Allows the buyer to define the maximum purchase Price and the seller to define the minimum sale Price for a Contract. If any portion of the Order can be matched, it will be immediately executed. Buy Limit Orders will only be executed at or below the limit Price. Sell

Limit Orders will only be executed at or above the limit Price. If a Limit Order is not immediately executed, it will remain in the book at the limit Price until the Order is either executed, cancelled, or expires at the end of the trading session.

3. **Submission.** Submission of an Order to the Exchange constitutes a representation by the submitting Participant that it is acting as principal in respect of such Order. Orders may be submitted to the Exchange via the API.

The Exchange reserves the right to temporarily or permanently defer processing Orders that may interfere with the proper functioning of the Exchange. For previously submitted Orders, additional validation checks may be run to ensure that the Order contents are still valid and that the submitting Participant has not been suspended.

1. **Price Bands.** The Exchange shall apply a price range for aggressive Orders at which new Orders will be accepted, computed as a Reference Price +/- the Price Band variation set by the Exchange Market Operations & Risk Team. The Reference Price is continuously re-calculated from the first available of: the last trade price, best bid-best offer; the index price specified in the Contract Specifications. The Exchange may at its discretion proceed to the next available method. Calendar spread Price Band variation shall be 50% of the Price Band variation listed in the Contract Rules. The Exchange Market Operations & Risk Team may adjust the Price Bands at its sole discretion based on market conditions.
2. **Price Limits.** The Exchange shall apply a price range, which may change throughout the trading session according to Rule 501.4, at which new Orders will be accepted and are computed as follows:
 1. **Futures Contracts:** the greater of 50% of the previous day Settlement Price or the price listed in the Contract Specifications.
 2. **Options Contracts:** the greater of 100% of the previous day Settlement Price or the price listed in the Contract Specifications.
 3. **Calendar spreads:** 50% of the Price Limit listed in the outright Contract Specifications.
3. **Self-Match Prevention.** The Exchange enforces Self-Match Prevention (“SMP”) to protect against self-trading that violates the Exchange’s Wash Trade prohibition set out in Rule 402.10. SMP prevents the matching of orders with the same Trading Account ID. The Exchange reserves the right to change behavior of SMP from time to time.
4. **Order Modification.** Previously submitted Orders can be modified prior to being fully filled.
5. **Order Cancellation.** Previously submitted Orders can be cancelled prior to being fully filled.
6. **Order Submission Period.** The Exchange will accept Orders during the period as defined in Rule 501 and Rule 502. The Exchange reserves the right to modify this schedule. All submissions, modifications or cancellations will receive acknowledgement after Exchange processing if they have been accepted.
7. **Trade Matching.** The Exchange matches and fills Orders from the interaction of multiple bids and multiple offers using a predetermined, nondiscretionary central limit order book (“CLOB”) and a price-time priority algorithm, meaning best prices first then on a first-in-first-out (“FIFO”) basis at identical prices, or as otherwise specified in the Contract Specifications.
8. **Clearing.** All matched trades generated by the Exchange after the application of trade risk limits give rise to binding Transactions between the applicable Participants, which will be automatically submitted to the Clearinghouse for registration and novation, as described in Chapter 8 of these Rules. The Exchange reserves the right to cancel erroneous trades submitted to the Clearinghouse in accordance with Rule 508.
9. **Trading Information.** The Exchange shall make public daily information on settlement prices, volume, open interest, and opening and closing ranges for actively traded contracts on the contract market. Trading information will be published on the Exchange Website at the end of the day.

10. **Messaging Policy.** The Exchange enforces a messaging policy that limits the number of messages a Participant can submit to the API.

Rule 505: Block Trades

1. The Exchange shall designate the Contracts in which Block Trades shall be permitted and determine the minimum block size for such transactions. Block sizes will be posted on the Website.
2. The following rules shall govern Block Trades:
 1. A Block Trade must be for a quantity that is at or more than the applicable minimum threshold. Orders may not be aggregated to achieve the minimum transaction size unless expressly permitted under Applicable Law.
 2. Each Participant entering into a Block Trade must be an Eligible Contract Participant, as defined by the CEA, and approved for Block Trading by the Exchange. Each Participant must have a separate and independent bona fide business purpose for entering a Block Trade.
 3. The price at which a Block Trade is executed must be fair and reasonable in light of:
 1. the size of the Block Trade,
 2. the prices and sizes of other transactions in the same contract at the relevant time,
 3. the prices and sizes of transactions in other relevant markets, including the underlying cash market and related futures markets, at the relevant time, and
 4. the circumstances of the markets or the Participants to the Block Trade.
 4. Block Trades shall not affect Orders on the Exchange's regular market.
 5. Parties to a Block Trade must ensure that each Block Trade is submitted without delay upon execution of the trade, in no event later than fifteen (15) minutes after execution via web platform. The submission must include the Contract(s), contract month(s), price, quantity of the Block Trade, time of execution, the respective Clearing Member, as well as any other information that the Exchange may require. The Exchange shall promptly publish price and volume information separately from the reports of Exchange transactions.
 6. Participants involved in the execution of Block Trades must maintain electronic records of all such Block Trades, including an electronic timestamp reflecting the date and time each such Order was received as well as an electronic timestamp reflecting the date and time such Order occurred or was cancelled.
3. **Trade Entry.** Block Trades must be submitted via web platform, where both approved Participants must confirm the Block Trades, specifying the identical Expiry(s) to be traded, the quantity and price, and the buyer and seller.
4. **Modification and Cancellation.** Block Trades submitted during the Exchange's Market Hours, and up to fifteen (15) minutes thereafter, are subject to immediate confirmation by the Exchange and may not be modified or cancelled. If erroneous information has been submitted as part of a Block Trade, the Exchange should be notified as soon as the error is detected. If appropriate, the Exchange will facilitate the modification of the trade on a discretionary basis; any trade modification the Exchange agrees to submit to the Clearinghouse will be done during normal Market Hours.
5. **Risk Limit Validation and Clearing.** All Block Trades will be subject to the Exchange's risk controls. Upon verification, the Block Trade will be submitted to the Clearinghouse for novation. The Exchange will make available, via a web interface, confirmation that the Block Trade has been accepted.

Rule 506: Exchange for Related Position [Reserved]

Rule 507: Position Transfers

The Exchange may permit transfer trades to move positions between Trading Accounts for administrative purposes (“Position Transfers”) where no change in ownership is involved. Participants and Clearing Members must obtain approval from the Exchange for a Position Transfer; such approval to be granted at the sole discretion of the Exchange. Position Transfers will not contribute to any reported volume, price, or trading range.

Rule 508: Trade Cancellations; Trade Reviews

1. **Trade Cancellation Authority.** The Exchange may adjust trade prices or cancel (bust) trades when such action is necessary to mitigate market disrupting events caused by the improper or erroneous use of the Exchange or by system defects or malfunctions. Notwithstanding any other provision of this Rule 508.1, the Exchange may adjust trade prices or cancel any trade if the Exchange determines that allowing the trade to stand as executed may have a material, adverse effect on the integrity of the market. Any decision of the Exchange with respect to an adjustment or cancellation subject to this Rule 508.1 shall be final.
2. **Review of Trades.** The Exchange may review a trade based on its analysis of market conditions or a request for review by a user of the Exchange. A request for review must be made within five minutes of the execution of the trade. The Exchange shall promptly determine whether the trade will be subject to review, and upon deciding to review a trade, the Exchange will promptly issue an alert to all Participants on the Exchange indicating that the trade is under review. In the case of Contracts determined by the Exchange to be illiquid, the Exchange may initiate a review up to one hour after the execution of the trade, and has the authority, but not the obligation, to review trades reported more than one hour following execution if it determines that the trade price was significantly out of line with fair value. In the course of its review of any trade, the Exchange may, but is not obligated to, inform any of the parties to the trade of the identity and contact information of any other party to the trade.

Rule 509: Settlement Prices

1. **Definitions**
 - **Daily Settlement Period:** 14:55-15:00 CPT
 - **Final Settlement Period:** Five minutes prior to Trading Termination
 - **Settlement Period:** Daily or Final Settlement Period
 - **Floating Market Price:** The first available of the following methods:
 1. The volume-weighted average price (VWAP) of all the trades during the Settlement Period.
 2. The time-weighted average price (TWAP) of the bid-ask spread midpoint during the Settlement Period.
 3. The price implied from the futures or options curve of which the Contract is a constituent:
 - **Futures:** Futures curve interpolation.
 - **Options:** Black-Scholes model based on the Settlement Price and 30-day volatility of the underlying Contract.
 4. The Contract’s previous day’s Settlement Price.
 5. Market data sources deemed acceptable by the Exchange.
2. **Daily Settlement.** The Exchange will provide the Clearinghouse with Settlement Prices at least once per day. The Daily Settlement price shall be determined at the end of the Daily Settlement Period.
3. **Final Settlement.** The Exchange will provide the Clearinghouse with the Final Settlement Prices at the end of the Final Settlement Period on the expiration day of the Contract.
4. **Sole Discretion.** The Exchange has sole discretion to determine an alternative Settlement Price if the stated Settlement procedure produces prices which are not representative of the fair value of the

Contract. The Exchange reserves the right to adjust Daily and Final Settlement Prices as it deems necessary based on current market conditions or otherwise.

5. **Tick Alignment.** All Settlement Prices are rounded to the nearest tick.

6. **Futures & Swaps Settlement Prices**

1. **Physically (Delivery) Settled**

- **Daily:** The Floating Market Price.
- **Final:** The Floating Market Price.

2. **Financially (Cash) Settled**

- **Daily:** The Floating Market Price.
- **Final:** The underlying index price.

3. **Perpetually Settled.**

- **Daily:** The median of (1) the underlying index price, (2) the Floating Market Price, and (3) the underlying index price plus the simple moving average.

7. **Options Settlement Prices**

- **Daily:** The Floating Market Price.
- **Final:** The underlying Settlement Price.

Rule 510: Recordkeeping; Audit Trail

1. Each Clearing Member and Participant that accesses the Exchange electronically is responsible for maintaining or causing to be maintained a front-end audit trail for all electronic Orders, which shall include Order entry, modification, and cancellation (the “**Audit Trail**”) entered into the Exchange System by the Participant for which the Clearing Member is identified in the order or quote submission as the Clearing Member for the execution of the order or quote, including all related modifications and cancellations.
2. Such Audit Trail shall include Orders submitted and the times of Order entry and of any Order modification or cancellation. Times that are so captured must not be capable of being modified by the Person entering the Order and must reflect all necessary data fields specified by the Exchange from time to time. For executed Orders, the Audit Trail must record the execution time of the trade along with all award information.
3. Each Clearing Member and Participant shall maintain such Audit Trail information for a minimum of five (5) years and must have the ability to produce Audit Trail data in a standard format upon request of the Exchange. Notwithstanding anything to the contrary herein, each Participant is required to comply with the provisions of Commission Regulation §1.35 as applicable to that Participant.

Rule 511: Customer Type Indicator Codes

Each order submitted to the Exchange must include the correct Customer Type Indicator (“CTI”) code. The CTI codes are as follows:

- CTI 1: Orders entered, or trades executed, by an individual for their own account, or for an account they control or have a financial interest in, that does not fall under the CTI 2 definition.
- CTI 2: Orders entered, or trades executed, for the proprietary account of a firm which is either a Participant registered with the Exchange, or a Clearing Member.
- CTI 3: Orders entered, or trades executed, for the personal account of an individual Participant.
- CTI 4: Orders entered, or trades executed, for customers which do not fall under CTI 1, CTI 2, or CTI 3 codes. These would include orders entered by, or on behalf of, clients which are not registered as Participants of the Exchange and are not Clearing Members.

Rule 512: Information Regarding Orders

1. The Exchange will make information regarding Orders (including prices bid or offered), trades and any other matters it may deem appropriate available to Participants and other Persons at such times and in such manner (whether through the Exchange, financial information services or otherwise) as it may consider necessary or advisable from time to time.
2. Each Participant or other Person receiving any such information referred to in Rule 512.1 above shall not redistribute such information other than to the extent and in the manner as may be expressly permitted by the Exchange in writing from time to time.

Rule 513: Disaster Recovery; Business Continuity

1. Each Participant and ECM that is an FCM shall have written disaster recovery and business continuity policies and procedures in place to ensure it is able to perform certain basic operational functions in the event of a significant internal or external interruption to its operations. At a minimum, the following areas must be addressed in the policies and procedures:
 1. Must have procedures in place to allow it to continue to operate during periods of stress or to transfer accounts to another fully operational Participant or Clearing Member with minimal disruption to the Exchange and the Clearinghouse.
 2. Must perform periodic testing of disaster recovery and business continuity plans, duplication of critical systems at back up sites and periodic back-up of critical information and provide the Exchange or Clearinghouse with information regarding the foregoing upon request; and
 3. Must maintain and, at the request of the Exchange or the Clearinghouse, provide accurate and complete information for its key personnel. Each Participant and ECM that is an FCM must inform the Exchange or Clearinghouse in a timely manner whenever a change to its key personnel is made.
2. The Exchange or the Clearinghouse may prescribe additional and/or alternative requirements for a Participant's or Clearing Member's compliance with this rule.

Rule 514: Spot Trading

1. Spot Contracts Offered.

1. **Authorization and Treatment.** The Exchange is authorized to designate for listing and trading commodity spot contracts ("Spot Contracts"), including where applicable, those Spot Contracts that constitute retail commodity transactions, as defined in CEA Section 2(c)(2)(D), 7 U.S.C. 2(c)(2)(D). Subject to the rules herein, all Spot Contracts shall be treated by the Exchange as if they are futures contracts.
2. **Actual Delivery Exemption.** The Exchange shall treat all Spot Contracts as retail commodity transactions regardless of whether any individual transaction may ultimately qualify for the actual delivery exemption under CEA Section 2(c)(2)(D)(ii)(III)(aa), 7 U.S.C. 2(c)(2)(D)(ii)(III)(aa).

2. Financing.

1. **Availability.** Financing may be offered to Customers and Participants specifically for the purpose of funding trading and settlement activity related to Exchange Spot Contracts. Such financing shall be contractual, documented in writing, and subject to inspection by the Exchange.
2. **Lenders.** Financing provided by a third-party lender, affiliate of an FCM, or other market participant shall constitute activity by a Person acting in concert with the Exchange so long as such financing is specifically for the purpose of funding trading and settlement activity related to Spot Contracts offered on the Exchange.

3. **Clearing.** Spot Contract transactions designated hereunder shall be subject to the mandatory clearing requirements set forth in CFTC Rule 38.601, 17 CFR § 38.601, and shall be cleared by the Clearinghouse as set forth in Chapter 8. Consistent with CEA Section 2(c)(2)(D), 7 U.S.C. 2(c)(2)(D), cleared Spot Contract customer collateral shall not be treated as segregated customer funds under CEA Section 4d, 7 U.S.C. 6d.
4. **Settlement and Delivery.** Spot Contracts shall be subject to the settlement and delivery procedures set forth in Chapter 11.

Chapter 6: Discipline And Enforcement

Rule 601: Disciplinary and Enforcement Procedures – General

All Participants, their Authorized Users, Clearing Members and any Person for whose benefit a transaction has been initiated or executed, are subject to Exchange and Clearinghouse jurisdiction. Any Participant or any other person using any of its User IDs that are alleged to have violated, to have aided and abetted a violation, to be violating, or to be about to violate, any Rule of the Exchange or Clearinghouse or applicable law for which the Exchange or Clearinghouse maintains disciplinary jurisdiction is subject to this Chapter 6. No Official will interfere with or attempt to influence the process or resolution of any inquiry, investigation, disciplinary proceeding, appeal from a disciplinary proceeding, summary imposition of fines, summary suspension or other summary action (collectively, “**Disciplinary Action**”), except to the extent provided under Exchange or Clearinghouse Rules with respect to a proceeding in which the director is a member of the relevant Board of Appeals. A Participant or Clearing Members shall be entitled to appear personally and may be represented by counsel during any Disciplinary Action pursuant to this Chapter 6.

Rule 602: Process Considerations

1. **Compliance Department.** The Compliance Department is appointed and authorized by the Chief Executive Officer of the Exchange to provide market surveillance, investigation and enforcement of trading activities on the Exchange to ensure compliance with Exchange and Clearinghouse Rules and applicable laws. The Compliance Department has three primary functions:
 1. The Surveillance Team is responsible for real-time and post-trade surveillance of the Exchange’s trading systems. Members of the Surveillance Team respond to real-time alerts to ensure the integrity of the markets. The Surveillance Team identifies actions or omissions that may indicate a possible basis for finding that a violation of Exchange or Clearinghouse Rules has occurred or will occur.
 2. Investigations and enforcement are conducted by the Investigation Team. The Investigation Team is comprised of Exchange employees and/or persons hired on a contract basis, except for Exchange Participants, Clearing Members or other Persons whose interests conflict with enforcement duties. The Investigation Team may not operate under the direction or control of any person(s) with trading privileges. The Investigation Team is authorized, among other things, to:
 1. initiate and conduct investigations;
 2. prepare investigative reports and make recommendations concerning initiating disciplinary proceedings, including any charges to be issued;
 3. participate in settlement discussions with respondents and recommend settlement sanctions to the Disciplinary Committee; and
 4. prosecute alleged violations within the Exchange’s or Clearinghouse’s disciplinary jurisdiction.
 3. The Disciplinary Committee is appointed by the Board at the recommendation of the Chief Regulatory Officer and shall be comprised of not less than three individuals from among Participants, Clearing Members and other Persons with knowledge and experience in the financial markets, who are not involved in the conduct giving rise to the alleged Rule violations.
2. **Third-Party Enforcement.** The Exchange or Clearinghouse may delegate any of its rights and responsibilities herein to a Regulatory Services Provider.
3. **Expense Liability.** At the discretion of the Exchange or the Clearinghouse, any Participant or Clearing Member found in violation of the Rules may be required to pay to the Exchange or the Clearinghouse, as applicable, any and all expenses incurred as a result of the investigation of the violation and prosecution of the Participant or Clearing Member. This assessment is in addition to any monetary fines imposed for the Rule violation(s).

Rule 603: Disciplinary Matters

1. **Investigations.** The Investigation Team will investigate any matter within the Exchange or Clearinghouse's jurisdiction of which it becomes aware. The Investigation Team will commence an investigation upon the receipt of a request from Commission staff or upon the discovery or receipt of information by the Exchange or Clearinghouse that, in the judgment of the Surveillance Team, indicates a possible basis for a finding that a violation has occurred or will occur. The Investigation Team shall determine the nature and scope of its investigations in its sole discretion and will operate independently of the commercial interests of the Exchange or Clearinghouse. Absent mitigating circumstances, the Investigation Team must complete its investigation within twelve (12) months after the date the investigation is opened. Permissible mitigating circumstances include the complexity of the investigation, the number of firms or individuals involved in as potential respondents, the number of potential violations to be investigated and the volume of documentation and data that must be analyzed.

Upon request by a member of the Investigation Team, a Participant, Authorized User, Clearing Member, and Customer:

1. is obligated to appear and testify and respond in writing to interrogatories within the specified time period in connection with:
 1. the Rules;
 2. any inquiry or investigation; or
 3. any preparation by and presentation during a Disciplinary Action;
 2. is obligated to produce books, records, papers, documents or other tangible evidence in its or their possession, custody or control within the specified time period in connection with:
 1. the Rules;
 2. any inquiry or investigation; or
 3. any preparation by and presentation during a Disciplinary Action;
 3. may not impede or delay any Disciplinary Action.
2. **Reports of Investigations.** The Investigation Team will submit a written report of each investigation to the Disciplinary Committee and maintain a log of all investigations and their disposition. The written report of the investigation (the "**Investigation Report**") will include the reasons for initiating the investigation, all relevant facts and evidence gathered, analysis and conclusions, the Participant's or Clearing Member's disciplinary history at the Exchange or Clearinghouse, and will consist of one of the following recommendations:
 1. closing the investigation without further action;
 2. settlement;
 3. summary action;
 4. the preparation and service of a notice of charges for instituting a disciplinary proceeding; or
 5. resolving the investigation through an informal disposition, including the issuance of a warning letter. An informal disposition (including the issuance of a warning letter) will not constitute a finding of a violation or a sanction, however, the investigative report must include a copy of any warning letter and no more than one warning letter for the same potential violation may be issued to the same Participant or Clearing Member during a rolling 12-month period.
 3. **Review of Reports of Investigations.** The Disciplinary Committee will determine whether a reasonable basis exists to believe that a violation within the Exchange or Clearinghouse's jurisdiction has occurred or is about to occur. The Disciplinary Committee will determine for each Respondent whether to authorize:

1. the informal disposition of the investigation (by issuing a warning letter or otherwise) because disciplinary proceedings are unwarranted; or
 2. the closing of the investigation without any action because no reasonable basis exists to believe that a violation within the Exchange or Clearinghouse's jurisdiction has occurred or is about to occur; or,
 3. the commencement of disciplinary proceedings because a reasonable basis exists to believe that a violation within the Exchange or Clearinghouse's jurisdiction has occurred or is about to occur.
4. **Opportunity to Respond.** At the discretionary authority of the Disciplinary Committee, the Compliance Department may notify the Respondent(s) that formal disciplinary charges are recommended and allow the Respondent to submit, within the specified time period, an offer of settlement or a written statement explaining why disciplinary proceedings should not be instituted or why one or more of the charges should not be brought.
5. **Service of Notice of Charges.** Once the Disciplinary Committee authorizes disciplinary proceedings, the Compliance Department will prepare and serve a notice of charges that will provide as follows:
1. state the acts, practices or conduct that the Respondent is alleged to have engaged in;
 2. state the Exchange or Clearinghouse Rule or provision of applicable law alleged to have been violated or about to be violated;
 3. state the proposed sanctions;
 4. advise the Respondent of its right to a hearing;
 5. advise the Respondent that they have the right to be represented by legal counsel or any other representative of its choosing in all succeeding stages of the disciplinary process;
 6. state the period of time within which the Respondent can request a hearing on the notice of charges, which will not be less than fourteen (14) days after service of the notice of charges;
 7. advise the Respondent that any failure to request a hearing within the period stated, except for good cause, will be deemed to constitute a waiver of the right to a hearing; and
 8. advise the Respondent that any allegation in the notice of charges that is not expressly denied will be deemed to be admitted.

The service of notice upon the Respondent shall be deemed complete via email to the contact as it appears on the books and records of the Exchange or Clearinghouse or in the Participant Agreement or Clearing Member Agreement.

6. **Answer to Service of Notice of Charges.** If the Respondent decides to answer a notice of charges, the Respondent must file answers within fourteen (14) days after being served with such notice, or within such other time period as stated in such notice of charges. The Respondent must answer the notice of charges in writing as follows:
1. specify the allegations that the Respondent denies or admits;
 2. specify the allegations that the Respondent does not have sufficient information to either deny or admit;
 3. specify any specific facts that contradict the notice of charges;
 4. specify any affirmative defenses to the notice of charges; and
 5. sign and serve the answer on the Chief Regulatory Officer.

Failure by the Respondent to timely serve an answer to the notice of charges will be deemed to be an admission to the allegations in such notice. Any allegation in a notice of charges that the Respondent fails to expressly deny will be deemed admitted. A general denial by the Respondent, without more, will not satisfy the requirements herein.

7. **Settlement Offers.** At any time after a notice of charges has been issued, a Respondent may at any time submit to the Compliance Department a written offer of settlement related to anticipated or instituted disciplinary proceedings. The Disciplinary Committee may, in its discretion, permit the Respondent to settle disciplinary proceedings without admitting or denying the rule violations if the Respondent consents to the entry of findings and sanctions imposed. If an offer of settlement is accepted, the Disciplinary Committee shall issue a written decision specifying the rule violations it has reason to believe were committed and any penalties imposed. All offers of settlement that have been accepted by the Disciplinary Committee may not be appealed.

If the offer of settlement is not accepted by the Disciplinary Committee, or fails to become final, or is withdrawn by the Respondent, the matter will proceed as if the offer had not been made such that the Respondent shall not be deemed to have made any admissions by reason of the settlement offer and shall not be otherwise prejudiced by having submitted the settlement offer.

8. **Hearing Panel.**

1. Participants and Clearing Members may request a formal hearing on charges denied in the Respondent's answer to the notice of charges per Rule 603.6. The Hearing Panel, appointed by the Board at the recommendation of the Chief Regulatory Officer, shall be comprised of not less than three individuals from among Participants and Clearing Members (consisting of one Public Director, one representative of the brokerage community and one representative of the trading community), and/or other individuals with knowledge and experience in the financial markets, who are not involved in the conduct giving rise to the alleged Rule violations. The individuals on the Hearing Panel will serve until the related proceedings are completed. The chair of the Hearing Panel will be an individual qualified to be a Public Director.
2. The Respondent will be notified of the appointment of the Hearing Panel and must respond within 10 days by serving notice to the Chief Regulatory Officer if the Respondent seeks to disqualify any individual names to the Hearing Panel for reasonable grounds including that such individual has a financial interest in the matter. Legal counsel, other than the Chief Regulatory Officer, will decide the merits of any request for disqualification within their sole discretion. Such decision will be final and not subject to appeal.
3. Prior to the commencement of the hearing, the Respondent will be given the opportunity to review all books, records, documents, transcripts of testimony and other tangible evidence in the possession or under the control of the Exchange or Clearinghouse to be used by the Compliance Department to support the allegations and proposed sanctions in the notice of charges, except for information protected by attorney-client privilege. The Compliance Department may redact, edit or code information that could adversely affect the competitive position of the person providing the information or if such information might compromise other investigations being conducted by the Compliance Department. However, the Compliance Department may not redact, edit or code information that would impair the Respondent's ability to defend against allegations or proposed sanctions in the notice of charges.
4. The following rules shall apply in each case presented before the Hearing Panel:
 1. The Compliance Department shall prosecute the case.
 2. Formal rules of evidence do not apply.
 3. The Respondent shall be entitled to appear personally at the hearing and have the choice of being represented by legal counsel or another representative. The Respondent's representation is limited to two individuals.
 4. The Respondent has the power to cross-examine witnesses and present documentary evidence.
 5. The burden of proof is on the Compliance Department.
 6. A majority vote of the Hearing Panel is needed to find a violation of the Rules.

5. No Person shall serve on the Hearing Panel unless that Person has agreed in writing that they will not publish, divulge, or make known in any manner, any facts or information regarding the business of any person or any other information which may be obtained while serving as a member of the Hearing Panel, except for disclosures when reporting to the Board, the Compliance Department, upon request by the Commission or other Governmental Authority, or when compelled to testify in a judicial or administrative proceeding. Furthermore, no Person shall serve on the Hearing Panel if such Person has already been involved in the Disciplinary Action for any reason. The hearing will be conducted privately and confidentially. Notwithstanding the confidentiality of the hearings, the Hearing Panel may appoint an expert to attend any hearing and assist in deliberations if such expert agrees to be subject to an appropriate confidentiality agreement.
 6. The chair of the Hearing Panel shall conduct the hearing as they may deem appropriate. The chair of the Hearing Panel will determine all procedural and evidentiary matters, including the admissibility and relevance of any evidence proffered. Legal counsel, other than the Chief Regulatory Officer, will provide guidance to the chair of the Hearing Panel on the conduct of the hearing. At the hearing, the Hearing Panel or the Compliance Department and each Respondent may:
 1. present evidence and facts determined relevant and admissible by the chair of the Hearing Panel;
 2. call and examine witnesses; and
 3. cross-examine witnesses called by other parties.
 7. If the Respondent fails to file an answer, has filed a general denial, or if any or all of the allegations in the notice of charges are not expressly denied in the Respondent's answer, the chair of the Hearing Panel may limit evidence concerning any allegations not expressly denied in determining the sanctions to impose. If a Respondent fails to file an answer but appears at the hearing, the Respondent may not participate in the hearing (by calling or cross-examining witnesses, testifying in defense, presenting evidence concerning the notice of charges, or otherwise) unless the Hearing Panel determines that the Respondent had a compelling reason for failing to timely file an answer. If the Hearing Panel determines that the Respondent had a compelling reason for failing to timely file an answer, the Hearing Panel will adjourn the hearing and direct the Respondent to promptly file a written answer.
 8. Reasonable notice, confirmed in writing, specifying the date, time, and place of the hearing will be given to persons entitled or required to appear before the Hearing Panel. The Hearing Panel may impose sanctions on any person that impedes or delays the progress of the hearing. Interlocutory appeals of rulings by the Hearing Panel or the chair of the Hearing Panel are not permitted.
 9. If the Respondent is found to have violated one or more Rules, the written decision shall state the disciplinary action to be taken by the Exchange as well as the effective date thereof. The Hearing Panel may in such a case:
 1. issue a warning letter;
 2. issue a cease and desist order;
 3. suspend the Participant's or Clearing Member's rights to engage in Transactions on the Exchange;
 4. expel the Participant or Clearing Member from the Exchange or Clearinghouse; and/or
 5. impose any other sanction deemed appropriate under the circumstances.
- All decisions will be subject to CFTC Rules 38.708(a)-(f).
10. The Respondent may appeal the Hearing Panel decision within fourteen (14) days of receiving the order by filing a written notice of appeal pursuant to Rule 604. The order of the Hearing Panel's decision will become final upon expiration of fourteen (14) days after the order is served on the Respondent.

9. **Settlement.** At any time prior to the issuance of the written decision of the Hearing Panel, the Respondent may submit an offer of settlement to the Compliance Department for review. The Disciplinary Committee will determine whether to accept or reject the offer and forward the basis for its recommendation to the Hearing Panel for final determination. If the Hearing Panel agrees, the Chief Regulatory Officer will conditionally accept the settlement offer, which will become final upon the expiration of fourteen (14) days after the order of the Hearing Panel consistent with the terms of the settlement offer is served on the Respondent. The offer of settlement must detail the rule violations, including the basis for the Hearing Panel's conclusions and any sanction to be imposed, which must include full customer restitution where customer harm is demonstrated. If applicable, the decision must also include a statement that the Respondent has accepted the sanctions imposed without either admitting or denying the rule violations. The acceptance of a settlement offer and the related final order by the Hearing Panel constitutes a waiver of the Respondent's right to notice, opportunity for a hearing and review, and appeal under Exchange or Clearinghouse Rules. If the settlement offer is not accepted, fails to become final, or is withdrawn by the Respondent, the matter will proceed as if the offer had not been made and the offer and all documents related to it will not become part of the record.
10. **Sanctions.** After notice and opportunity for hearing in accordance with Exchange or Clearinghouse Rules, the Exchange will impose sanctions if any Participant, Authorized User, Clearing Member, or Person using any of the Participant's or Clearing Member's User IDs, or Customer is found to have violated or to have attempted to violate a Rule of the Exchange or Clearinghouse or provision of applicable law for which the Exchange or Clearinghouse possess disciplinary jurisdiction. All sanctions must take into account the Respondent's disciplinary history. In the event of demonstrated customer harm, any sanction must also include full customer restitution. The Exchange may impose one or more of the following sanctions or remedies:
 1. censure;
 2. limitation or restriction on trading privileges, access to the Exchange or Clearinghouse and other activities, functions or operations;
 3. suspension of trading privileges and access the Exchange or Clearinghouse;
 4. fine;
 5. restitution;
 6. disgorgement;
 7. termination of trading privileges and access the Exchange or Clearinghouse; or
 8. any other sanction or remedy deemed to be appropriate.

The Exchange may impose a fine of up to \$1,000,000 for each violation of Exchange or Clearinghouse Rules or a provision of applicable law. If a fine or other amount is not paid within 30 days of the date that it becomes payable, then interest will accrue on the sum from the date that it became payable at the quoted prime rate plus three percent. The Exchange has sole discretion to select the bank on whose quotations to base the prime rate. Participants and Clearing Members will be responsible for paying any fine or other amount imposed on, but not paid by, any of its traders, supervisors, or Customers.

Rule 604: Summary Actions

1. **Summary Suspensions:** At any time, the Chief Regulatory Officer, in consultation with the Regulatory Oversight Committee of the Board, may summarily suspend, revoke, limit, or condition a Participant's or Clearing Member's privileges on the Exchange or Clearinghouse. The Chief Regulatory Officer must reasonably believe that the business, conduct or activities of the Participant or Clearing Member in question is not in the best interest of the Exchange, the Clearinghouse, or the marketplace, based on relevant circumstances including (but not limited to) any of the following reasons:
 1. failure to satisfy applicable requirements under the CEA and/or the rules of the CFTC;

2. failure to pay fees or fines or arbitration awards; and/or
 3. there is a reasonable basis for believing the best interest of the public, the Exchange, or the Clearinghouse is at risk and immediate action is necessary.
2. **Notice of Suspension:** Any Participant or Clearing Member that is suspended by the Chief Executive Officer as a result of a summary action is to be notified at the earliest possible opportunity as appropriate considering the best interest of the marketplace. Such notice shall state:
1. the exact action taken,
 2. the reasons for the action, and
 3. the time and date the action has or is to become effective as well as the duration of the action.

The Respondent may file a notice of appeal filed pursuant to Rule 604 seeking reinstatement within fourteen (14) days after the notice of action is served on the Respondent. Otherwise, the summary action becomes final fourteen (14) days after the notice of action is served on the Respondent. The Respondent shall have the right to be represented by legal counsel in all proceedings subsequent to summary action taken pursuant to Rule 604.

3. **Summary Imposition of Fines:** The Compliance Department may summarily impose a fine, no less than \$1,000 and no more than \$15,000 for each violation, against any Participant or Clearing Member for:
1. failure to cooperate with the Compliance Department as required by Exchange or Clearinghouse Rules;
 2. failure to make timely and accurate submissions to the Exchange of notices, reports or other information required by Exchange or Clearinghouse Rules;
 3. failure to keep any books and records required by Exchange or Clearinghouse Rules.
4. **Notice of Fines:** The Compliance Department will give notice of any fine imposed that will specify:
1. the violation of the Exchange or Clearinghouse Rule for which the fine is being imposed;
 2. the date of the violation for which the fine is being imposed; and
 3. the amount of the fine.

Within 14 days of the service of the notice of the fine imposed, the Participant or Clearing Member may either pay the fine or file a notice of appeal pursuant to Rule 605.1. Unless timely notice of appeal is filed, the fine will become final upon expiration of 14 days after the notice of fine is served on the Participant or Clearing Member. The Respondent shall have the right to be represented by legal counsel in all proceedings subsequent to summary action taken pursuant to Rule 604.

5. **Summary Fine Schedule:** The following is a list of the rule violations subject to, and the applicable fines that may be imposed by the Exchange pursuant, this Rule 604:
1. **Failure to Comply with Minimum Financial Requirements, Financial Reporting Requirements, and Requirements Relating to Protection of Customer Funds (Rule 304.1-Rule 304.18)**

Number of Cumulative Violations in Any Twelve (12) Month Rolling Period

- First Offense.....Letter of Caution
- Second Offense.....\$7,500
- Third Offense.....\$15,000
- Subsequent Offenses.....Referral to Disciplinary Committee

2. Failure to Comply with Notice Provisions for Position Accountability. (Rule 406.1)

Number of Cumulative Violations in Any Twelve (12) Month Rolling Period

- First Offense.....Letter of Caution
- Second Offense.....\$7,500
- Third Offense.....\$15,000
- Subsequent Offenses.....Referral to Disciplinary Committee

3. Failure to Comply with Reporting Requirements for Ownership and Control Reports and Reportable Positions. (Rule 407.1-Rule 407.3)

Number of Cumulative Violations in Any Twelve (12) Month Rolling Period

- First Offense.....Letter of Caution
- Second Offense.....\$7,500
- Third Offense.....\$15,000
- Subsequent Offenses.....Referral to Disciplinary Committee

4. Failure to Enter Valid Orders. (Rule 504.1)

Number of Cumulative Violations in Any Twelve (12) Month Rolling Period

- First Offense.....Letter of Caution
- Second Offense.....\$2,500
- Third Offense.....\$10,000
- Subsequent Offenses.....Referral to Disciplinary Committee

5. Failure to Comply with Block Trade Requirements. (Rule 505.2-Rule 505.4)

Number of Cumulative Violations in Any Twelve (12) Month Rolling Period

- First Offense.....Letter of Caution
- Second Offense.....\$2,500
- Subsequent Offenses.....\$10,000

6. Failure to Maintain Audit Trail Information. (Rule 510.1-Rule 510.3)

Number of Cumulative Violations in Any Twelve (12) Month Rolling Period

- First Offense.....Letter of Caution
- Second Offense.....\$2,500
- Third Offense.....\$10,000
- Subsequent Offenses.....Referral to Disciplinary Committee

7. Failure to Submit Correct Customer Type Indicator codes. (Rule 511)

Number of Cumulative Violations in Any Twelve (12) Month Rolling Period

- First Offense.....Letter of Caution
- Second Offense.....\$2,500
- Third Offense.....\$10,000
- Subsequent Offenses.....Referral to Disciplinary Committee

8. Failure to Cooperate with the Compliance Department; Failure to Provide Records Within Designated Time Frame. (Rule 603.1)

Number of Business Days Beyond Due Date of Request

- Up Until 15 Business Days.....\$1,000
- Subsequent Offenses.....Referral to Disciplinary Committee

9. Failure to Properly Deliver. (Rule 1105.1; Rule 1105.2)

Number of Cumulative Violations in Any Twelve (12) Month Rolling Period

- First Offense.....\$5,000
- Subsequent Offenses..... Referral to Disciplinary Committee

Rule 605: Appeal from Hearing Panel Decisions and Summary Actions

1. **Appeal Procedures:** A Respondent found by the Hearing Panel to have violated an Exchange or Clearinghouse Rule or applicable law or who is subject to any summary action imposed pursuant to Rule 604 may appeal the decision within fourteen (14) days of receiving the order of the Hearing Panel decision or notice of summary action by filing a notice of appeal with the Chief Regulatory Officer. Except for summary suspensions imposed pursuant to Rule 604.1 and Rule 604.2, Hearing Panel decisions and summary imposition of fines shall be suspended while the appeal is pending.

The notice of appeal must state in writing the grounds for appeal, including the findings of fact, conclusions or sanctions to which the Respondent objects. The Respondent may give notice of appeal on the grounds that:

1. the order or decision was arbitrary, capricious, an abuse of discretion, or not in accordance with Exchange or Clearinghouse Rules;
2. the order or decision exceeded the authority or jurisdiction of the Hearing Panel, the Disciplinary Committee, the Exchange, or the Clearinghouse;
3. the order or decision failed to observe required procedures;
4. the order or decision was unsupported by the facts or evidence; or
5. the imposed sanctions, remedies or costs are inappropriate or unsupported by the record.

The Chief Regulatory Officer will forward copies of any notice of appeal received by it to all parties to the disciplinary proceeding or summary action, as the case may be, except the appellant. On or before the 14th day after filing a notice of appeal, the appellant must file with the Chief Regulatory Officer and serve on the Compliance Department a brief supporting the notice of appeal and documents supporting the brief. On or before the 14th day after the date on which the appellant serves supporting brief, the appellee must file and serve its brief in opposition with the Compliance Department.

Within 30 days after the last submission filed, the Board will appoint a Board of Appeals at the recommendation of the Chief Regulatory Officer, which shall be composed of not less than three individuals from among Participants and Clearing Members (consisting of one Public Director, one representative of the brokerage community and one representative of the trading community), and/or other Person with knowledge and experience in the financial markets, who did not participate in any prior stage of the disciplinary proceeding. No member may serve on the Board of Appeals if such person or any person or firm with whom such person is affiliated has a financial, personal, or other direct interest in the matter. The individuals on the Board of Appeals will serve until the related proceedings are completed. The chair of the Board of Appeals will be an individual qualified to be a Public Director.

2. **Review by the Board of Appeals:** The Board of Appeals will hold a hearing to allow parties to present oral arguments. Except for good cause shown, the review by the Board of Appeals shall only

consider the record before the Disciplinary Committee, the written exceptions filed by the parties, and the oral and written arguments of the parties.

Upon completing its review, the Board of Appeals may affirm, modify or reverse the Hearing Panel decision or summary action under appeal. Modifications by the Board of Appeals may include increasing, decreasing or eliminating any sanction or remedy imposed, imposing any other sanction or remedy authorized by Exchange or Clearinghouse Rules, remanding the matter to the same or a different Hearing Panel for further disciplinary proceedings, or ordering a new hearing.

As promptly as reasonably possible following its review, the Board of Appeals will issue a written decision based on the weight of the evidence before the Board of Appeals. The decision of the Board of Appeals will include a statement of findings of fact and conclusions for each finding, sanction, remedy and cost reviewed on appeal, including each specific Exchange or Clearinghouse Rule and provision of applicable law that the Respondent is found to have violated, if any, and the imposition of sanctions, remedies and costs, if any, and the effective date of each sanction, remedy or cost. The order by the Board of Appeals will be the final action of the Exchange and will not be subject to further appeal within the Exchange.

Rule 606: Rights and Responsibilities After Suspension or Termination

1. When the Participant's or Clearing Member's right to access the Exchange or Clearinghouse, or the association of an Authorized User with a Participant, is suspended for a period of 12 months or less, none of its rights (including the right to hold oneself out to the public as a Participant or Clearing Member; enter orders into the Exchange; clear trades through the Clearinghouse, and receive Participant rates for fees, costs, and charges) will apply during the period of the suspension, except for the right of the Participant, Authorized User or Clearing Member in question to assert claims against others as provided in the Rules. Any such suspension will not affect the rights of creditors under the Rules or relieve the Participant, Authorized User or Clearing Member in question of its or their obligations under the Rules to perform any Transactions entered into before the suspension, or for any Exchange or Clearinghouse fees, costs, or charges incurred during the suspension. The Exchange may discipline a suspended Participant or Authorized User or Clearing Member under this Chapter 6 for any violation of Applicable Law committed by the Participant or Clearing Member before, during, or after the suspension.
2. When the Participant's or Clearing Member's right to access the Exchange or Clearinghouse, or the association of an Authorized User with a Participant, is terminated, all of its rights will terminate, except for the right of the Participant or Authorized User or Clearing Member in question to assert claims against others, as provided in the Rules. Any such termination will not affect the rights of creditors under the Rules. A terminated Participant, Authorized User or Clearing Member may only seek to reinstate its right to access the Exchange or Clearinghouse by filing an application in accordance with Chapter 3 of the Rules. The Exchange and Clearinghouse will not consider the application of a terminated Participant, Authorized User or Clearing Member if such Participant or Authorized User continues to fail to appear at Disciplinary Actions without good cause, or continues to impede the progress of Disciplinary Actions.
3. A suspended or terminated Participant, Authorized User or Clearing Member remains subject to the Rules and the jurisdiction of the Exchange and Clearinghouse for acts and omissions prior to the suspension or termination, and must cooperate in any inquiry, investigation, Disciplinary Actions, appeal of Disciplinary Actions, summary suspension, or other summary action as if the suspended or terminated Participant, Authorized User or Clearing Member still had the right to access the Exchange or Clearinghouse, or was still associated with a Participant or Clearing Member, as the case may be.

Rule 607: Notice to the Respondent, the CFTC, and the Public

The Exchange will provide written notice of Disciplinary Actions to the parties and the CFTC consistent with CFTC Rules. Whenever the Exchange suspends, expels, fines, or otherwise disciplines, or denies any

Person access to the Exchange or Clearinghouse, the Exchange will make the public disclosures required by CFTC Rules.

Chapter 7: Arbitration

Rule 701: In General

1. Participants, Clearing Members, and Customers shall arbitrate through NFA in accordance with NFA's Code of Arbitration and NFA's member arbitration rules. All disputes, controversies or claims between or among themselves that relate to or arise out of any Contract or otherwise arise out of one or more Transactions made or to be made on the Exchange or subject to the Rules and that are based upon facts and circumstances that occurred at a time when the parties were Participants, Clearing Members, or Customers.
2. To initiate arbitration, a Person shall notify the NFA, either in writing or orally. The NFA shall maintain a record of the receipt of such notice and shall promptly provide such Person with a copy of the member arbitration rules and an Arbitration Claim form. The intent to arbitrate must be received by NFA within two years from the date when the party filing the Arbitration Claim form knew or should have known of the act or transaction that is the subject of the controversy.
3. The party filing a claim shall pay a hearing fee based on the amount claimed in accordance with NFA's member arbitration rules. The arbitrator(s), in their discretion, may assess the entire fee against any party or divide the fee among any or all parties. Hearing fees shall be paid to NFA in advance of the hearing sessions to which they apply.
4. The arbitration will be conducted in Chicago, Illinois, by an arbitrator operating in accordance with the provisions of NFA's member arbitration rules in effect at the time of filing of the claim for arbitration. The arbitrator shall have the authority to award any remedy or relief that a court of competent jurisdiction could order or grant, including the issuance of an injunction.
5. Except as necessary in court proceedings to enforce this arbitration provision or an award rendered hereunder, or to obtain interim relief, neither a Party nor an arbitrator may disclose the existence, content or results of any arbitration hereunder without the prior written consent of the Parties. For the purposes of this section, the NFA is not considered a Party.
6. Controversies or claims solely related to the Clearinghouse between Clearing Members and the Clearinghouse arising out of or relating to the Rules, or the breach thereof, shall be settled by arbitration administered by the American Arbitration Association in accordance with its Commercial Arbitration Rules and judgment on the award rendered by the arbitrator(s) may be entered in any court having jurisdiction thereof. The place of arbitration shall be Chicago, Illinois. Claims against the Clearinghouse must be pursued pursuant to the rules of the Clearinghouse. In the event of a conflict between the American Arbitration Association Commercial Arbitration Rules, the terms of the Rulebook shall control.

Rule 702: Exceptions

This Chapter 7 does not apply to disputes between Participants, Clearing Members or Customers in which: 1. such Participants, Clearing Members or Customers are required by the rules of a Self-Regulatory Organization to submit to the dispute resolution procedures of that Self-Regulatory Organization; or 2. such Participants, Clearing Members or Customers have, by valid and binding agreement, committed to negotiate or litigate in a forum other than the NFA or the American Arbitration Association.

Rule 703: Penalties

1. Any failure on the part of a Participant or Clearing Member to arbitrate a dispute subject to this Chapter 7, or the commencement by any such person of a suit in any court prior to arbitrating a case subject to this Chapter 7, violates the Rules and shall subject such Participant or Clearing Member to Disciplinary Action pursuant to Chapter 6.
2. The Exchange or Clearinghouse may, as applicable, summarily suspend, pursuant to Rule 604, a Participant or Clearing Member that fails to timely satisfy an arbitration award rendered in any

arbitration pursuant to this Chapter 7. If a case settles before an award has been issued, the Exchange will enforce the agreed upon settlement.

Chapter 8: Clearing

Rule 801: Clearing

1. **Applicability.** Contracts shall be cleared through the Clearinghouse in accordance with the Rules. The Clearinghouse shall accept for clearing Contracts submitted by a Board of Trade and shall not accept Contracts submitted by any other Person. The clearing services provided by the Clearinghouse with respect to any Contract, and the rights and obligations of purchasers and sellers under cleared Contracts (including rights and obligations in respect of clearing and settlement, Margin payments and performance at maturity), will be governed by the Rules.
2. **Rejection and Suspension.** The Clearinghouse shall have the right to reject Contracts and to suspend clearing of such Contracts without notice, in accordance with the Rules of the Clearinghouse.
3. **Novation and Offsetting.** Contracts shall be novated upon acceptance for clearing by the Clearinghouse in accordance with Rule 811. Open positions in a Contract may be offset by opposite positions in the same Contract.
4. **Reliance on Information.** The Clearinghouse shall be entitled to rely conclusively on the accuracy and authenticity of any information regarding a Contract submitted to the Clearinghouse by a Board of Trade on behalf of a Clearing Member, whether or not the Clearing Member in fact authorized the submission of such Contract for clearing.
5. **Transfer.** A Clearing Member may transfer a Contract to another Clearing Member only upon notice to the Clearinghouse and in accordance with the Rules.
6. **Customer Fund Segregation.** The Clearinghouse shall segregate customer funds in accordance with Commission Regulation 39.15.

Rule 802: Participants

1. Each Participant must assist its Clearing Member, if any, and the Clearinghouse, in the clearing of its Contracts. Without limiting the generality of the foregoing, each Participant must provide its Clearing Member, if any, with a telephone number so that such Participant may be reached at any time during the day in the event that there is a discrepancy in the clearing of a Contract. If the Participant is not present at the time specified above, such Participant's Clearing Member, if any, will be authorized to resolve any discrepancy in the manner it deems appropriate, but such resolution will not be relevant to the determination of the liability of any party to the trade.

Rule 803: Clearing Members

1. The Clearinghouse shall have two categories of Clearing Membership: ECMs and ICMs. Clearing Membership may be approved and maintained only when the terms and conditions set forth below have been met and continue to be met as determined by the Clearinghouse. The Clearinghouse may approve a Person to be a Clearing Member and the Clearinghouse may revoke Clearing Member approval at any time.
 1. The Clearing Member is a corporation, limited liability company, partnership or other entity in good standing in its jurisdiction of formation, or a natural person who is a U.S. citizen or permanent resident in good standing;
 2. The ECM is qualified to conduct business in the State of Illinois or has an agency agreement in place with an entity qualified in the United States that provides an agent for service of process and other communications from the Clearinghouse in connection with the business of the Clearing Member;
 3. The Clearing Member is in compliance with a Clearing Member Agreement.
 4. The Clearing Member is in compliance with the Rules;

5. The Clearing Member is in good financial standing and meets the minimum financial requirements established by the Clearinghouse;
 6. The Clearing Member has the personnel and systems to effectively conduct its business with the Clearinghouse;
 7. The Clearing Member has established satisfactory relationships with, and designated to the Clearinghouse, a bank or trust company designated by the Board for confirmation and payment of Margin, Collateral, and other settlements with the Clearinghouse (an “Approved Financial Institution”);
 8. The Clearing Member has adequate operational capabilities, including the ability to process expected peak volumes and values within required time frames, fulfill Collateral payment and delivery obligations imposed by the Clearinghouse and participate in default management activities; and
 9. The Clearing Member is registered as an FCM with the CFTC and is a member of NFA unless the Clearing Member clears solely Fully Collateralized Swaps for its own accounts.
 10. The Clearing Member meets applicable requirements under the CEA and the CFTC’s rules, including but not limited to risk management procedures, requirements relating to minimum net capital, financial reporting, and recordkeeping, as determined by the Clearinghouse.
2. The Clearing Member shall immediately notify the Clearinghouse if any of the foregoing requirements are not true and accurate.
 3. A Clearing Member may elect to participate in a Board of Trade by providing notice to the Clearinghouse. Participation in a Board of Trade may impact the requirements applicable to the Clearing Member under Rule 803.1.
 4. The Board may grant exemptions to the requirements for membership in Rule 803 if the Clearinghouse determines that an exemption would not jeopardize the financial integrity of the Clearinghouse.

Rule 804: Application for Clearing Membership

1. Any Person desiring to become a Clearing Member shall execute a Clearing Member Agreement and submit an application in such form as shall be prescribed by the Clearinghouse, which shall include a certification that the applicant has received, reviewed and agrees to abide by the Rules and perform the duties and responsibilities of a Clearing Member.
2. Only Persons found to meet the qualifications set forth in Rule 803 will be permitted to be Clearing Members. For the purpose of determining whether any applicant or Clearing Member is so qualified, the Clearinghouse may examine the books and records of any applicant or Clearing Member and may take such other steps as it may deem necessary to assess the qualifications of an applicant or Clearing Member. An applicant for Clearing Member status shall be conclusively deemed to have agreed to have no recourse against the Clearinghouse in the event that its application to become a Clearing Member is rejected.
3. An applicant that fails to be approved for membership shall be informed by the Clearinghouse and shall have five (5) Business Days thereafter to file an appeal to the Board seeking further consideration. The Board may approve the applicant by a majority vote if it determines that the decision to deny the application was in error.

Rule 805: Withdrawal of Clearing Membership

1. **Notice of Withdrawal.** A Clearing Member may request to begin the withdrawal process as a Clearing Member upon written notice in a form and manner specified by the Clearinghouse. The Clearinghouse will process the formal withdrawal request within 30 days of receipt of the withdrawal

form. Within or prior to the 30-day period, the Clearing Member will remain subject to all obligations of a Clearing Member under the Rules.

2. Obligations During Withdrawal. A Clearing Member that has provided the Clearinghouse with notice that it seeks to withdraw its status is subject to the following requirements, obligations and provisions:

1. the Clearing Member must use all reasonable efforts to close-out all of its house and, where applicable, customer open positions;
2. after notifying the Clearinghouse, the Clearing Member shall only be entitled to submit transactions for clearing which can be demonstrated to have the overall effect of reducing open positions in any Contract or risks to the Clearinghouse, whether by hedging, novating, transferring, terminating, liquidating or otherwise closing out such positions;
3. the Clearinghouse may call for additional Margin until such time as all of such Clearing Member's open positions have been terminated, and such Clearing Member shall provide such additional Margin to the Clearinghouse as is requested in a timely manner;
4. the withdrawing Clearing Member may be obligated to participate in default auctions; and
5. if there is a default, the withdrawing Clearing Member in question shall remain liable for any unapplied assessments.

3. Withdrawal from Participation in a Board of Trade. An ECM that is an FCM that withdraws from participation in a Board of Trade must provide prompt written notice of the withdrawal to the Clearinghouse. The notice shall identify the Board of Trade from which the Clearing Member is withdrawing and state whether the Clearing Member also seeks to withdraw as a Clearing Member.

1. If the Clearing Member seeks to withdraw only from such Board of Trade and to remain a Clearing Member, the requirements of Rule 805.2 shall apply with respect to the Clearing Member's open positions in Contracts executed on such Board of Trade. The Clearing Member shall remain subject to all other obligations of a Clearing Member under the Rules.
2. If the Clearing Member also seeks to withdraw as a Clearing Member, the notice shall be processed in accordance with Rule 805.1 and Rule 805.2.

4. Effectiveness of Withdrawal; Release of Clearinghouse-Held Assets.

1. A Clearing Member's withdrawal as a Clearing Member shall not become effective, and the Clearinghouse shall not release any Margin, Collateral, Guaranty Fund contribution, or other assets of the Clearing Member held by or pledged to the Clearinghouse, until the Clearinghouse determines that:
 1. all open positions of the Clearing Member at the Clearinghouse have been closed out, transferred, or otherwise terminated;
 2. all amounts owed by the Clearing Member to the Clearinghouse, including settlement variation, Margin, Guaranty Fund contributions, assessments, fees, and any other financial obligations, have been paid in full;
 3. all obligations of the Clearing Member to other Clearing Members or Customers arising from Contracts cleared by the Clearinghouse have been satisfied or otherwise provided for; and
 4. any arbitration or disciplinary proceedings under Chapter 6 to which the Clearing Member is a party have been resolved or such obligations have been otherwise provided for.
2. The Clearinghouse shall not release any such assets prior to the 60th day following the date the Clearinghouse provides notice of the Clearing Member's withdrawal, provided that the Clearinghouse may, in its sole discretion, grant an exemption to this holding period for good cause shown.

3. Where a Clearing Member has provided notice under Rule 805.3 to withdraw from participation in a Board of Trade but to remain a Clearing Member, the conditions of this Rule 805.4 shall apply only with respect to obligations and assets related to such Board of Trade.
5. **Irrevocability and Reinstatement.** Any withdrawal notice issued by a Clearing Member shall be irrevocable by the Clearing Member, and the Clearing Member may only be reinstated pursuant to a new application following the close-out of all of its house and, where applicable, customer open positions.

Rule 806: Responsibilities of Clearing Members

Each Clearing Member shall, and where applicable, shall cause all of its employees and agents to:

1. ensure that all funds deposited with the Clearinghouse on behalf of futures and futures options Customers of a Clearing Member shall be held in an account identifiable as “Customer Segregated” in accordance with the CEA and CFTC Rule 1.20, as amended, and ensure that all funds deposited with the Clearinghouse on behalf of cleared swaps Customers of a Clearing Member shall be held in an account identifiable as “Cleared Swaps Customer Collateral” in accordance with the CEA and CFTC Rule 22.2 and CEA and CFTC Rule 22.3, as amended. Additionally, fulfill the segregation acknowledgment letter requirements as per CEA and CFTC Rule 22.5 for Customer deposits. These funds must be segregated from other funds and treated as belonging to the respective Customers. Notwithstanding the foregoing, Section 2(c)(2)(D) of the CEA does not incorporate Section 4d customer fund segregation requirements, and therefore cleared spot customer funds are not treated as segregated customer funds under Section 4d.
2. ensure that the investment of all funds deposited with the Clearinghouse on behalf of Customers of a Clearing Member complies with the investment standards of the CEA and CFTC Rule 1.25, as amended, including, but not limited to, concentration limits and permitted investments;
3. comply with and act in a manner consistent with the Rules and any rules of or agreement with a settlement facility, as applicable;
4. ensure that all clearing activity conducted by the Clearing Member is performed in a manner that is consistent with the Rules;
5. ensure that only the Clearinghouse’s facilities are used to conduct clearing business pursuant to the Rules or which is required to be conducted pursuant to the Rules;
6. ensure that the Clearinghouse’s facilities are used in a responsible manner and are not used for any improper or wrongful purpose;
7. meet all financial requirements required under the Rules;
8. guarantee and assume complete responsibility for all Contracts submitted by it or which it has authorized another Person to submit for clearing in its name;
9. observe high standards of integrity, market conduct, commercial honor, fair dealing and just and equitable principles of trade in the conduct of its clearing business with the Clearinghouse in the conduct of its business as a Clearing Member or any aspect of any business connected with or concerning the Clearinghouse;
10. immediately inform the Clearinghouse of any changes to the account information provided by the Clearing Member;
11. keep User IDs and passwords confidential;
12. promptly review and, as necessary, respond to all communications issued by the Clearinghouse;
13. keep, or cause to be kept, complete and accurate books and records as required to be maintained pursuant to the CEA and CFTC Rules for the time and in the manner specified by CFTC Rules; and

make such books and records available for inspection by a representative of the Clearinghouse, the CFTC and other Governmental Authority of competent jurisdiction;

14. not knowingly mislead or conceal any material fact or matter in any dealings or filings with the Clearinghouse or in connection with a disciplinary action;
15. be responsible, even after it has withdrawn as a Clearing Member, for any violations of Rules committed by it while it was a Clearing Member;
16. cooperate with the Clearinghouse and any Governmental Authority in any inquiry, investigation, audit, examination or proceeding;
17. adopt, adhere to and enforce risk management and other policies and procedures that are designed to address the risks that the Clearing Member poses to the Clearinghouse and promptly provide, upon request by the Clearinghouse or the CFTC, information related to the risk management policies, procedures and practices of the Clearing Member;
18. coordinate with the Clearinghouse to develop and test business continuity and disaster recovery plans that enable effective resumption of daily processing, clearing and settlement following a disruption;
19. in the case of an ECM that is an FCM, develop and implement a written compliance program approved in writing by senior management of such Clearing Member that is reasonably designed to achieve and monitor the Clearing Member's compliance with all applicable requirements of the Bank Secrecy Act (31 U.S.C. § 5311 et seq.), the International Emergency Economic Powers Act (50 U.S.C. § 1701 et seq.) ("IEEPA"), the Trading with the Enemy Act (50 U.S.C. App. § 1 et seq.) ("TWEA"), and the Executive Orders and Rules issued pursuant thereto, including the Rules issued by the U.S. Department of the Treasury and, as applicable, the CFTC. The compliance program shall, at a minimum:
 1. establish and implement policies, procedures and controls reasonably designed to assure compliance with all applicable provisions of the Bank Secrecy Act, IEEPA, TWEA, and all applicable Executive Orders and Rules issued pursuant thereto;
 2. provide for independent testing for compliance to be conducted by Clearing Member personnel or by a qualified outside party;
 3. designate an individual or individuals responsible for implementing and monitoring the day-to-day operations and internal controls of the program; and
 4. provide ongoing training for appropriate personnel; and
20. ensure that sufficient collateral is on deposit with the Clearinghouse to cover the maximum possible loss for any Fully Collateralized Swap position prior to holding such position, in accordance with 17 CFR § 39.2.

Rule 807: Clearing Member Financial Reporting Requirements

1. Each ECM that is an FCM shall file with the Clearinghouse:
 1. A financial statement in the form prescribed by the Clearinghouse within sixty (60) days after the end of such Clearing Member's fiscal year, together with a summary description in reasonable detail of the risk management, policies, procedures and systems that were maintained by such Clearing Member during such fiscal year and a financial statement in the form prescribed by the Clearinghouse within seventeen (17) days after the end of each month; and
 2. A copy of each financial statement, financial report, or notice pursuant to CFTC Rule 1.12, which it files with any Governmental Authority or Self-Regulatory Organization of which it is a member or participant at the same time it files such statement, report, or notice with any such Governmental Authority or Self-Regulatory Organization, and if such statement, report, or notice is other than a routine periodic statement, report, or notice required under the bylaws, rules or Rules of such entity, such copy shall be accompanied by a written statement, pursuant to CFTC Rule 1.12, setting forth (to the extent known) the reasons why such Clearing Member is filing such statement, report, or notice.

2. The financial statements required by this Rule shall be submitted on Form 1-FR-FCM or FOCUS Report Part II, provided that if the Clearing Member is not required to submit Form 1-FR-FCM or a FOCUS Report it must provide financial information in the form and manner prescribed by the Clearinghouse. The financial statement for the fiscal year of a Clearing Member shall be certified by an independent public accountant, and the monthly financial statements shall be certified by the president, the chief financial officer or a general partner of the Clearing Member.
3. Each Clearing Member shall file with the Clearinghouse such financial or other information, in addition to that which is explicitly required by this Rule, as may be requested by the Clearinghouse from time to time.
4. In the event that a Clearing Member: (1) fails to meet any obligation to deposit or pay any Margin or option premium when and as required by any clearing organization of which it is a member; (2) fails to be in compliance with any applicable financial requirements of any Governmental Authority or Self-Regulatory Organization; or (3) becomes the subject of a bankruptcy petition, receivership proceeding or the equivalent, such Clearing Member shall immediately so advise the Clearinghouse both telephonically and in writing.

Rule 808: Notices Required of Clearing Members

1. A Clearing Member shall provide immediate notice to the Clearinghouse, orally and in writing, if the Clearing Member:
 1. gives notice to the CFTC pursuant to CFTC Rule 1.12 or to the Securities and Exchange Commission pursuant to Securities Exchange Act Rule 17a-11;
 2. changes its public accountants, to the extent applicable or where required by the Clearinghouse;
 3. fails to comply with additional accounting, reporting, financial and/or operational requirements prescribed by the Clearinghouse or Settlement Facility;
 4. an Initial Margin or Variation Margin call in any account exceeds the Clearing Member's excess adjusted net capital;
 5. is subject to any financial or business development that could materially affect the ability of the Clearing Member to comply with its obligations as a Clearing Member;
 6. any material damage to, or failure or inadequacy of, the systems, facilities or equipment of the Clearing Member to effect transactions pursuant to the Rules or to timely perform the Clearing Member's financial obligations under or in connection with Contracts;
 7. any failure by such Clearing Member, or any guarantor or commonly owned or controlled Clearing Member to perform on any of its material contracts, obligations or agreements;
 8. any determination that it, or any guarantor, will be unable to perform on any of its material contracts, guarantees, obligations or agreements;
 9. the insolvency of such Clearing Member or of any guarantor thereof;
 10. the institution of any proceeding by or against the Clearing Member, any affiliate of the Clearing Member, or any Person with a beneficial ownership of greater than 5% in the Clearing Member, under any provision of the bankruptcy laws of the United States, or under the Securities Investor Protection Act of 1970, any other statute or equitable power of a court of like nature or purpose, in which such Clearing Member or Person is designated as bankrupt, debtor or equivalent, or if a receiver, trustee or similar official is appointed for the Clearing Member, such Person, or its or their property;
 11. the receipt by such Clearing Member, or the filing by such Clearing Member with a Self-Regulatory Organization, of a notice of material inadequacy; or

12. the receipt by such Clearing Member from its independent auditors of an audit opinion that is qualified.
2. A Clearing Member must provide prompt written notice (but in no event, later than five (5) business days) to the Clearinghouse of:
 1. any change in its name, business address, telephone or facsimile number, electronic mail address, or any number or access code for any electronic communication device used by it to communicate with the Clearinghouse;
 2. any refusal of admission to, withdrawal of any application for membership in, any suspension, expulsion, bar, material fine, censure, denial of membership, registration or license, withdrawal of any application for registration, cease and desist order, temporary or permanent injunction, denial of trading privileges, or any other material sanction or discipline through an adverse determination, voluntary settlement or otherwise, by any Governmental Authority, Self-Regulatory Organization, Settlement Facility, or other business or professional association;
 3. the imposition of any restriction or limitation on the business conducted by the Clearing Member on or with any Self-Regulatory Organization other than restrictions or limitations imposed generally on all members of or participants in such Self-Regulatory Organization);
 4. any proposed change in the organizational or ownership structure or management of an ECM, including any merger, combination or consolidation between the Clearing Member and another Person;
 5. the assumption or guaranty by the Clearing Member of all or substantially all of the liabilities of another Person in connection with a direct or indirect acquisition of all or substantially all of that Person's assets; or
 6. the sale of more than 20% of the Clearing Member's business or assets to another Person; and
 7. in the case of an ICM, the death of the individual, any legal incapacity, or any other event that would impair the individual's legal ability to act as a Clearing Member.

Rule 809: Clearinghouse Authority

1. The Clearinghouse shall have authority, in its sole discretion, to take such action against any Clearing Member, including but not limited to terminating the Clearing Member Agreement and requiring the withdrawal of a Clearing Member, imposing enhanced capital requirements, imposing enhanced Margin requirements, prohibiting an increase or requiring a reduction in positions, and liquidating or transferring positions when, in the sole discretion of the Clearinghouse, such action is appropriate or necessary to manage one or more risks posed to the Clearinghouse by a Clearing Member.
2. If at any time the Clearinghouse, in its sole discretion, determines that there is a question as to a Clearing Member's good standing or financial condition, the Clearinghouse may suspend or take any other action to protect the best interests of the marketplace, other Clearing Members, the Exchange, and/or the Clearinghouse.
3. In the event the Clearinghouse is unable to obtain sufficient funds and liquidity to promptly meet same day settlement and payment through such means, the Clearinghouse may declare the occurrence of a liquidity event (each, a "Liquidity Event").

Rule 810: Liquidity Events

In the event the Clearinghouse requires liquidity to enable it to promptly meet all of its payment obligations to Clearing Members, the Clearinghouse will first attempt to obtain liquidity through the sale of any pledged securities, followed by the application of any uncommitted funding arrangements, and then through the use of its committed lines of credit, if any. In the event the Clearinghouse is unable to obtain sufficient funds and liquidity to promptly effect settlement and payment through such means, the Clearinghouse may declare

the occurrence of a Liquidity Event. In such an event, the Clearinghouse shall have the authority in its sole discretion to take the following actions, in the order listed, to secure same day liquidity:

1. The Clearinghouse may substitute the cash deposited by one or more Clearing Members as Initial Margin with United States Treasury bills, Treasury notes and Treasury bonds (“Treasury Securities”) held as Collateral by the Clearinghouse. The amount of cash substituted shall be equivalent to the market value of such Treasury Securities (determined by the Clearinghouse as of the latest mark, using a recognized third-party source, after the application of haircuts). Any Treasury Securities transferred pursuant to this paragraph (b) shall be applied as an Initial Margin deposit on behalf of any such Clearing Member whose cash was substituted and will be allocated pro rata among Clearing Members with cash deposits. For any substitution of Treasury Securities for cash as Initial Margin, the Clearinghouse will replace the cash within twenty-nine (29) Business Days of the date of the substitution.
2. The Clearinghouse may satisfy Variation Margin obligations to any Clearing Member that is a primary dealer (or that has an Affiliate that is a primary dealer) with Treasury Securities held as Collateral by the Clearinghouse at market value (determined by the Clearinghouse as of the latest mark, using a recognized third-party source, after the application of haircuts). To the extent that the Clearinghouse pays its Variation Margin obligations in Treasury Securities, if the receiving Clearing Member notifies the Clearinghouse the same day of the settlement that it will return the securities to the Clearinghouse on the next Business Day, then the Clearinghouse will pay on the next Business Day cash equal to the original value of the Clearinghouse’s Variation Margin obligation.
3. In lieu of satisfying a payment owed from any auction, sale, or transfer of an insolvent, defaulted, or suspended Clearing Member’s house account or customer account in cash to an auction winner, purchaser, or transferee, the Clearinghouse may satisfy such payment owed by transferring Treasury Securities at market value (determined by the Clearinghouse as of the latest mark, using a recognized third-party source, after the application of haircuts), equal to the amount of such obligation.

Rule 811: Acceptance for Clearing and Novation

1. Acceptance for Clearing.

1. **Coordination.** The Clearinghouse shall coordinate with the Board of Trade and Clearing Members to accept or reject Contracts for clearing as quickly after receipt as technologically practicable.
2. **Conditions.** The Clearinghouse shall accept Contracts for clearing when such Contracts have been received if the parties to such Contracts have clearing arrangements in place and have satisfied applicable risk limits imposed by the Clearing Member, the Board of Trade or the Clearinghouse.
3. **Fully Collateralized Swaps.** The Clearinghouse shall ensure as quickly after receipt as technologically practicable that the Clearing Member has sufficient collateral to fully collateralize the position prior to accepting the Contract for clearing. A Contract that breaches pre-collateralized funding requirements will be rejected by the Clearinghouse.
2. **Novation.** The Clearinghouse, by accepting a Contract offered to it for clearing, shall assume, in the place of each Clearing Member that is a party to such Contract, all liabilities and obligations imposed by such Contract to the Clearing Member that is the other party thereto and shall succeed to and become vested with all rights and benefits accruing therefrom. Such assumption by the Clearinghouse shall terminate all liabilities and obligations of the Clearing Member whose Contract is so accepted to the other Clearing Member which was a party to such Contract.
3. **Offsetting Contracts.** Where, as the result of novation under this Rule, a Clearing Member has bought and sold Contracts for the same account with the same expiry or a put or call option with the same strike price and expiry, such purchase and sale will be offset by the Clearinghouse. Such a Clearing Member shall be required to pay the loss or entitled to collect the profit, as the case may be, upon such offsetting Contracts, and shall have no further rights or be under any further obligation with

respect thereto. For purposes of this Rule, the first Contract made shall be deemed the first Contract offset.

Rule 812: Liens Held by the Clearinghouse

The Clearinghouse shall have a first lien and perfected security interest in, and right of setoff against, all Initial Margin, Variation Margin, Collateral and other property (including Contracts), and all proceeds of any of the foregoing, held in or for the accounts of a Clearing Member in connection with the financial obligations of such Clearing Member, however created, arising or evidenced, whether direct or indirect, absolute or contingent, existing, due or to become due.

Rule 813: Settlement and Delivery

1. Settlement Prices shall be determined by the Board of Trade. For Exchange Contracts, Settlement Prices shall be determined in accordance with Rule 509. The Clearinghouse retains authority to override or determine Settlement Prices if the Clearinghouse determines, in its sole discretion, that a Settlement Price is unavailable, erroneous, or otherwise unreliable.
2. In the absence of a clerical error, payments of funds or transfer of funds to and from the Clearinghouse, including, but not limited to, intraday and end-of-day Margin payments, delivery payments, and security deposits, are final and unconditional when effected and cannot be reversed.
3. Delivery failures are subject to the delivery rules of the Board of Trade for the respective Contract and are assigned by the Clearinghouse in a manner to minimize the number of Clearing Members impacted and assigns failures by newest to oldest positions.
4. Clearing Members must use Approved Financial Institutions and Settlement Facilities approved for use by the Clearinghouse.
5. Clearing Members must pay Margin calls by the deadline set by the Clearinghouse. An extension of time for such payments may be granted in writing by the President of the Clearinghouse.
6. In the event a Clearing Member fails to perform its delivery obligations to the Clearinghouse, for the avoidance of doubt, Clearing Members will not, under any circumstances, be required to own, hold, or control the underlying asset under these Rules unless the Clearing Member holds positions requiring delivery in its own proprietary account, but Clearing Members are responsible for ensuring their Customers are able to satisfy or satisfy their obligations regarding delivery and acceptance thereof under the applicable Rules.
7. In a Clearing Member default that involves a delivery failure, the Clearinghouse will ensure the financial performance to the Clearing Member whose actions or omissions did not cause or contribute to the delivery failure (the “Affected Clearing Member”). The Clearinghouse powers will include, but are not limited to, the right to sell or liquidate the underlying asset subject to delivery and to distribute the proceeds as appropriate and access the funds and collateral available in a default in accordance with Rule 817. For purposes of this Rule, “financial performance” means payment of commercially reasonable costs of the Affected Clearing Member related to replacing the failed delivery but does not include physical performance or legal fees. For the avoidance of doubt, payment of reasonable costs will be based on the price of the underlying asset when delivery should have been made, and the Clearinghouse is not obligated to make or accept delivery of the actual Digital Asset. Neither the Exchange nor the Clearinghouse will have any responsibility or liability to any Person for the use of, or any failure, error, action or omission of, the Settlement Facility.
8. An Affected Clearing Member seeking financial performance must provide prompt notice to the Clearinghouse of the delivery failure and a good faith estimate of any financial performance being sought within one (1) hour of the delivery deadline for the product. This deadline may be extended by the Clearinghouse for extenuating circumstances in its sole discretion. An Affected Clearing Member seeking financial performance must provide the Clearinghouse with a detailed statement with supporting

documentation of the amount sought, as well as any other documentation requested by the Clearinghouse.

9. Settlement and Delivery Timelines:

1. **Final Settlement Timeline.** All remaining open positions at Final Settlement serve as a binding notice to the Clearinghouse.

Day	Time	Event
T	10:00	Trading terminates; Final Settlement Prices reported to Clearinghouse.
	12:00	Clearinghouse finalizes settlement assignments; Settlement Bank processes funds transfers and, for Physically Settled Contracts, Settlement Facility processes asset transfers. Settlement complete; margins released.
	13:00	Settlement Bank and, if applicable, Settlement Facility complete processing.

2. Daily Settlement Timeline

Day	Time	Event
T	16:00	Daily Settlement Prices reported; Clearinghouse calculates Margin requirements.
	18:00	Clearinghouse submits settlement amounts to Clearing Members and Settlement Bank.
T+1	09:30	Settlement Bank processes funds transfers.

3. Intraday Settlement Timeline.

Performed as-needed; may not occur daily.

Day	Time	Event
T	11:00	Daily Settlement Prices reported; Clearinghouse calculates Margin requirements.
	12:00	Clearinghouse submits settlement amounts to Clearing Members and Settlement Bank.
	13:00	Settlement Bank processes funds transfers.

4. Spot Settlement Timeline

Day	Time	Event
T	15:00	Transactions reported by the Board of Trade; Clearinghouse nets positions.
	15:30	Clearinghouse finalizes delivery assignments; Settlement Bank processes funds transfers and Settlement Facility processes asset transfers.
	16:30	Settlement Bank and Settlement Facility complete processing.

Rule 814: Defaults

If any of the following events occurs with respect to a Clearing Member, the Clearing Member shall be in default if the Clearing Member:

1. fails to fulfill any financial or other obligation to the Clearinghouse or the Exchange;
2. fails to pay when due any amount owing to the Clearinghouse or the Exchange;
3. fails to maintain its registration as an FCM, where required by Rule 803.1;
4. fails to be a member of NFA, where required by Rule 803.1;
5. is suspended from membership of, or participation in, any exchange, clearinghouse or Self-Regulatory Organization, or is suspended from dealings in Contracts by any Government Authority or Self-Regulatory Organization, or by act of any judicial authority;
6. makes a materially false misrepresentation, statement, or omission to the Clearinghouse or the Exchange;
7. files for bankruptcy or is deemed to be bankrupt under U.S. federal or state bankruptcy laws, or any comparable non-U.S. laws;
8. is insolvent;
9. becomes the subject of receivership proceedings; or
10. in the case of an ICM, dies, becomes legally incapacitated, or experiences any other event that impairs the individual's legal ability to act as a Clearing Member, then such Clearing Member, in addition to any other remedy available to the Clearinghouse at law or equity, shall:
 1. be liable to the Clearinghouse as set forth in Rule 819; and
 2. be automatically and without further action suspended by the Clearinghouse as a Clearing Member, except that such suspension may be temporarily postponed by the President if the President determines that such suspension would not be in the best interests of the Clearinghouse.

Rule 815: Application of Funds

1. **Default Management.** In the event of a Clearing Member default, all such Clearing Member's segregated customer accounts shall be auctioned according to Clearinghouse procedures. The financial amounts, if any, resulting from such auction shall be applied as follows to reduce or any eliminate any financial shortfall:
 1. **Defaulting Clearing Member.** First, the financial amounts generated from the auction shall be applied to cover the shortfall. The Clearinghouse may make immediate demand upon any guarantor of the defaulting Clearing Member.
 2. **Clearinghouse.** Second, the Clearinghouse Guaranty Fund contribution shall be applied to cover any remaining shortfall.
 3. **Non-Defaulting Clearing Members.** Third, each non-defaulting Clearing Member's guaranty fund contribution, if any, shall be assessed up to a maximum of \$1,000,000 of the remaining shortfall and Guaranty Fund replenishment based on each Clearing Member's pro rata share of Margin requirements in relation to the Clearinghouse's aggregate Margin requirements. A Clearing Member that does not satisfy any such assessment shall be in default.
 4. **Contract Extinguishment.** Fourth, the Clearinghouse may partially or fully extinguish Contracts.
2. **Segregated Customer Collateral.** The Clearinghouse shall not apply segregated customer collateral to any payment obligations or losses arising from a default in any proprietary account or a different customer account class.

1. **Customer Segregated Accounts.** Customer funds deposited with the Clearinghouse on behalf of Customers protected by CFTC Rule 1.20 shall be held in accordance with the CEA and CFTC Rule 1.20 in an account identified as “Customer Segregated.” Such Customer funds shall be segregated by the Clearinghouse and treated as belonging to the Customers of the Clearing Member. Pursuant to this Rule, a Clearing Member shall satisfy the segregation acknowledgement letter requirement of Rule 806, the CEA, and CFTC Rule 1.20 for Customer deposits held at the Clearinghouse. A Clearing Member fully authorizes the Clearinghouse to comply with all requirements of CFTC Rule 1.20 with regards to its Customer Segregated Account.
2. **Cleared Swaps Customer Accounts.** Cleared Swaps Customer Collateral deposited with the Clearinghouse on behalf of cleared swaps Customers shall be held in accordance with Part 22 of the CFTC Rules in an account identified as “Cleared Swaps Customer Collateral.” Such Cleared Swaps Customer Collateral shall be segregated by the Clearinghouse and treated as belonging to such Customers of the Clearing Member. Pursuant to this Rule, a Clearing Member shall satisfy the Cleared Swaps Customer Account acknowledgement letter requirement of Rule 806, the CEA, and CFTC Rule 22.5 for Customer deposits held at the Clearinghouse. A Clearing Member fully authorizes the Clearinghouse to comply with all requirements of CFTC Rule 22.5 with regards to its Cleared Swaps Customer Account.
3. **Fully Collateralized Swaps.** For Fully Collateralized Swaps, the Clearinghouse shall hold, at all times, funds in the form of the required payment sufficient to cover the maximum possible loss that a party or counterparty could incur upon liquidation or expiration of the contract. The default management waterfall specified in Section 1 and Guaranty Fund do not apply to Fully Collateralized Swaps.

Rule 816: Liquidation on Termination or Suspension of Clearing Member

If a Clearing Member is in default, has been suspended by the Clearinghouse, or ceases to be a Clearing Member, then such Person shall be prohibited from establishing new positions and all open Contracts carried by the Clearinghouse for such Person shall be closed-out as expeditiously as practicable such that:

1. Open Contracts are transferred by the Clearing Member and accepted by one or more other Clearing Members, with the prior consent of the Clearinghouse, or transferred by the Clearinghouse to one or more other Clearing Members pursuant to an auction of the Contracts or other procedure instituted by the Clearinghouse;
2. Contracts subject to outstanding delivery obligations are Physically Settled or transferred by the Clearinghouse to one or more other Clearing Members pursuant to an auction of the Contracts or other procedure instituted by the Clearinghouse;
3. The President, or in the absence of the President, any Director, may determine that, in their opinion, liquidation be deferred for the protection of the financial integrity of the Clearinghouse; or
4. Open Contracts are liquidated in the manner set forth in Rule 817 to the extent that paragraphs 1, 2, or 3 do not apply.

Rule 817: Close-Outs

The open Contracts of a Clearing Member that are required to be liquidated shall be liquidated in such manner as the Clearinghouse, in its sole discretion, may direct. Without limiting the generality of the foregoing:

1. Any such liquidation may be effected by executing block trades with one or more Clearing Members or Participants or by directly entering orders on the Board of Trade on which the Contracts are listed for the purchase or sale of such Contracts. The President may designate and authorize an individual, and may engage a third party, to be responsible for implementing such liquidation.
2. Notwithstanding any other provision herein, any such liquidation may be effected without placing orders for execution, by making appropriate book entries on the records of the Clearinghouse (including,

without limitation, by pairing and canceling offsetting long and short positions in the Contracts carried by the Clearing Member) at a price equal to the Settlement Price on the day such liquidation is ordered or at such other price as the Board may establish; provided, however, if an order for relief has been entered with respect to such Person and its property is thereby subject to the control of a bankruptcy court, the Clearinghouse will not effect any such liquidation by book entry except as may be permitted by CFTC Rules.

3. All liquidations made pursuant to this Rule shall be for the account and risk of the Person which ceases to be a Clearing Member or which is suspended as a Clearing Member. The Clearing Member shall be liable to the Clearinghouse for any commissions or other expenses incurred in liquidating such Contracts.

Rule 818: Close-Out Netting

1. **Bankruptcy Event.** If at any time the Clearinghouse (1) institutes or has instituted against it a proceeding seeking a judgment of insolvency or bankruptcy or any other relief under any bankruptcy or insolvency law or other similar law affecting creditors' rights, or a petition is presented for its winding up or liquidation, and, in the case of any such proceeding or petition presented against it, such proceeding or petition results in a judgment of insolvency or bankruptcy or the entry of an order for relief or the making of an order for the Exchange's or Clearinghouse's winding-up or liquidation, or (2) approves resolutions authorizing any proceeding or petition described in clause (1) above (collectively, a "Bankruptcy Event"), all open positions in the Clearinghouse shall be closed promptly.
2. **Past Due Obligation.** If at any time the Clearinghouse fails to comply with an undisputed obligation to pay money or deliver property to a Clearing Member that is due and owing in connection with a transaction cleared by the or Clearinghouse, for a period of five (5) Business Days from the date that the or Clearinghouse receives notice from the Clearing Member of the past due obligation, the Clearing Member's open proprietary and customer positions at the Clearinghouse shall, at the election of that Clearing Member, be closed promptly.
3. **Winding Up.** If at any time the Board determines, by virtue of the number of withdrawing Clearing Members or otherwise, that a winding up (offset) of all outstanding positions at the Clearinghouse is prudent, then all open positions at the Clearinghouse shall be closed promptly.
4. **Close-out.** At such time as a Clearing Member's positions are closed:
 1. The obligations of the Clearinghouse to a Clearing Member in respect of such Clearing Member's House Account, all Collateral and positions therein and deposits to the Guaranty Fund shall be netted, in accordance with the Bankruptcy Code, the CEA and CFTC Rules against the obligations of that Clearing Member in respect of its House Account, all Collateral and positions therein, its obligations as guarantor of the performance of its Customers and its then-matured obligations, if any, to the Guaranty Fund, to the Clearinghouse. For the avoidance of doubt, all of the property in a Clearing Member's House Account on deposit with the Clearinghouse shall be deemed to be subject to a single master netting agreement with the result that any excess which is on deposit with the Clearinghouse shall be applied to reduce any deficiency or obligation of the Clearing Member; and
 2. All obligations of the Clearinghouse to a Clearing Member in respect of such Clearing Member's Customer Account and all positions and Collateral therein shall be separately netted against the positions, accounts and Collateral of such Clearing Member's customers in accordance with the requirements of the Bankruptcy Code, the CEA and CFTC Rules.
5. **Valuation.** All positions that are open immediately before being closed in accordance with this Rule shall be valued in accordance with the following procedures:
 1. As promptly as reasonably practicable, but in any event within 30 days of:
 1. the Bankruptcy Event,

2. if a Clearing Member elects to have its open positions closed as described above, the date of the election, or
 3. the determination by the Board to wind-up all outstanding positions as described above, the Clearinghouse shall fix a U.S. dollar amount (the “Close-out Value”) to be paid to or received from the Clearinghouse by each Clearing Member, after taking into account all applicable netting and offsetting pursuant to the provisions of this Rule.
2. The Clearinghouse shall value open positions subject to close-out by using the market prices at the moment that the positions were closed-out, assuming the markets were operating normally at such moment. If the markets were not operating normally at such moment, the Clearinghouse shall exercise its discretion, acting in good faith and in a commercially reasonable manner, in adopting methods of valuation to produce reasonably accurate substitutes for the values that would have been obtained from the market if it had been operating normally at the moment that the positions were closed-out.
 3. In determining a Close-out Value, Clearinghouse may consider any information that it deems relevant, including but not limited to:
 1. prices for underlying interests in recent transactions, as reported by the market or markets for such interests,
 2. quotations from leading dealers in the underlying interest, setting forth the price (which may be a dealing price or an indicative price) that the quoting dealer would charge or pay for a specified quantity of the underlying interest,
 3. relevant historical and current market data for the relevant market, provided by reputable outside sources or generated internally, and
 4. values derived from theoretical pricing models using available prices for the underlying interest or a related interest and other relevant data.
 4. Amounts stated in a currency other than U.S. dollars shall be converted to U.S. dollars at the current rate of exchange, as determined by the Clearinghouse.
 5. If a Clearing Member has a negative Close-out Value, it shall promptly pay that amount to the Clearinghouse.
6. **FDICIA.** The Clearinghouse intends that certain provisions of this Rule be interpreted in relation to certain terms (identified by quotation marks) that are defined in the Federal Deposit Insurance Corporation Improvement Act of 1991 (“FDICIA”), as amended, as follows:
 1. The Clearinghouse is a “clearing organization.”
 2. An obligation of a Clearing Member to make a payment to the Clearinghouse, or of the Clearinghouse to make a payment to a Clearing Member, subject to a netting agreement, is a “covered clearing obligation” and a “covered contractual payment obligation.”
 3. An entitlement of a Clearing Member to receive a payment from the Clearinghouse, or of the Clearinghouse to receive a payment from a Clearing Member, subject to a netting contract, is a “covered contractual payment entitlement.”
 4. The Clearinghouse is a “member,” and each Clearing Member is a “member.”
 5. The amount by which the covered contractual payment entitlements of a Clearing Member or the Clearinghouse exceed the covered contractual payment obligations of such Clearing Member or the Clearinghouse after netting under a netting contract is its “net entitlement.”
 6. The amount by which the covered contractual payment obligations of a Clearing Member or the Clearinghouse exceed the covered contractual payment entitlements of such Clearing Member or the Clearinghouse after netting under a netting contract is its “net obligation.”
 7. The Rules of the Clearinghouse, including this Rule, are a “netting contract.”

Rule 819: Guaranty Fund

1. The Clearinghouse shall establish and maintain a Guaranty Fund.
2. The Clearinghouse is solely responsible for the capitalization of the Guaranty Fund.
3. Clearing Members are not required to make a contribution to the Guaranty Fund.

Rule 820: Margins and Liquidations

1. The Clearinghouse shall establish minimum Margin requirements and Clearing Members shall collect Margins for Customer Accounts at or in addition to such minimum Margins in accordance with CFTC Rule 39.13(g)(8)(ii).
2. The Clearinghouse may change Margin requirements at any time superseding previous Margin requirements and post in accordance with CFTC Rule 39.13(g)(8).
3. The Clearinghouse shall accept Collateral as Margin in a manner acceptable to the Clearinghouse and Approved Financial Institutions.
4. The Clearinghouse, at its sole discretion, may make a Margin call at any time for any Clearing Member based on the Clearing Member's open interest.
5. The Clearinghouse may direct a Participant or Clearing Member to liquidate positions or transfer positions to another Clearing Member if the Clearing Member fails to deposit Margin as required by the Clearinghouse. If transfer or liquidation instructions are not satisfied within one (1) hour, the Clearinghouse will originate orders to take such action directly.
6. Liquidation costs incurred with actions taken in accordance with the Rules will be included in the failed Clearing Member's losses, and any financial obligations owed by a Clearing Member to the Clearinghouse after such liquidations or transfers may be assessed to that Clearing Member's financial resources available under Rule 807.

Rule 821: Transfers of Open Positions

Any transfer of a Contract shall be subject to the following:

1. **Administrative and Other Transfers.** Trades and positions in Contracts may be transferred on the books of one Clearing Member or between Clearing Members provided that:
 1. The transfer constitutes a change from one account to another where the underlying ownership in the accounts remains the same;
 2. The transfer was made to correct an error in the clearing of a trade and is completed within two business days from the trade date;
 3. The transfer is in connection with, or is the result of, a merger, asset purchase, consolidation or similar non-recurring transaction between two or more entities where one or more entities become the successor in interest to one or more other entities; or
 4. if, in the judgment of the Clearinghouse, the situation so requires and such interest is necessary to maintain market stability.
2. **Transfer Records.** Any transfer permitted by the Clearinghouse shall be recorded and carried on the books of the receiving Clearing Member at the original prices and trade dates.
3. **Customer Portfolio Transfers.** The Clearinghouse will promptly transfer all or a portion of a customer's portfolio of positions in Contracts, and related funds as necessary, from the carrying Clearing Member to another Clearing Member, without requiring the close-out and re-booking of the positions prior to the requested transfer, provided that:
 1. The customer has instructed the carrying Clearing Member to make the transfer;

2. The customer is not currently in default to the carrying Clearing Member;
3. The transferred positions will have appropriate margin at the receiving Clearing Member;
4. Any remaining positions will have appropriate margin at the carrying Clearing Member; and
5. The receiving Clearing Member has consented to the transfer.

Rule 822: Amounts Payable to the Clearinghouse

In the event of a Clearing Member default, and upon completion of the liquidation and/or transfer of the positions of a Clearing Member (whether in default or not) pursuant to the Rules, the Clearinghouse shall be entitled on demand to recover from such Clearing Member all amounts due to the Clearinghouse for all losses, liabilities, damages, costs and expenses (including without limitation legal fees and disbursements) incurred by the Clearinghouse in connection with such default, liquidation and/or transfer, and such Clearing Member's Collateral, together with any other assets held by, pledged to or otherwise available to the Clearinghouse, including any guarantee, shall be applied by the Clearinghouse to discharge the obligations of such Clearing Member to the Clearinghouse (including any amounts, and costs and expenses associated with the liquidation, transfer or management of Contracts held in or for the accounts of such Clearing Member, and any fees, assessments or fines imposed by the Clearinghouse on such Clearing Member). The foregoing is in addition to any other remedy available to the Clearinghouse at law or equity.

Rule 823: Clearing Fees

The Clearinghouse shall have the right to instruct each Approved Financial Institution to debit the house or proprietary account maintained by each Clearing Member, and/or any other account designated by such Clearing Member for purposes of this Rule, for any payment of fees, charges or other amounts (other than fines or penalties) due to the Clearinghouse or due to the Exchange (if and to the extent the Clearinghouse shall be acting as a collection agent for the Exchange). The Clearinghouse may establish separate fee schedules for Contracts submitted by each Board of Trade.

Rule 824: Public Information

The Clearinghouse shall make public the terms and conditions of each Contract, all fees charged by the Clearinghouse, the Margin-setting methodology used by the Clearinghouse, the size and composition of the Guaranty Fund, and Settlement Prices, volume and open interest for each Contract. The Clearinghouse will also make its Rulebook, list of ECMs that are FCMs and daily trading information available on the Clearinghouse Website. The Clearinghouse will provide public notice on the Clearinghouse Website of a default by an ECM that is an FCM.

Chapter 9: Reserved

Chapter 10: Miscellaneous

Rule 1001: Trading by Officials Prohibited; Misuse of Material, Non-Public Information

1. Terms used in this Rule 1001 and not otherwise defined in the Rules shall have the meanings set forth in CFTC Rules 1.3 and 1.59.
2. No Official may trade, directly or indirectly:
 1. any Contract traded on or subject to the Rules or any related financial instrument, or
 2. any Contract or financial instrument where such Official has access to material nonpublic information concerning such Contract or financial instrument.
3. The Chief Regulatory Officer (or, in the case of the Chief Regulatory Officer, the Board) may grant exemptions from the provisions of paragraph (a) to Officials on a case-by-case basis under circumstances which are not contrary to the purposes of this rule and CFTC Regulation 1.59. Such circumstances may include, but are not necessarily limited to:
 1. participation in pooled investment vehicles where such Official has no direct or indirect control over transactions effected by or for the account of the pool;
 2. service by such Official as an executor or administrator of an estate;
 3. service by such Official in any other fiduciary capacity, such as an officer of a charitable organization, in which such Official receives no pecuniary benefit from the trading of Contracts or other financial instruments;
 4. trading in Contracts or financial instruments executed on or subject to the rules of a swap execution facility, a designated contract market or a national securities exchange under circumstances in which such Official's access to material non-public information in respect of such financial instruments is sufficiently minimal or attenuated so as to be insignificant; and
 5. such other circumstances as the Chief Regulatory Officer (or, in the case of the Chief Regulatory Officer, the Board) may determine.
4. For the avoidance of doubt, participation by an Official in a retirement plan sponsored by the Exchange shall not be deemed to constitute trading directly or indirectly in a Contract or financial instrument, notwithstanding such plan's trading of Contracts or financial instruments.
5. Any Official that has received an exemption under Rule 1001.3 must:
 1. furnish to the Exchange (or, in the case of the Chief Regulatory Officer, to the Board) account statements and other documents relevant to the trading activities that are so exempted; and
 2. inform the Chief Regulatory Officer (or, in the case of the Chief Regulatory Officer, the Board) within one business day of any material change of information that may affect such Official's qualification for such exemption.
6. Officials, agents and independent contractors of the Exchange are prohibited from disclosing material non-public information obtained as a result of their employment, agency relationship or engagement with the Exchange where the Official, agent or independent contractor expected or should have reasonably expected that the information disclosed may assist a Person in trading any Contract, any Contract traded on another designated contract market or other market, or any related underlying commodity or security.

Rule 1002: Market Data

1. Each Participant and Clearing Member, on behalf of itself and each of its Affiliates, Authorized Users and other Persons affiliated with any of the foregoing, hereby acknowledges and agrees that the Exchange owns and shall retain all right, title and interest in and to the Exchange and the Clearinghouse

owns and shall retain all right, title and interest in and to the Clearinghouse, all components thereof, including without limitation all related applications, all application programming interfaces, user interface designs, software and source code and any and all intellectual property rights therein, including, without limitation all registered or unregistered, as applicable:

1. copyright,
 2. trade mark,
 3. service mark,
 4. trade secret,
 5. trade name,
 6. data or database rights,
 7. design rights,
 8. moral rights,
 9. inventions, whether or not capable or protection by patent or registration,
 10. rights in commercial information or technical information, including know-how, research and development data and manufacturing methods,
 11. patent, and
 12. other intellectual property and ownership rights, including applications for the grant of any of the same, in or to the Exchange or the Clearinghouse and all other related proprietary rights of the Exchange, the Clearinghouse, and/or any of their Affiliates (together, with any and all enhancements, corrections, bug fixes, updates and other modifications to any of the foregoing and any and all data or information of any kind transmitted by means of any of the foregoing, including, without limitation, the market data, the **"Proprietary Information"**). Each Participant and Clearing Member, on behalf of itself and each of its Affiliates, Registered Users and other Persons affiliated with any of the foregoing, further acknowledges and agrees that the Proprietary Information is the exclusive, valuable and confidential property of the Exchange or the Clearinghouse. Each Participant and Clearing Member acknowledges and agrees that it shall not and shall not permit its Affiliates, Authorized Users and other Persons affiliated with any of the foregoing to, reverse engineer, copy, bug fix, correct, update, transfer, reproduce, republish, broadcast, create derivative works based on or otherwise modify, in any manner, all or any part of the Exchange or the Clearinghouse or the Proprietary Information. Each Participant and Clearing Member, further agrees to and to cause each of its Affiliates, Authorized Users and other Persons affiliated with any of the foregoing to, keep the Proprietary Information confidential and not to transfer, rent, lease, loan, sell or distribute, directly or indirectly, all or any portion of the Exchange or the Clearinghouse or any Proprietary Information.
2. Notwithstanding any other provision of this Rule 1002, each Participant retains such rights as it may enjoy under applicable law with respect to market data solely in the form such market data was submitted to the Exchange by such Participant and its Authorized Users.
 3. Subject to the provisions of paragraph (1), all Participants, Authorized Users and other Persons affiliated with either of the foregoing hereby acknowledge and agree that the Exchange is the owner of all rights, title and interest in and to all intellectual property and other proprietary rights (including all copyright, patent, trademark or trade secret rights) in market data, and all derivative works based thereon, and further agree not to distribute, create derivative works based on, or otherwise use or commercially exploit market data and any such derivative works, provided that Participants, Registered Users and such other Persons may use market data for their own internal business purposes. Without limiting the generality of the foregoing, Participants, Authorized Users and other Persons affiliated with any of the foregoing may not distribute, sell or retransmit market data Exchange to any third party.
 4. Each Participant hereby grants the Exchange a non-exclusive, perpetual, freely transferable, world-wide and royalty-free license to use, distribute, sub-license, disclose and sell market data, in any manner, media and jurisdiction, for the benefit of the Exchange and/or its Affiliates; provided that, except as may otherwise be required by law or permitted by Rule 208 or in any written agreement between the Exchange and such Participant, the Exchange shall not disclose market data other than on an

aggregated basis that does not directly or indirectly identify individual Participants.

Rule 1003: Recording of Communications

The Exchange, Clearinghouse and Regulatory Services Provider may record conversations and retain copies of electronic communications between Exchange, Clearinghouse and/or Regulatory Services Provider personnel, on the one hand, and Participants and their Authorized Users, employees, and/or agents and Clearing Members and their employees and/or agents, on the other hand. Any such recordings may be retained by the Exchange, Clearinghouse or the Regulatory Services Provider in such manner and for such periods of time as required by Applicable Law.

Rule 1004: Confidentiality

Except as provided in this Rule 1004, all information provided by a Participant or Clearing Member to the Exchange or the Clearinghouse shall be held in confidence and shall not be made known to any other Person except as follows:

1. with the consent of the Participant or Clearing Member, as applicable, providing such information;
2. to a Governmental Authority, if the Exchange or the Clearinghouse is requested or legally required to do so by such government agency;
3. pursuant to legal process;
4. to a Clearinghouse of which such a Clearing Member is a member or in connection with the clearing of a Contract;
5. subject to appropriate confidentiality requirements, to any Person providing services to the Exchange or the Clearinghouse, including but not limited to the Regulatory Services Provider;
6. to the Board, any committee, Exchange or Clearinghouse Employee, attorneys and auditors, and to agents and independent contractors that have been engaged by the Exchange or the Clearinghouse who require such information in connection with the discharge of their duties to the Exchange or the Clearinghouse; and
7. as otherwise permitted under the Rules.

Rule 1005: Force Majeure

Notwithstanding any other provision of the Rules, the Exchange and Clearinghouse shall not be obligated to perform its obligations under the rules or any agreement with a Participant or Clearing Member, or to compensate any Person for losses occasioned by any delay or failure of performance, to the extent a delay or failure of performance is the result of circumstances that the Exchange or the Clearinghouse determines, in each of its sole discretion, may have an adverse effect upon the functions and facilities of the Exchange or the Clearinghouse, including, but not limited to, acts of God, fire or other natural disasters, inclement weather, embargos, bomb threats, pressure waves, disruption of electricity, pandemics, lockdowns, government-mandated work restrictions, communication outages or delays, acts or threats of terrorism, riots, commotions, strikes, war, invasions, hostilities (whether declared or not), and contaminations.

Rule 1006: Extension or Waiver of Rules

The Exchange or the Clearinghouse may, in each of its sole discretion, waive, or extend the time period for performing, any act or acts designated by the Rules, but only to the extent such waiver or extension is not inconsistent with Applicable Law.

Rule 1007: Effect of Amendment, Repeal or New Rule

1. Any amendment, repeal, or adoption of a new Rule shall not affect any action taken or right accrued under the Rule prior to such amendment, repeal, or adoption.
2. The Exchange or Clearinghouse shall provide notice of any amendment, repeal, or adoption of a new Rule to all Participants and Clearing Members.

Rule 1008: Signatures

1. Any document required to be signed under the Rules may be signed electronically, provided that the electronic signature is in a form acceptable to the Exchange or Clearinghouse.
2. The Exchange or Clearinghouse may require that certain documents be signed in a specific manner or format.

Rule 1009: Governing Law; Legal Proceedings

1. The Rules, and the rights and obligations of the Exchange, Clearinghouse, Participants, and Clearing Members under the Rules shall be governed by, and construed in accordance with, the laws of the State of Illinois applicable to contracts executed and performed wholly within the State of Illinois without regard to any provisions of Illinois law that would apply the substantive law of a different jurisdiction.
2. Any action, suit or proceeding against the Exchange or the Clearinghouse, and any of their Officials, Officers, Directors, limited liability company members, employees, agents, or any member of any committee must be brought within one (1) year from the time that a cause of action has accrued. Any such action, suit or proceeding shall be brought in the State or Federal courts located within the City of Chicago, Illinois. Each Participant and Clearing Member expressly consents, for itself and its Authorized Users, to the jurisdiction of any such court, waives any objection to venue therein, and waives any right it may have to a trial by jury.
3. In the event that a Participant or Clearing Member or an Affiliate thereof fails to prevail in a lawsuit or other legal proceeding instituted by such Participant, Clearing Member or such Affiliate against (1) the Exchange or the Clearinghouse, or (2) any Affiliate of the Exchange or the Clearinghouse or any of their respective Officials, officers, directors, equity holders, employees, agents, or any member of any committee, such Participant, Clearing Member or Affiliate shall pay to the Exchange or the Clearinghouse, as applicable, all reasonable costs and expenses, including attorneys' fees, incurred by the Exchange or the Clearinghouse in the defense of such proceeding. This paragraph (2) shall not apply to Exchange or Clearinghouse disciplinary actions, appeals thereof, or an instance in which the Board has granted a waiver of the provisions hereof.

Rule 1010: Indemnification

1. Each Participant and Clearing Member agrees to indemnify and hold harmless the Exchange, Clearinghouse, and their respective officers, directors, employees, and agents from and against any and all claims, liabilities, losses, damages, costs, and expenses arising out of or relating to the Participant's or Clearing Member's use of the Exchange or Clearinghouse.
2. The obligation to indemnify shall survive the termination of the Participant's or Clearing Member's relationship with the Exchange or Clearinghouse.

Rule 1011: Limitation of Liability; No Warranties

1. Participant's and Clearing Member's use of the Services, the System, Exchange and Clearinghouse property and any other information and materials provided by the Exchange or the Clearinghouse, is at the Participant's and Clearing Member's own risk, and the Services, the Exchange and Clearinghouse property and any other information and materials provided by the Exchange or the Clearinghouse

hereunder are provided on an “as is” and “as available” basis, without warranties or representations of any kind, express or implied, by statute, common law or otherwise including all implied warranties of merchantability, fitness for a particular purpose and non-infringement and any warranties arising from a course of dealing, usage or trade practice. The Exchange and the Clearinghouse do not guarantee that (1) Exchange and Clearinghouse property or Services will operate in an error free, secure or uninterrupted manner, or (2) any information or materials provided by the Exchange, the Clearinghouse or accessible through Exchange or Clearinghouse property will be accurate, complete, reliable, or timely, or (3) the Exchange and Clearinghouse property or any aspects of the Services will be free from viruses or other harmful components. Neither Exchange nor its Affiliates shall have any liability for the creditworthiness of any Participant or for the acts or any aspect of the Services or System. Participants and Clearing Members are solely responsible for the security and integrity of their technology. Participants and Clearing Members acknowledge that their access to the System and the Services is internet-based and that the Exchange and the Clearinghouse have no control over the internet or Participant’s and Clearing Member’s connections thereto. Participants and Clearing Members further acknowledge that the internet, computer networks, and communications links and devices necessary to enable Participants and Clearing Members to access and use the System and the Services are inherently insecure and vulnerable to attempts at unauthorized entry and that no form of protection can ensure Participant’s and Clearing Member’s data, hardware, or software or the System or other Exchange or Clearinghouse property will be fully secure. Furthermore, neither the Exchange nor the Clearinghouse shall be obligated to monitor or verify any information displayed through the System.

2. Excluding any liability for such party’s fraud or willful misconduct, and excluding any indemnification obligations under a Participant Agreement or a Clearing Member Agreement (as applicable), each party agrees that in no event shall either party be liable for any indirect, special, punitive, exemplary or consequential damages, including damages for loss of profits, loss of revenue, loss or corruption of data, trading losses or business interruption and the like, arising in any manner whatsoever out of or in connection with this agreement or any use (whether or not authorized) or inability to use Exchange or Clearinghouse property or any other information or materials provided to a Participant or Clearing Member by the Exchange or Clearinghouse or accessible through the Systems or Services, including the accuracy, completeness, reliability, timeliness, quality, security, performance, or pricing of the Systems or Services or any failures, malfunctions, interruptions, degradations or delays associated therewith, regardless of whether such damages arise in tort, contract, or otherwise, and even if it has been advised of the possibility of such damages.
3. Notwithstanding the foregoing, if a court or other tribunal of competent jurisdiction should find the Exchange, the Clearinghouse or any of their Affiliates liable for any loss, damage or expenses, the aggregate liability of the Exchange, the Clearinghouse and their Affiliates, regardless of the form of action, shall in no event exceed the greater of:
 1. \$100,000 and
 2. the total commissions, fees, or other amounts (excluding any applicable taxes and duties) paid to the Exchange and Clearinghouse by the applicable Participant or Clearing Member during the six months preceding the date on which the events giving rise to such liability arose.
4. Any claim for redress or damages hereunder shall be filed in a court of competent jurisdiction or filed for arbitration in accordance with Rule 701 within one (1) year of the date on which such claim allegedly arose. Failure to institute litigation or arbitration within such time period shall be deemed to be a waiver of such claim and the claim shall be of no further force or effect. The allocations of liability in this Rule 1011 represent the agreed and bargained for understanding of the parties, and each party acknowledges that the other party’s rights and obligations hereunder reflect such allocations. The parties agree that they will not allege that this remedy fails its essential purpose.
5. Participant further agrees that the provisions of the Rules of the Clearinghouse limiting the liability of the Clearinghouse to its members shall apply to Participant as fully as if Participant were a member of the Clearinghouse mutatis mutandis. The Clearinghouse shall not be liable for any obligations of

a non-clearing member, obligations of a Clearing Member to a nonmember, obligations of a Clearing Member to another member of the Clearinghouse who is acting for them as broker, or obligations to a Customer by a Clearing Member; nor shall the Clearinghouse become liable to make deliveries to or accept deliveries from a Customer of its Clearing Members.

6. Neither the Exchange nor the Clearinghouse will have any responsibility or liability to any Person for the use of, or any failure, error, action or omission of, the Settlement Facility.

Rule 1012: Affiliate Participants and Clearing Members

1. Participants or Clearing Members are permitted to be Affiliates of the Exchange or Clearinghouse. The Exchange, the Clearinghouse, and Affiliate Participants and Clearing Members, are required to publicly disclose the affiliation.
2. The Affiliate Participant or Clearing Member shall not receive preferential treatment from the Exchange or Clearinghouse, nor shall it have an inherent advantage over any other Participant or Clearing Member.
3. The Affiliate Participant or Clearing Member shall not have access to the Exchange or Clearinghouse's material non-public information, and the Exchange and Clearinghouse shall ensure the Affiliate Participant's or Clearing Member's access to information is limited to information available to all Participants or Clearing Members, respectively. Affiliate Clearing Member customers shall not have access to the Exchange or Clearinghouse material non-public information, and the Exchange and Clearinghouse shall ensure the Affiliate Clearing Member's access to information is limited to information available to all Clearing Members.
4. The Affiliate Participant or Clearing Member shall be subject to the same access criteria and must abide by the same Rules as all other Participants or Clearing Members, respectively.

Chapter 11: Digital Asset Delivery

Rule 1101: Digital Asset Delivery Definitions

- **Blockchain:** A distributed ledger that records transactions between parties in a verifiable and permanent way.
- **Delivering Participant:** The Participant that is required to deliver the underlying commodity through the Settlement Facility.
- **Digital Asset:** Bitcoin, and any other “digital currency” which is a “commodity” under the Commodity Exchange Act, as amended. For this purpose, “digital currency” means any type of digital unit that is used as a medium of exchange or a form of digitally stored value (including digital units of exchange that (1) have a centralized repository or administrator, (2) are decentralized and have no centralized repository or administrator, and/or (3) may be created or obtained by computing or manufacturing effort).
- **Digital Asset Delivery Address:** A unique identifier that serves as a virtual location where a Digital Asset can be sent.
- **Receiving Participant:** The Participant that is required to take delivery of the underlying commodity through the Settlement Facility.
- **Transfer:** Transmission of a Digital Asset between the Settlement Facility and a Delivering or Receiving Participant. Delivery shall be fully effected and transferred if reflected by a consensus of nodes on the Digital Asset Blockchain and after being confirmed as such by the Settlement Facility.

Rule 1102: Participant and Clearing Member Delivery Obligations

1. A Participant and its respective Clearing Member carrying a position that is required to make or take delivery hereby guarantees and assumes full and unconditional responsibility for the performance of all delivery requirements set forth in the Rules.
2. Participants are required to register accounts for the purpose of making or taking delivery with the Settlement Facility and Clearinghouse before the start of the delivery period. A Participant may effect delivery only through the Settlement Facility.
3. In the event of a default or failure of a Clearing Member during the delivery period or process, the Clearinghouse shall not be obligated to make or take delivery of Digital Assets.
4. Any Participant intending to make or take delivery of a Digital Asset pursuant to a Contract shall maintain a valid Digital Asset Delivery Address on record with the Settlement Facility to deliver and/or receive and to hold the respective Digital Asset.
5. Any Participant intending to make delivery of a Digital Asset agrees to transfer control of that asset to the Settlement Facility in anticipation of delivery in accordance with Exchange Rules.
6. Each Delivery Participant represents and warrants, to the best of its knowledge, to each Receiving Participant, the Exchange, the Clearinghouse, and the Settlement Facility that the Digital Asset subject to delivery is free and clear of all adverse claims, security interests, liens and encumbrances of any kind whatsoever. Each Participant acknowledges and agrees that the Exchange, the Clearinghouse, and the Settlement Facility provide no representation or warranty as to good or marketable title to any Digital Asset subject to delivery. Each Receiving Participant hereby waives any right to bring a claim, whether in law or equity, against the Exchange, the Clearinghouse, and the Settlement Facility with respect to any defect in, or lack or failure of, good or marketable title of any Digital Asset delivered to Receiving Participant.
7. The rights and obligations of Clearing Members for contracts cleared by the Clearinghouse, including but not limited to rights and obligations regarding clearing and settlement, variation payments and performance at expiration, shall be as set forth in the By-Laws and Rules of the Clearinghouse.
8. Clearing Members will not, under any circumstances, be required to own, hold, or control Digital Assets under Exchange Rules, but Clearing Members must ensure, through position monitoring and

communication with their customers, as Participants, that such customers are able to satisfy their obligations regarding delivery and acceptance thereof under the applicable Clearinghouse and Exchange Rules.

9. Clearing Members must confirm that Delivering Participants deliver the appropriate amount of Digital Asset to the Settlement Facility during the Delivery Period.
10. All Participants and their respective Clearing Members with obligations to make or take delivery are subject to the Clearinghouse Rulebook.

Rule 1103: Delivery Procedures

1. **Notice.** Upon Final Settlement, all open positions serve as a binding delivery notice to the Clearinghouse. The Delivery Notice is not transferable.
2. **Final Settlement Price.** The Final Settlement Price shall be the sole basis for delivery.
3. **Final Delivery.** Final delivery will be made in the manner specified by the Exchange.
 1. Upon instruction by the Clearinghouse to the Exchange, the delivery of Digital Assets pursuant to Contracts shall be effected by the Settlement Facility by transferring the relevant amount of the Digital Asset from the Digital Asset Delivery Address of the Delivering Participant to the Digital Asset Delivery Address of the Receiving Participant on the Digital Asset's Blockchain. Delivery shall be fully effected and transferred if reflected by a consensus of nodes on the Digital Asset's Blockchain and after being confirmed as such by the Settlement Facility (a "Transfer").
 2. Upon a Transfer of Digital Assets from the Digital Asset Delivery Address of the Delivering Participant to the Digital Asset Delivery Address of the Receiving Participant on the Digital Asset's Blockchain, each Participant hereby agrees that all title, ownership and control of such Digital Asset, and all risk of loss associated with the misappropriation or loss of such Digital Asset, shall reside solely with the Receiving Participant.
 3. Neither the Exchange nor the Clearinghouse will have any responsibility or liability to any Person for the use of, or any failure, error, action or omission of, the Settlement Facility.

Rule 1104: Cost of Delivery

1. All transaction fees required to make delivery of Digital Assets through the Settlement Facility must be paid by the Participant that is seeking to make delivery in addition to the full delivery amount.
2. All transaction fees required to take delivery of Digital Assets through the Settlement Facility must be paid by the Participant seeking to take delivery.
3. The Settlement Facility is authorized to deduct the transaction fees from the delivery amount in the case of a Participant taking delivery.

Rule 1105: Delivery Infractions

1. The failure of the Delivering Participant to deliver sufficient Digital Assets to the Digital Asset Delivery Address in a timely manner shall constitute a delivery failure by the Participant and subject them to disciplinary action. Clearing Members are financially liable for delivery failures of their accounts, including customer accounts, and must pay financial performance upon delivery failure. "Financial performance" means payment of commercially reasonable costs in US Dollars related to replacing the failed delivery but does not include physical performance or legal fees. Payment of reasonable costs will be determined at the sole discretion of the Exchange based on the Final Settlement Price of the contracts that should have been delivered.
2. If a Participant is required to pay funds pursuant to Rule 1103, but fails to deposit such funds in order to make timely payment on the date required, the Exchange may, in its sole discretion, impose a fine

upon the Participant pursuant to the schedule of fines listed in Chapter 6 and any other compensation due to the late or inaccurate delivery.

Rule 1106: Digital Asset Delivery Eligibility

1. To qualify a Digital Asset as eligible for delivery, the Digital Asset sent through the Settlement Facility must be accepted as valid by the Digital Asset Blockchain consensus protocol and must be at a block depth acceptable to the Settlement Facility.
2. New Digital Assets that are created as a result of a fork in the Digital Asset protocol during the term of a Contract are not eligible for delivery. New Digital Assets created as a result of a fork in the Digital Asset protocol while the Settlement Facility is in the process of delivery will not be delivered to the Participant taking delivery of the forked Digital Asset. The Settlement Facility will return the new Digital Assets created, less any transaction fees, to the Participant making delivery at a later date determined by the Exchange. In the case of a fork where it is not clear which is the new Digital Asset chain, the Exchange has sole discretion to determine which chain will be delivered and which will be returned.

Rule 1107: Settlement Facility Reporting Requirements

In connection with, and as a condition to, performing the functions assigned to it herein with respect to Digital Asset delivery, the Settlement Facility will maintain all books and records relating to Transfers of Digital Assets. Such records must be available for inspection by the Exchange and the CFTC and must be maintained in a form acceptable to the Exchange for a period of not less than 5 years from the date of the relevant transaction. Further, the Settlement Facility shall maintain a set of operational procedures to which the Exchange shall access and shall keep the Commission informed of any material changes to such procedures.

Exhibit C-1(a)

Delaware

The First State

Page 1

*I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF
DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT
COPY OF THE CERTIFICATE OF FORMATION OF "BITNOMIAL
CLEARINGHOUSE, LLC", FILED IN THIS OFFICE ON THE TWENTY-NINTH
DAY OF MARCH, A.D. 2022, AT 8:04 O`CLOCK A.M.*


Jeffrey W. Bullock, Secretary of State

6702407 8100
SR# 20221201646

You may verify this certificate online at corp.delaware.gov/authver.shtml

Authentication: 203034285
Date: 03-29-22

State of Delaware
Secretary of State
Division of Corporations
Delivered 08:04 AM 03/29/2022
FILED 08:04 AM 03/29/2022
SR 20221201646 - File Number 6702407

CERTIFICATE OF FORMATION
OF
BITNOMIAL CLEARINGHOUSE, LLC

March 29, 2022

This Certificate of Formation of Bitnomial Clearinghouse, LLC is being duly executed and filed to form a limited liability company under the Delaware Limited Liability Company Act (6 Del.C. §18-101, et seq.).

FIRST: The name of the limited liability company (the “**LLC**”) formed hereby is:

Bitnomial Clearinghouse, LLC

SECOND: The address of the registered office of the LLC in the State of Delaware is 838 Walker Road, Suite 21-2, Dover, Delaware 19904, in the County of Kent. The name of the registered agent at such address is Registered Agent Solutions, Inc.

THIRD: This Certificate of Formation shall be effective as of filing.

IN WITNESS WHEREOF, the undersigned has executed this Certificate of Formation on this 29th day of March, 2022.

By: /s/ Baruch B. Zimmerman
Name: Baruch B. Zimmerman
Title: Authorized Person

Exhibit C-1(b)

**LIMITED LIABILITY COMPANY AGREEMENT
OF
BITNOMIAL CLEARINGHOUSE, LLC**

THIS LIMITED LIABILITY COMPANY AGREEMENT (this “**Agreement**”) OF BITNOMIAL CLEARINGHOUSE, LLC, a Delaware limited liability company (the “**Company**”), dated as of March 30, 2022, is adopted, executed and agreed to by the sole Member (as defined below).

**ARTICLE I.
DEFINITIONS**

The following capitalized terms used in this Agreement shall have the meanings specified in this Article I.

§1.01 “Act” means the Delaware Limited Liability Company Act, as amended from time to time.

§1.02 “Affiliate” means with respect to a Person, any other Person that, directly or indirectly, controls, is controlled by, or is under common control with, the specified Person. As used in this definition, the term “control” means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of an entity, whether through ownership of voting securities, by contract or otherwise. Notwithstanding anything to the contrary, “Affiliate” shall not include the Company.

§1.03 “Agreement” has the meaning set forth in the Preamble.

§1.04 “Board” has the meaning set forth in Section 5.02.

§1.05 “CEA” means the U.S. Commodity Exchange Act, as amended from time to time.

§1.06 “Certificate of Formation” means the certificate of formation of the Company filed with the office of the Secretary of State of the State of Delaware on March 29, 2022.

§1.07 “CFTC” means the U.S. Commodity Futures Trading Commission or any successor thereto with similar regulatory authority over the Company and its business, activity, property, or assets.

§1.08 “Charter” has the meaning set forth in Section 5.11(a).

§1.09 “Clearinghouse” has the meaning set forth in Section 2.05.

§1.10 “Code” means the U.S. Internal Revenue Code of 1986, as amended.

§1.11 “Company” has the meaning set forth in the Preamble.

§1.12 “Confidential Information” has the meaning set forth in Section 9.02(b).

§1.13 “Covered Person” means any current or former Member, Director, or Officer and, with respect to each such Person, such Person’s Affiliates, officers, directors, liquidators, partners, stockholders, managers, members, employees, heirs, executors, administrators, personal and legal representatives, successors in interest, and permitted assigns.

§1.14 “Director” has the meaning set forth in Section 5.05(a).

§1.15 “Disciplinary Panel” and **“Disciplinary Panel Member”** have the meanings set forth in Section 5.13.

§1.16 “Fiscal Year” means each twelve-month period (or portion thereof) beginning on January 1 and ending on December 31 of each year.

§1.17 “GAAP” means U.S. generally accepted accounting principles, as consistently applied.

§1.18 “Interests” has the meaning set forth in Section 3.03.

§1.19 “Member” means each Person signing this Agreement and any Person who subsequently is admitted as a member in the Company in accordance with the terms of this Agreement.

§1.20 “Nominating Committee” has the meaning set forth in Section 5.11(b).

§1.21 “Officer” has the meaning set forth in Section 5.12(a).

§1.22 “Person” means any individual, corporation, partnership, association, limited liability company, enterprise, trust, estate or other entity.

§1.23 “Regulatory Requirements” means any applicable law (including, but not limited to, the Act), rules, regulations, or other requirements imposed by any governmental organization or agency that has authority or jurisdiction over the Company or its business, activities, property, or assets, including, but not limited to, the CFTC.

§1.24 “Risk Committee” has the meaning set forth in Section 5.11(c).

§1.25 “Rulebook” has the meaning set forth in Section 2.07.

§1.26 “Transfer” means to sell, exchange, encumber, dispose, hypothecate, pledge, assign, mortgage or otherwise transfer or grant rights or interests, whether voluntarily or involuntarily, by operation of law or otherwise.

§1.27 “Withdrawal” means a Member’s resignation from the Company by such Member’s express will or other voluntary act (other than a Transfer).

ARTICLE II.

GENERAL TERMS

§2.01 Formation. Pursuant to the Certificate of Formation, the Company has been formed as a Delaware limited liability company under and pursuant to the Act.

§2.02 Term. The term of the Company commenced at the time the Certificate of Formation was marked “Filed” by the Secretary of State of Delaware and shall continue in existence in perpetuity unless its existence is sooner terminated as provided herein.

§2.03 Office of and Agent for Service of Process. The registered office of the Company in Delaware shall be maintained at 838 Walker Road, Suite 21-2, Dover, Delaware 19904. The Company’s agent for service of process on the Company at such address shall be Registered Agent Solutions, Inc.

§2.04 No State Law Partnership. No provisions of this Agreement shall be deemed or construed to constitute the Company a partnership (including, without limitation, a limited partnership) or joint venture for state law purposes.

§2.05 Purposes. The purposes of the Company shall be to (a) engage in the development, ownership and operation of a derivatives clearing organization (the “**Clearinghouse**”) for the clearing of financial instruments based on commodities, and (b) engage in any other lawful act or activity for which limited liability companies may be organized under the Act as authorized by the Member pursuant to Section 5.03. The Company shall have all the powers necessary or convenient to carry out the purposes for which it is formed, including the powers granted by the Act.

§2.06 Powers. The Company shall have the power and authority to take any and all actions necessary, appropriate, proper, advisable, incidental, or convenient to, or in furtherance of, the purposes of the Company, including all powers granted by the Act.

§2.07 Rulebook. Activities conducted on the Clearinghouse shall be subject to the rules of the Clearinghouse as in effect from time to time (the “**Rulebook**”). To the extent there is any conflict between the Rulebook and this Agreement, this Agreement shall govern with respect to the subject matter hereof.

ARTICLE III. **MEMBERS**

§3.01 Member. Bitnomial Exchange, LLC, a Delaware limited liability company, shall be the sole member of the Company (the “**Member**”) for all purposes hereunder, unless additional members are admitted to the Company pursuant to Section 3.02.

§3.02 Admission of Additional Members. Additional members of the Company may be admitted to the Company, and additional Interests may be issued, only by the affirmative vote or written consent of the Member. For purposes of this Agreement, references to “**Member**” mean the sole Member and all other Persons who become a member of the Company (if any) in accordance with this Agreement.

§3.03 Interests. The capital of the Company shall be represented by units of membership interests (the “**Interests**”). The Member shall own one hundred percent (100%) of the Interests, which are reflected on Exhibit A, as the same may be amended from time to time in accordance

with the terms of this Agreement. Unless the Member resolves otherwise, Interests shall be issued without certificates.

§3.04 Capital Contributions. Concurrently with the execution of this Agreement, the Member shall contribute to the Company such Member's initial capital contribution in the amount set forth on Exhibit A and shall hold an interest in the Company represented by the Interests set forth opposite the Member's name on Exhibit A.

ARTICLE IV. **ALLOCATIONS, DISTRIBUTIONS AND CAPITAL ACCOUNTS**

§4.01 Allocations of Net Profits and Net Losses. The profits, losses, and other items of the Company shall be allocated solely to the Member.

§4.02 Distributions. The Member shall be entitled (a) to receive all distributions (including, without limitation, liquidating distributions) made by the Company and (b) to enjoy all other rights, benefits, and interests in the Company.

§4.03 Capital Accounts. A Capital Account shall be maintained for the Member on the books of the Company and shall be adjusted from time to time pursuant to the terms of this Agreement. The Member's Capital Account shall be increased by the value of each capital contribution made by the Member (net of any liability secured by such contributed property that the Company is considered to assume or take subject to) and allocations to such Member of net profits or other income. The Member's Capital Account shall be decreased by the value of each Distribution made to the Member and allocations to such Member of net losses. If any property other than cash is distributed to the Member, the Capital Account of the Member shall be adjusted as if the property had been sold by the Company for a price equal to its fair market value (as determined solely by the Member in its reasonable discretion) and the proceeds distributed.

§4.04 Loans. The Member may make or cause a loan to be made to the Company in any amount and on those terms upon which the Company and such Member agree.

ARTICLE V. **MANAGEMENT**

§5.01 Management by the Member. Except as otherwise provided in this Agreement, all decisions regarding the Company shall be made by the Member and the Member shall have the authority to delegate any decision making authority to the Board.

§5.02 Delegation of Authority to Board of Directors. Except for situations in which the approval of the Member is required by this Agreement or by nonwaivable provisions of the Act, the management of the business and affairs of the Company shall be delegated by the Member to the board of directors (the "**Board**"). Subject to the foregoing, the Board shall have authority, power, and discretion to manage and control the business and affairs of the Company, to make all decisions with respect thereto and to perform any and all other acts or activities customary or incident to the management of the Company's business and affairs. Subject to the foregoing, the Board (acting on behalf of the Company) shall have the right, power, and authority, in the management of the business and affairs of the Company, to do or cause to be done any and all acts,

at the expense of the Company, deemed by the Board to be necessary or appropriate to effectuate the purposes of the Company. Subject to the foregoing, the Board shall have the power and authority to approve any revision to the Rulebook or the Company's compliance procedures as in effect on the date of this Agreement or of any procedures in lieu of, or in addition to, the Rulebook or any compliance procedures of the Company. The Member may revoke the delegation of authority granted to the Board in this Section 5.02 at any time upon written notice to the Board.

§5.03 Acts Requiring the Consent of the Member. As a limitation on the powers of the Board as referenced in Section 5.02 above, the Board shall not have the power and authority to approve or undertake any of the following actions, and only the Member's prior written consent shall be required for the following:

- (a) the entry by the Company into any line of business other than that set forth in Section 2.05(a) above;
- (b) the incurrence or issuance by the Company of indebtedness for borrowed money;
- (c) the sale, transfer, or pledge by the Company of (A) intellectual property or (B) assets or agreements of the Company;
- (d) the formation or dissolution of any subsidiary of the Company, and any sale or transfer by the Company of any equity interests in any such subsidiary;
- (e) the annual approval of any business plan of the Company and any material changes to such approved business plan;
- (f) the annual approval of the budget of the Company, and any material changes to such approved annual budget;
- (g) the compensation (including, but not limited to, salaries, bonuses, and awards under any incentive plans) of any Director, Officer, employee, or agent of the Company;
- (h) any transaction between (A) the Company, on the one hand, and (B) any Person with an equity interest in the Member or any Affiliate thereof, on the other hand, other than (x) trading transactions conducted on the Clearinghouse, and (y) transactions undertaken in the normal course of the Company's business at a price and on other material terms that are not less favorable to the Company than the price and other material terms generally prevailing with respect to comparable transactions between unrelated parties, as reasonably determined by the Member;
- (i) the appointment of any attorneys, independent certified accountants, tax counsel, or other consultants to the Company;
- (j) the entry by the Company into any joint venture, strategic alliance, exclusive dealing, non-competition, most favored nation, or similar commitment, other than as contemplated by a business plan and budget previously approved by the Member;

(k) any recapitalization or reorganization, any other change in organizational form, or any change in jurisdiction of organization of the Company;

(l) any direct or indirect sale of any equity interests in the Company (or other transaction resulting, directly or indirectly, in a change of control of the Company), or any sale, transfer or pledge of all or substantially all of the Company's business or assets;

(m) any merger of the Company with or into, or any consolidation of the Company with, any other Person;

(n) any acquisition by the Company of another Person or its business or assets or of any equity interest in another Person;

(o) any amendment to this Agreement;

(p) any commencement by the Company of a voluntary case under any applicable bankruptcy, insolvency, or other similar law or procedure, or the consent by the Company to the entry of an order for relief in an involuntary case under any such law or procedure;

(q) the authorization, issuance, or sale by the Company of any equity interest in the Company, including options and warrants, pursuant to any plan or agreement adopted from and after the date of this Agreement;

(r) the adoption of any equity incentive plan by the Company;

(s) the appointment of any Officers, or the change of responsibility of the Officers; or

(t) any liquidation or dissolution of the Company.

§5.04 Director Qualifications. Each Person elected or appointed as a Director, prior to serving on the Board, shall certify in writing to the Company that they (a) are not subject to a statutory disqualification under Section 8a(2) or (3) of the CEA, (b) do not have a history of disciplinary offenses as defined in CFTC Regulation 1.63(a)(6), and (c) meet the fitness standards as set forth in the Rulebook.

§5.05 Board Composition; Vacancies.

(a) Composition. The size and composition of the Board shall be determined by the Member, in its sole discretion. Initially, on the date of this Agreement, the Board shall be comprised of three (3) Board members (each, a “**Director**”). The Member may expand the Board to allow for additional Directors; provided that at all times not less than thirty five percent (35%) of the Directors, but not fewer than two individuals, shall be “**Public Directors**”, as such term is defined by, and as such Board composition is required by, the CEA and the rules and regulations promulgated thereunder.

(b) Vacancies. In the event that a vacancy is created on the Board at any time due to the death, disability, retirement, resignation, or removal of a Director, then the Member shall appoint a Person to fill the vacancy. If the vacancy is for a seat filled by a Public Director, the Member shall appoint a Person that satisfies the definition of a Public Director.

§5.06 Resignation; Removal.

(a) Resignation. A Director may resign at any time from the Board by delivering his written resignation to the Board. Any such resignation shall be effective upon receipt thereof unless it is specified to be effective at some other time or upon the occurrence of some other event. Neither the Member's nor the Board's acceptance of a resignation shall be necessary to make it effective.

(b) Removal. A Director may be removed at any time from the Board, with or without cause, by the Member.

§5.07 Meetings.

(a) Generally. The Board shall meet at such time and at such place as the Board may designate, but not less frequently than once each calendar quarter. Meetings of the Board may be held in person, at the offices of the Company, or at such other place (either within or outside the State of Delaware) as may be determined from time to time by the Board, or by means of telephone, video conference, or other communications device that permits all Directors and other Persons participating in the meeting to hear each other, and a Director's participation in a meeting by such means shall constitute attendance in person at such meeting. Except as provided in Section 5.07(c), written notice of each meeting of the Board shall be given to each Director at least twenty-four (24) hours prior to such meeting.

(b) Special Meetings. Special meetings of the Board shall be held on the call of the Member, the Chief Executive Officer, or any two Directors upon at least five (5) days written notice (if the meeting is to be held in person) or upon twenty-four (24) hours' written notice (if the meeting is to be held by telephone, video conference, or other communication device) to the Directors, or upon such shorter notice as may be approved by all of the Directors then in office or is practicable in the case of an emergency.

(c) Attendance and Waiver of Notice. Any Director may waive notice as to himself. Attendance by a Director at any meeting shall constitute a waiver of notice of such meeting, except where a Director attends a meeting solely for the express purpose of objecting to the transaction of any business on the ground that the meeting is not lawfully called or convened. Neither the business to be transacted at, nor the purpose of, any regular or special meeting of the Board shall need to be specified in the notice or waiver of such notice of such meeting.

§5.08 Quorum; Manner of Acting.

(a) Quorum. A majority of the Directors serving on the Board, including at least one (1) Public Director, shall constitute a quorum for the transaction of business of the Board. At all times when the Board is conducting business at a meeting of the Board, a quorum of the Board must be present at such meeting. If a quorum shall not be present at any meeting of the Board, then the Directors present at the meeting may adjourn the meeting from time to time, without notice other than an announcement at the meeting, until a quorum shall be present.

(b) Binding Act. Each Director shall have one (1) vote on all matters submitted to the Board (or any committee or subcommittee of the Board of which they are a member). With respect to any matter before the Board (or any committee or subcommittee), the act of a majority of the Directors constituting a quorum shall be the act of the Board (or committee or subcommittee).

§5.09 Action by Written Consent. Any action that may be taken by the Member or the Board under this Agreement may be taken without a meeting, without a vote and without prior notice, if a written consent or consents, including consents by electronic mail, setting forth the action so taken are signed by an authorized representative of the Member or a minimum number of Directors who would be required to take such action if such action were taken by the Board at a meeting at which all of the Directors were present.

§5.10 Compensation; No Employment Rights; Directors' Powers.

(a) Compensation. No Director shall be entitled to compensation for any services provided to the Company, except as authorized in writing by the Member. The Member may authorize the payment to Directors of a fixed sum and reimbursement of expenses for attendance, if any, at each regular or special meeting of the Board attended by such Directors. Nothing contained in this Section 5.10(a) shall be construed to preclude any Director from serving the Company in any other capacity and receiving compensation for such services.

(b) No Employment Rights. This Agreement does not, and is not intended to, confer upon any Director any rights with respect to employment or other retention by the Company, and nothing herein shall be construed to have created any employment or other agreement with any Person in his capacity as Director.

(c) Directors' Powers. Except as otherwise specifically provided by this Agreement or required by the Rulebook or the CEA, or any rule or regulation promulgated thereunder, no Director, in his capacity as a Director, shall have the power to act for or on behalf of, or to bind, the Company without prior written authorization of the Member.

§5.11 Committees.

(a) General. The Board shall have the power and authority to establish committees and appoint Directors to serve on one or more committees of the Board, subject to any requirements under applicable law, including the CEA and the rules and regulations promulgated thereunder. The Board shall authorize and adopt a charter for each committee setting forth the committee's powers, authorities, and responsibilities ("**Charter**"). Each

committee of the Board may determine the procedural rules for meeting and conducting its business and shall act in accordance therewith; provided that:

- (i) notice of the date, time, and place of all meetings and the agenda for such meetings shall be given to all committee members, and waivers of notice may be effected, consistent with the notice provisions for Board meetings set forth in Section 5.07;
- (ii) a majority of the members of any committee shall constitute a quorum for any meeting of such committee;
- (iii) no committee member subject to a conflict of interest with respect to a matter, as reasonably determined by the Board or such committee, shall be entitled to vote on such matter;
- (iv) all matters to be decided upon at any meeting of a committee shall be determined by a vote or consent of a majority of the members of such committee then in office and entitled to vote on such matters;
- (v) action may be taken by any committee without a meeting, without prior notice and without a vote, if all of the members of such committee consent to such action in writing (including by electronic mail) and the writing or writings evidencing such consent are filed with the minutes of the proceedings of such committee;
- (vi) each committee shall keep minutes of its meetings and report its proceedings to the Board as and when required by the Board; and
- (vii) the Board shall have the power to call for review, and to affirm, modify, suspend, or overrule, any and all decisions and actions of standing committees or special committees of the Board related to the day-to-day business operations of the Clearinghouse.

(b) Nominating Committee. The Board shall appoint a nominating committee (“**Nominating Committee**”). The Nominating Committee shall have those powers, authorities, and responsibilities delegated to it by the Board in its Charter.]

(c) Risk Committee. The Board shall appoint a risk committee (“**Risk Committee**”), which shall have those powers, authorities, and responsibilities delegated to it by the Board in its Charter.

§5.12 Officers.

(a) General. The Member shall have the power and authority to appoint from time to time one or more individuals to serve as officers (“**Officers**”) of the Company, with such titles, duties, and authority as the Member shall approve, to carry out the business of the Company upon such terms and conditions as the Member shall determine. The Officers of the Company as of the date of this Agreement shall continue to act in such capacity and

shall consist of: (a) a Chief Executive Officer and President, (b) a Chief Financial Officer, (c) a Director of Operations & Surveillance, (d) a Director of Information Technology, (e) Chief Risk Officer, and (e) a Chief Compliance Officer. Any number of offices may be held by the same Person. Unless otherwise specified by the Member or this Agreement or required by the Act, the duties and authority of an Officer of the Company to act on behalf of the Company shall include the same duties and authority as an officer of a Delaware corporation (other than fiduciary duties) with the same title would have to act on behalf of a Delaware corporation in the absence of a specific delegation of authority. Any such Officer or agent shall hold office until the death, disability, retirement, resignation, or removal of such Officer or agent.

(b) Resignation. Any Officer or agent of the Company may resign at any time by giving written notice to the Member or Board. Any such resignation shall take effect at the time specified therein, or if no time is specified, upon receipt thereof, and unless otherwise specified therein, acceptance of such resignation shall not be necessary to make it effective.

(c) Removal; Vacancies; Transfer of Duties. Any Officer may be removed from office, with or without cause, by the Member. The power and duties of any officer may be transferred in whole or in part by the Member to any other Officer or other individual, notwithstanding the other provisions of this Agreement.

(d) Compensation. The Officers shall be entitled to such salary or other compensation, including salaries, bonuses, and any awards under an equity incentive plan at the discretion of the Member. The Member shall determine employee compensation matters including salaries, bonuses, and any awards under an equity incentive plan.

(e) Third Party Reliance. Third parties dealing with the Company shall be entitled to rely conclusively upon the power and authority of any Officer acting within their authority on behalf of the Company.

§5.13 Disciplinary Panels. The Board may, in its discretion, but subject to any requirements under applicable law, including the CEA and the rules and regulations promulgated thereunder, establish one or more disciplinary panels (each, a **“Disciplinary Panel”**), each of which shall generally be responsible for conducting hearings, rendering decisions, imposing sanctions, and reviewing appeals with respect to disciplinary matters as determined by the Board. Except as the Board may otherwise determine from time to time, each Disciplinary Panel shall be comprised of three (3) individuals, at least one of whom would qualify as a Public Director, and such Person shall chair the Disciplinary Panel. The number of individuals serving on any Disciplinary Panel (each, a **“Disciplinary Panel Member”**) may, subject to any requirements under applicable law, be increased or decreased from time to time by the Board. The Disciplinary Panel Members shall be appointed by the Board and may be removed from such position, either with or without cause, at any time by the Board.

ARTICLE VI. DUTIES, INDEMNIFICATION AND EXCULPATION

§6.01 Interests to Consider; No Implied Duties.

(a) Interests to Consider. The Member and the Company hereby acknowledge and agree that, whenever a Covered Person is permitted or required to act or refrain from acting, or to make any other decision (solely in such Person's capacity as a Covered Person) pursuant to any power or authority of such Person under this Agreement or the Act, he shall make such decision in a manner which he believes to be in the best interests of the Company and its Member.

(b) No Implied Duties. The provisions of this Agreement, including, but not limited to, the extent that they restrict or eliminate the duties, responsibilities, and liabilities of a Covered Person (acting solely in such Person's capacity as a Covered Person) otherwise existing at law or in equity, are hereby acknowledged and agreed by the Member and the Company to replace, to the fullest extent permitted by law and equity, such other duties, responsibilities, and liabilities of such Covered Person. This Agreement is not intended to, and does not, create or impose on any Covered Person any duty, responsibility, or liability, including, but not limited to, any fiduciary duty, other than those expressly set forth herein. For the avoidance of doubt, the Member and the Company hereby acknowledge and agree that they waive any and all fiduciary and other duties existing at law or in equity that, absent such waiver, may be implied under the Act, and in doing so, hereby acknowledges and agrees that the duties, responsibilities, and liabilities of each Covered Person (solely in such Person's capacity as a Covered Person) to the Company and the Member are only as expressly set forth in this Agreement.

§6.02 Limitation of Duties and Liabilities; Delegation; Reliance; Indemnification; Advancement; Effect of Amendment.

(a) Limitation of Duties and Liabilities. Except as otherwise provided in the Act, to the fullest extent permitted by law, no Covered Person (solely in such Person's capacity as a Covered Person) shall have any duty or be responsible or liable to the Company or any Member, or to any other Person making claims on behalf of the Company (including, but not limited to, its creditors) or any Member, for any damages, expenses, liabilities, or losses as a result of any act or omission (in relation to the Company, any transaction, any investment, or any other action or inaction, including, but not limited to, for breach of contract, tort (including negligence), strict liability, violation of any applicable legal or equitable principle, or breach of duties (including fiduciary duties)), taken or omitted by the Covered Person, unless there has been a final and non-appealable judgment entered by a court of competent jurisdiction determining that, in respect of such act or omission, and taking into account the acknowledgments and agreements set forth in this Agreement, such Covered Person acted in bad faith, knowingly engaged in fraud or willful misconduct (including, but not limited to, acting beyond the scope of its or their authority) or, in the case of a criminal matter, acted with actual knowledge that such Covered Person's conduct was unlawful.

(b) Delegation. Subject to its duties and responsibilities as set forth in this Agreement, the Rulebook, and Regulatory Requirements, the Board may exercise any of the powers and authority granted to it by this Agreement and perform any of the duties and

responsibilities imposed upon it hereunder either directly or by or through its committees, subcommittees, and agents, and neither the Board nor any Covered Person (acting solely in such Person's capacity as a Covered Person) shall have any duty or be responsible or liable to the Company or any Member, or to any other Person making claims on behalf of the Company (including, but not limited to, its creditors) or any Member, for any mistake, action, inaction, misconduct, negligence, fraud, or bad faith on the part of any such committee, subcommittee, or agent appointed by the Board unless, with respect to an individual Covered Person only, there has been a final and non-appealable judgment entered by a court of competent jurisdiction determining that, in respect of such delegation, and taking into account the acknowledgments and agreements set forth in this Agreement, such Covered Person had actual knowledge that such committee, subcommittee, or agent was acting in bad faith, knowingly engaging in fraud or willful misconduct (including, but not limited to, acting beyond the scope of its or his authority) or, in the case of a criminal matter, acting with actual knowledge that its or their conduct was unlawful.

(c) Reliance. Any Covered Person acting for, on behalf of, or in relation to the Company, any transaction, any investment, or any other action or inaction shall be entitled to rely upon the provisions of this Agreement and upon the advice of counsel, accountants, and other professionals or advisors that is provided to the Company, the Board, any committee or subcommittee thereof, or such Covered Person (acting solely in such Person's capacity as a Covered Person), or upon any resolution, certificate, statement, instrument, opinion, report, notice, request, consent, order, bond, debenture, paper, document, signature, or writing reasonably believed by such Covered Person to be genuine, including, but not limited to, any certificate signed by an officer, agent, or representative of any Person, in order to ascertain any fact with respect to such Person or within such Person's knowledge, and such Covered Person shall not have any duty or be responsible or liable to the Company or to the Member, or to any other Person making claims on behalf of the Company (including, but not limited to, its creditors) or the Member, for such Covered Person's reliance thereon; provided that in each case, there has not been a final and non-appealable judgment entered by a court of competent jurisdiction determining that, in respect of such reliance, and taking into account the acknowledgments and agreements set forth in this Agreement, such Covered Person acted in bad faith, knowingly engaged in fraud or willful misconduct (including, but not limited to, acting beyond the scope of his authority) or, in the case of a criminal matter, acted with actual knowledge that such Covered Person's reliance was unlawful.

(d) Indemnification. Each Covered Person (regardless of such Person's capacity and regardless of whether another Covered Person is entitled to indemnification) shall be indemnified and held harmless by the Company (but only to the extent of the Company's property and assets), to the fullest extent permitted under the Act, from and against any and all damage, expense, liability, and loss (including, but not limited to, taxes, penalties, judgments, fines, amounts paid or to be paid in settlement, costs of investigation and preparations, and fees, expenses, and disbursements of attorneys, whether or not the dispute or proceeding involves the Company or any Director, Officer, or Member) reasonably incurred or suffered by such Covered Person (solely in such Person's capacity as a Covered Person) in connection with the Company, any transaction, any investment, or any other action or inaction; provided that such Covered Person shall not be so indemnified

and held harmless for any proceeding initiated by such Covered Person; and provided, further, that such Covered Person shall not be so indemnified and held harmless if there has been a final and non-appealable judgment entered by a court of competent jurisdiction determining that, in respect of the matter for which such Covered Person is seeking indemnification or seeking to be held harmless hereunder, and taking into account the acknowledgments and agreements set forth in this Agreement, such Covered Person acted in bad faith, knowingly engaged in fraud or willful misconduct (including, but not limited to, acting beyond the scope of his authority) or, in the case of a criminal matter, acted with actual knowledge that such Covered Person's conduct was unlawful. The indemnification provided by this Section 6.02(d) shall be in addition to any other rights to which a Covered Person may be entitled under any agreement, as a matter of law or equity, or otherwise, both as to actions and inactions in such Covered Person's capacity as a Covered Person and as to actions and inactions in any other capacity, and shall continue as to a Covered Person who has ceased to serve in such capacity and shall inure to the benefit of the heirs, executors, administrators, personal and legal representatives, successors in interest, and permitted assigns of such Covered Person.

(e) Advancement. Reasonable, documented expenses incurred by a Covered Person in defending any civil, criminal, administrative, or investigative action, suit, or proceeding referred to in Section 6.02 (d) shall be paid by the Company in advance of the final disposition of such action, suit, or proceeding; provided that any such advance shall only be made if the Covered Person delivers a written affirmation by such Covered Person of his good faith belief that he is entitled to indemnification under Section 6.02(d) and agrees to repay all amounts so advanced if it shall ultimately be determined that such Covered Person is not entitled to such indemnification.

(f) Effect of Amendment. Any amendment, modification, or repeal of this Section 6.02 or any provision hereof shall be prospective only and shall not in any way affect the limitations on duty, responsibility, and liability of the Covered Persons, or terminate, reduce, or impair the right of any past, present, or future Covered Person, under and in accordance with the provisions of this Section 6.02 as in effect immediately prior to such amendment, modification, or repeal, with respect to claims arising from or relating to matters occurring, in whole or in part, prior to such amendment, modification, or repeal, regardless of when such claims may arise or be asserted.

§6.03 Insurance. The Company shall (through the Company or the Member) maintain insurance (including directors' and officers' insurance) at levels that are consistent with industry practice, at its expense, and the Company may maintain such insurance to protect itself and any Covered Person, in each case against any damage, expense, liability, or loss, whether or not the Company would have the power to indemnify such Person against such damage, expense, liability, or loss under the Act or this Agreement.

ARTICLE VII.

TRANSFERS AND WITHDRAWALS

§7.01 Transfers. The Member may Transfer its Interests in whole or in part to any Person at any time. If the Member makes any such Transfer, such transferee shall enter into this

Agreement (as it may be amended or restated) and be admitted as a Member for all purposes hereunder.

§7.02 Withdrawals. Upon the occurrence of the Withdrawal of a Member, the Member's successor shall thereupon become a Member.

ARTICLE VIII.

DISSOLUTION, LIQUIDATION, AND TERMINATION OF THE COMPANY

§8.01 Dissolution. The Company shall dissolve and its affairs shall be wound up at such time, if any, upon the written consent of the Member. No other event (including, without limitation, an event described in Section 18-801(4) of the Act) shall cause the Company to dissolve.

§8.02 Winding Up. If the Company is dissolved, the affairs of the Company shall be wound up by the Member or a liquidating agent appointed by the Member. Upon the winding up of the Company, the property and assets of the Company shall be distributed, first, to creditors, including all amounts owing to the Member under any agreement entered into between the Company and the Member or any Affiliate thereof to the extent permitted by law, in satisfaction of the liabilities of the Company, and then to the Member (or its successor in interest) in accordance with Section 4.02.

§8.03 Certificate of Cancellation. Upon the dissolution and completion of winding up the Company, a Certificate of Cancellation shall be filed with the Delaware Secretary of State in accordance with the provisions of Section 18-203 of the Act.

ARTICLE IX.

BOOKS, RECORDS, ACCOUNTS AND ACCOUNTING

§9.01 Books and Records. The Board shall keep or cause to be kept complete and accurate books and records of the Company and supporting documentation of the transactions with respect to the conduct of the Company's business and affairs and the ownership and maintenance of its property and assets. The books and records shall be maintained and reported in accordance with GAAP and all Regulatory Requirements. The Member shall have reasonable access to the books and records of the Company at any reasonable time during regular business hours without charge (and shall have the right to copy such books and records at its own expense).

§9.02 Confidentiality.

(a) Obligations. The Member, each Director and each Officer recognizes and acknowledges that each of them shall be entrusted with or have access to confidential and proprietary information which is the property of the Company and/or third parties (including Affiliates of the Company) to which the Company owes a duty of confidentiality. The Member, each Director and each Officer agrees that, during the time that they are a Member, Officer or Director, and at all times thereafter, such Member, such Director and such Officer shall: (i) not, unless authorized in writing by the Member on behalf of the Company, directly or indirectly use, copy or duplicate or, disclose or otherwise make available to any third party, any Confidential Information (as defined below) other than in the performance of such Member's, Director's or Officer's duties with

respect to the Company; (ii) not assert prior knowledge of any item of Confidential Information that such Member, Director or Officer cannot prove by clear and convincing documentary evidence; (iii) take such protective measures as may be reasonably necessary to preserve the secrecy and interest of the Company in the Confidential Information; and (iv) not, without the prior written consent of the Member on behalf of the Company, utilize or convert Confidential Information for such Member's, Director's or Officer's own benefit or gain, of whatever nature. Upon ceasing to be a Director or Officer for any reason whatsoever, or at any time requested by the Member, each Director and Officer shall promptly deliver or cause to be delivered any and all Confidential Information in such Director's or Officer's possession, custody or control.

(b) Confidential Information Defined.

- (i) The term “**Confidential Information**” shall mean trade secrets and other non-public information, technical data, or know-how relating to the Company, which may include, but not be limited to: research, products, services, inventions, processes, designs, drawings, engineering, marketing plans, finances, business plans and strategies, pricing, profits, losses, expenses, and other financial information; lists of customers, investors, vendors, and suppliers; any confidential information of any such customers, investors, vendors, or suppliers; contractual arrangements, personnel records, and other information relating to employees, training materials, statistical data, source codes, algorithms, proprietary technologies, and other proprietary information used by the Company in connection with its businesses and/or which the Company is obligated to any third party (including Affiliates of the Company) to maintain as confidential.
- (ii) The Member, each Director and each Officer acknowledges that the Confidential Information is vital, sensitive, confidential and proprietary to the Company. Notwithstanding the generality of the foregoing, the definition of “Confidential Information” does not include any information, materials, or data that is or becomes generally available to the public other than as a result of the Member's or any Director's or Officer's unauthorized direct or indirect acts. As between the Company and a Director or Officer, the Company is and shall remain the exclusive owner of all rights, title, and interest in and to the Confidential Information.

§9.03 Bank Accounts. All funds of the Company shall be deposited in a bank account or accounts maintained in the Company's name. The Member shall determine the institution or institutions at which the accounts shall be opened and maintained, the types of accounts, and the Persons who shall have authority with respect to the accounts and the funds therein.

§9.04 Annual Accounting Period and Taxable Year. The annual accounting period of the Company shall be its Fiscal Year. The Company's taxable year shall be selected by the Member, subject to the requirements and limitations of the Code.

§9.05 Accounting Decisions. All decisions as to the Company's accounting matters, except as specifically provided to the contrary herein, shall be made by the Member.

§9.06 Tax Returns. The Board shall, at the expense of the Company, cause to be prepared in a timely fashion after the end of the Fiscal Year, all federal and state income tax return information, if any, for the Company for such Fiscal Year, and delivered to the Member. The Member is hereby authorized and required to represent the Company (at the Company's expense) in connection with all examinations and audits of the affairs of the Company by any federal, state or local tax authorities and in any resulting administrative and judicial proceedings, and to expend funds of the Company for professional services and costs associated therewith.

ARTICLE X.

GENERAL PROVISIONS

§10.01 Construction. Any reference to any federal, state, local or foreign statute or law shall be deemed also to refer to all rules and regulations promulgated thereunder, unless the context requires otherwise. Whenever the context requires, the gender of all words used in this Agreement includes the masculine, feminine and neuter, and the singular number includes the plural number and vice versa. Unless otherwise indicated, all references to Articles and Sections refer to articles and sections of this Agreement, and all references to schedules and exhibits are to schedules and exhibits attached hereto, each of which is made a part hereof for all purposes. Reference in this Agreement to "includes" and "include" shall be deemed to be followed by "without limitation", and references to "hereof", "herein", and similar expressions shall be deemed to be a reference to this Agreement. All references to accounting terms used herein (and not otherwise defined) refer to those terms determined in accordance with GAAP.

§10.02 Compliance with the Act. The Company and the Member agree not to take any action (or fail to take any action) in contravention of this Agreement that, considered alone or in the aggregate with other actions or events, would result in the termination of the Company under the Act.

§10.03 Notices. Any notice, demand, consent, election, offer, approval, request, or other communication (collectively, a "**notice**") required or permitted under this Agreement must be in writing and either delivered personally, sent by certified or registered mail (or via electronic mail followed by certified or registered mail), postage prepaid, return receipt requested, or sent by recognized overnight delivery service. A notice must be addressed to the Member at such Member's address set forth in the books and records of the Company. A notice to the Company must be addressed to the Company's principal office. A notice that is sent by mail shall be deemed given: (i) five (5) Business Days to an address within the U.S. or (ii) seven (7) Business Days to an address outside of the U.S. after it is mailed. A notice sent by recognized overnight delivery service shall be deemed given when received or refused. Any party may designate, by notice to all of the others, substitute addresses or addressees for notices; and, thereafter, notices are to be directed to those substitute addresses or addressees.

§10.04 Severability. The invalidity of any one or more provisions hereof or of any other agreement or instrument given pursuant to or in connection with this Agreement shall not affect the remaining portions of this Agreement or any such other agreement or instrument or any part

thereof. In the event that one or more of the provisions contained herein or therein should be invalid, or should operate to render this Agreement or any such other agreement or instrument invalid, this Agreement and such other agreements and instruments shall be construed as if such invalid provisions had not formed part of this Agreement.

§10.05 Survival. It is the express intention and agreement of the parties that all covenants, agreements, statements, representations, warranties and indemnities made in this Agreement shall survive the execution and delivery of this Agreement.

§10.06 Waivers. No failure of the parties, on one or more occasions, to enforce any of the provisions of this Agreement or to exercise any right, remedy or privilege hereunder, shall be construed as a waiver of any such provisions, rights, remedies or privileges hereunder, nor shall any waiver by the parties of a breach of or a default under any of the provisions of this Agreement be construed as a waiver of any subsequent breach or default of a similar or other nature.

§10.07 Exercise of Rights. No failure or delay on the part of the parties in exercising any right, power or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise of any right, power or privilege hereunder preclude any other or further exercise thereof of the exercise of any other right, power or privilege. The rights and remedies herein expressly provided are cumulative and not exclusive of any other rights or remedies which the parties would otherwise have at law or in equity or otherwise.

§10.08 Binding Provisions. This Agreement is binding upon, and inures to the benefit of, the parties hereto and their respective shareholders, heirs, executors, administrators, personal and legal representatives, successors, and permitted assigns.

§10.09 No Third Party Beneficiaries. Nothing contained in this Agreement is intended to confer upon any Person, other than the parties hereto and any successors and assigns described herein, any rights or remedies under or by reason of this Agreement.

§10.10 Amendment. Any amendment of this Agreement may be made only in writing by the Member.

§10.11 Entire Agreement. This Agreement contains the entire agreement between the Member and the Company with respect to matters contemplated herein and supersedes all prior oral or written agreements, commitments or understandings with respect to the matters provided for herein and therein.

§10.12 Headings. The headings contained in this Agreement are inserted for convenience only and shall not be used to interpret or construe any provision of this Agreement.

§10.13 Governing Law. THIS AGREEMENT, THE RIGHTS AND OBLIGATIONS OF THE PARTIES HERETO, AND ANY CLAIMS OR DISPUTES RELATING THERETO, SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE STATE OF DELAWARE WITHOUT REGARD TO PRINCIPLES OF CONFLICT OF LAWS.

§10.14 Specific Performance. Without limiting or waiving in any respect any rights or remedies of the parties under this Agreement now or hereinafter existing at law or in equity or by statute, each of the parties hereto shall be entitled to seek specific performance of the obligations to be performed by the other in accordance with the provisions of this Agreement.

§10.15 Submission to Jurisdiction; Waivers. Each party hereto hereby irrevocably and unconditionally:

(a) submits for itself and its property in any legal action or proceeding relating to this Agreement or for recognition and enforcement of any judgment in respect thereof, to the non-exclusive general jurisdiction of the courts of the State of Illinois, the courts of the United States of America for the Northern District of Illinois and appellate courts from any thereof;

(b) consents that any such action or proceeding may be brought in such courts and waives any objection that it may now or hereafter have to the venue of any such action or proceeding in any such court or that such action or proceeding was brought in an inconvenient court and agrees not to plead or claim the same;

(c) agrees that service of process in any such action or proceeding may be effected by mailing a copy thereof by registered or certified mail (or any substantially similar form of mail), postage prepaid, to such party; and

(d) agrees that nothing herein shall affect the right to effect service of process in any other manner permitted by law or shall limit the right to sue in any other jurisdiction.

§10.16 Waiver of Jury Trial. EACH OF THE PARTIES HERETO WAIVES ANY RIGHT TO TRIAL BY JURY IN ANY DISPUTE, WHETHER SOUNDING IN CONTRACT, TORT OR OTHERWISE, BETWEEN ANY OF THE PARTIES HERETO ARISING OUT OF OR RELATED TO THE TRANSACTIONS CONTEMPLATED BY THIS AGREEMENT OR ANY OTHER INSTRUMENT, DOCUMENT OR AGREEMENT EXECUTED OR DELIVERED IN CONNECTION HERewith. ANY PARTY HERETO MAY FILE AN ORIGINAL COUNTERPART OR A COPY OF THIS AGREEMENT WITH ANY COURT AS WRITTEN EVIDENCE OF THE CONSENT OF THE PARTIES HERETO TO THE WAIVER OF THEIR RIGHT TO TRIAL BY JURY.

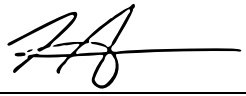
[Signature Page Follows.]

IN WITNESS WHEREOF, the undersigned, intending to be legally bound hereby, has duly executed this Agreement as of the date and year first written above.

MEMBER:

BITNOMIAL EXCHANGE, LLC

By: Bitnomial, Inc., its sole member

By: _____

Name: Luke Hoersten

Title: President & CEO

EXHIBIT A

LIST OF MEMBERS AND MEMBERSHIP INTERESTS

Member	Address	Initial Capital Contribution	Interests	Percentage Interest
Bitnomial Exchange, LLC	318 W. Adams St. Chicago, IL 60606	\$100,000	100,000 units	100%

Exhibit C-2(a)

Delaware

The First State

Page 1

*I, CHARUNI PATIBANDA-SANCHEZ, SECRETARY OF STATE OF THE
STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND
CORRECT COPY OF THE CERTIFICATE OF FORMATION OF "NINJATRADER
CLEARING, LLC", FILED IN THIS OFFICE ON THE SEVENTH DAY OF
JANUARY, A.D. 1998, AT 4:30 O`CLOCK P.M.*



C. P. Sanchez

Charuni Patibanda-Sanchez, Secretary of State

2843398 8100
SR# 20254800062

You may verify this certificate online at corp.delaware.gov/authver.shtml

Authentication: 205546186
Date: 12-08-25

**CERTIFICATE OF FORMATION
OF
YORK BUSINESS ASSOCIATES, L.L.C.**

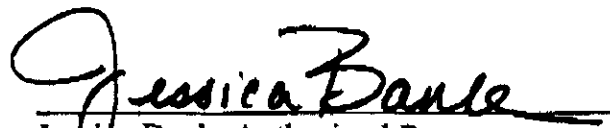
This Certificate of Formation of York Business Associates, L.L.C. (the "Company") is being executed by the undersigned for the purpose of forming a limited liability company pursuant to the Delaware Limited Liability Company Act.

1. The name of the Company is:

York Business Associates, L.L.C.

2. The address of the registered office of the Company in the State of Delaware is Corporation Trust Center, 1209 Orange Street, Wilmington, Delaware 19801 (County of New Castle). The Company's registered agent at that address is The Corporation Trust Company.

IN WITNESS WHEREOF, the undersigned, an authorized person of the Company, has caused this Certificate of Formation to be duly executed this 7th day of January 1998.


Jessica Bank, Authorized Person

144815.v1

Delaware

The First State

Page 1

*I, CHARUNI PATIBANDA-SANCHEZ, SECRETARY OF STATE OF THE
STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND
CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "YORK BUSINESS
ASSOCIATES, L.L.C.", CHANGING ITS NAME FROM "YORK BUSINESS
ASSOCIATES, L.L.C." TO "NINJATRADER CLEARING, LLC", FILED IN
THIS OFFICE ON THE THIRTIETH DAY OF APRIL, A.D. 2021, AT 1:27
O`CLOCK P.M.*



2843398 8100
SR# 20254800062

You may verify this certificate online at corp.delaware.gov/authver.shtml

A handwritten signature in black ink, reading "C. P. Sanchez", written over a horizontal line.

Charuni Patibanda-Sanchez, Secretary of State

Authentication: 205546185
Date: 12-08-25

CERTIFICATE OF AMENDMENT
OF
CERTIFICATE OF FORMATION
OF
YORK BUSINESS ASSOCIATES, L.L.C.

This Certificate of Amendment of York Business Associates, L.L.C. (the “LLC”), dated as of April 30, 2021, is being duly executed and filed by Martin Franchi, as an authorized person, to amend the Certificate of Formation of the LLC under the Delaware Limited Liability Company Act (6 Del. C. §18-101, et seq.).

IT IS HEREBY CERTIFIED THAT:

FIRST: The name of the LLC, prior to the time that this Certificate of Amendment takes effect, is York Business Associates, L.L.C.

SECOND: The Certificate of Formation of the LLC is hereby amended by deleting the FIRST article thereof, and by substituting in lieu thereof the following FIRST article:

1. Name of Limited Liability Company. The name of the limited liability company (the “Company”) is: “NinjaTrader Clearing, LLC”.

IN WITNESS WHEREOF, the undersigned has executed this Certificate of Amendment as of April 30, 2021.

Martin Franchi
Name: Martin Franchi
Title: Authorized Person

Delaware

The First State

Page 1

*I, CHARUNI PATIBANDA-SANCHEZ, SECRETARY OF STATE OF THE
STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND
CORRECT COPY OF THE CERTIFICATE OF MERGER, WHICH MERGES:*

*"NINJATRADER BROKERAGE, LLC", A DELAWARE LIMITED LIABILITY
COMPANY,*

*WITH AND INTO "NINJATRADER CLEARING, LLC" UNDER THE NAME OF
"NINJATRADER CLEARING, LLC", A LIMITED LIABILITY COMPANY
ORGANIZED AND EXISTING UNDER THE LAWS OF THE STATE OF DELAWARE,
AS RECEIVED AND FILED IN THIS OFFICE ON THE TWENTY-SEVENTH DAY
OF NOVEMBER, A.D. 2024, AT 6:23 O`CLOCK P.M.*

*AND I DO HEREBY FURTHER CERTIFY THAT THE EFFECTIVE DATE OF
THE AFORESAID CERTIFICATE OF MERGER IS THE THIRTIETH DAY OF
NOVEMBER, A.D. 2024.*



2843398 8100M
SR# 20254800062

You may verify this certificate online at corp.delaware.gov/authver.shtml

A handwritten signature in cursive script, reading "C. P. Sanchez".

Charuni Patibanda-Sanchez, Secretary of State

Authentication: 205546184
Date: 12-08-25

**STATE OF DELAWARE
CERTIFICATE OF MERGER OF
DOMESTIC LIMITED LIABILITY COMPANIES**

Pursuant to Title 6, Section 18-209 of the Delaware Limited Liability Act, the undersigned limited liability company executed the following Certificate of Merger:

FIRST: The name of the surviving limited liability company is

NinjaTrader Clearing, LLC,
and the name of the limited liability company being merged into this surviving limited liability company is NinjaTrader Brokerage, LLC.

SECOND: The Agreement of Merger has been approved, adopted, certified, executed and acknowledged by each of the constituent limited liability companies.

THIRD: The name of the surviving limited liability company is

NinjaTrader Clearing, LLC.

FOURTH: The merger is to become effective on November 30, 2024.

FIFTH: The Agreement of Merger is on file at 222 N LaSalle Street,
Suite 1450, Chicago, IL 60601,
the place of business of the surviving limited liability company.

SIXTH: A copy of the Agreement of Merger will be furnished by the surviving limited liability company on request, without cost, to any member of the constituent limited liability companies.

IN WITNESS WHEREOF, said surviving limited liability company has caused this certificate to be signed by an authorized person, the 27 day of
November, A.D., 2024.

By: Signed by:
Martin Franchi
3076747E15845B
Authorized Person

Name: Martin Franchi
Print or Type

Title: Chief Executive Officer

Delaware

The First State

Page 1

*I, CHARUNI PATIBANDA-SANCHEZ, SECRETARY OF STATE OF THE
STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND
CORRECT COPY OF THE CERTIFICATE OF MERGER, WHICH MERGES:*

*"TRADOVATE, LLC", A DELAWARE LIMITED LIABILITY COMPANY,
WITH AND INTO "NINJATRADER CLEARING, LLC" UNDER THE NAME OF
"NINJATRADER CLEARING, LLC", A LIMITED LIABILITY COMPANY
ORGANIZED AND EXISTING UNDER THE LAWS OF THE STATE OF DELAWARE,
AS RECEIVED AND FILED IN THIS OFFICE ON THE TWENTY-SEVENTH DAY
OF NOVEMBER, A.D. 2024, AT 7:32 O`CLOCK P.M.*

*AND I DO HEREBY FURTHER CERTIFY THAT THE EFFECTIVE DATE OF
THE AFORESAID CERTIFICATE OF MERGER IS THE THIRTIETH DAY OF
NOVEMBER, A.D. 2024.*



A handwritten signature in cursive script, reading "C. P. Sanchez".

Charuni Patibanda-Sanchez, Secretary of State

2843398 8100M
SR# 20254800062

You may verify this certificate online at corp.delaware.gov/authver.shtml

Authentication: 205546183
Date: 12-08-25

**STATE OF DELAWARE
CERTIFICATE OF MERGER OF
DOMESTIC LIMITED LIABILITY COMPANIES**

Pursuant to Title 6, Section 18-209 of the Delaware Limited Liability Act, the undersigned limited liability company executed the following Certificate of Merger:

FIRST: The name of the surviving limited liability company is

NinjaTrader Clearing, LLC,
and the name of the limited liability company being merged into this surviving limited liability company is Tradovate, LLC.

SECOND: The Agreement of Merger has been approved, adopted, certified, executed and acknowledged by each of the constituent limited liability companies.

THIRD: The name of the surviving limited liability company is

NinjaTrader Clearing, LLC.

FOURTH: The merger is to become effective on November 30, 2024.

FIFTH: The Agreement of Merger is on file at 222 N LaSalle Street,
Suite 1450, Chicago, IL 60601,
the place of business of the surviving limited liability company.

SIXTH: A copy of the Agreement of Merger will be furnished by the surviving limited liability company on request, without cost, to any member of the constituent limited liability companies.

IN WITNESS WHEREOF, said surviving limited liability company has caused this certificate to be signed by an authorized person, the 27 day of November, A.D., 2024.

By: Signed by:
Martin Franchi
3076747E155845B
Authorized Person

Name: Martin Franchi
Print or Type

Title: Authorized Representative

Exhibit C-2(b)

**AMENDED AND RESTATED
LIMITED LIABILITY COMPANY AGREEMENT
OF
YORK BUSINESS ASSOCIATES, L.L.C.**

This Amended and Restated Limited Liability Company Agreement (the “**Agreement**”) of York Business Associates, L.L.C., a Delaware limited liability company (the “**Company**”), is entered into as of January 1, 2021 by NinjaTrader Group, LLC (the “**Member**”). This Agreement amends and restates in its entirety the Operating Agreement of the Company dated as of January 12, 1998.

Introduction

This Agreement is being entered into to provide for, among other things, the membership and management of the Company.

NOW, THEREFORE, in consideration of the mutual covenants herein expressed, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto hereby agree as follows:

The Company will carry on its business as a limited liability company in accordance with the provisions of the Delaware Limited Liability Company Act (the “**Act**”) and pursuant to the following terms:

- 1. Jurisdiction of Organization.** The Company is a limited liability company organized under the laws of the State of Delaware. The Company was formed as a Delaware limited liability company on January 7, 1998.
- 2. Purpose.** The Company may engage in any and all activities as are permitted for a limited liability company organized in Delaware.
- 3. Management.** Except as otherwise set forth herein, the management of the Company and its business and affairs shall be vested solely in the Member, and the Member shall have the power and authority to exercise all of the rights, powers and privileges granted under the Act, any other applicable law and this Agreement. The Member may appoint officers, representatives and agents to assist with its management of the Company, and such officers, representatives and agents shall have such titles, duties and responsibilities as determined by the Member from time to time. No officer, representative or agent will have authority (general or specific) to act for or bind the Company unless the Member delegates such authority to such officer, representative or agent, and then only to the extent so delegated by the Member.
- 4. Capital Contributions.** Capital contributions by the Member may be made at such times, in such amounts and in such form as the Member may determine.
- 5. Membership Interests.** The Member is hereby admitted as the sole member of the Company. The Member may, in its sole discretion, cause the Company to create additional membership interests in the Company and issue such membership interests to the Member or to

new members designated by the Member who agree in writing to be bound by this Agreement, as amended from time to time.

6. Term. The Company shall continue in existence until terminated and liquidated by the Member.

7. Limited Liability. Except as otherwise required by the Act, the debts, expenses, obligations and liabilities of the Company, whether arising in contract, tort or otherwise, shall be solely the debts, expenses, obligations and liabilities of the Company, and the Member shall not have any liability for the same.

8. Indemnification. To the fullest extent permitted under the Act, the Member (irrespective of the capacity in which it acts) shall be entitled to indemnification and advancement of expenses from the Company for and against any loss, damage, claim or expense (including attorneys' fees) whatsoever incurred by the Member relating to or arising out of any act or omission or alleged acts or omissions performed or omitted by the Member on behalf of the Company.

9. Allocations and Distributions. Each item of income, gain, loss, deduction and credit of the Company for Federal income tax purposes shall be allocated to the Member. All distributions in respect of the ownership interests in the Company shall be made to the Member. For U.S. federal and state income tax purposes, it is intended that the Company be disregarded as an entity separate from the Member, within the meaning of Treasury Regulation Section 301.7701-3(b)(1)(ii).

10. Fiscal Year. The fiscal year of the Company shall be determined by the Member.

11. Method of Accounting. The method of accounting used by the Company shall be determined by the Member.

12. Successors and Assigns. This Agreement shall be binding upon and shall inure to the benefit of the Company, the Member and their respective successors and assigns. None of the provisions of this Agreement shall be for the benefit of or enforceable by any person or entity other than a member or the Company, including without limitation any creditor of any member or the Company.

13. Amendments; Waivers. No waiver, modification or amendment of this Agreement shall be valid or binding unless such waiver, modification or amendment is in writing duly executed by the Member, and any such written waiver, modification or amendment shall be binding upon the Company. No delay or omission in exercising any right under this Agreement shall operate as a waiver of that or any other right.

14. Governing Law. This Agreement shall be governed by and interpreted, construed and enforced in accordance with the internal laws of the State of Delaware.

[SIGNATURE PAGE FOLLOWS]

CONFIDENTIAL TREATMENT REQUESTED BY BITNOMIAL EXCHANGE, LLC PURSUANT TO 17 C.F.R. § 200.83.

The Member has executed this Agreement as of the day and year first above set forth.

NINJATRADER GROUP, LLC

By: *Martin Franchi* _____

Name: *Martin Franchi*

Title: Chief Executive Officer

LIMITED LIABILITY COMPANY AGREEMENT OF INFINITY FUTURES, LLC

This Limited Liability Company Agreement (the “**Agreement**”) of Infinity Futures, LLC, a Delaware limited liability company (the “**Company**”), is entered into as of January 1, 2021 by NinjaTrader Group, LLC (the “**Member**”).

The Company was formed on December 30, 2009 and has been operating without a written operating agreement since that time in accordance with the Delaware Limited Liability Company Act (the “**Act**”).

Introduction

This Agreement is being entered into to provide for, among other things, the membership and management of the Company.

NOW, THEREFORE, in consideration of the mutual covenants herein expressed, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto hereby agree as follows:

The Company will carry on its business as a limited liability company in accordance with the provisions of the Act and pursuant to the following terms:

- 1. Jurisdiction of Organization.** The Company is a limited liability company organized under the laws of the State of Delaware. The Company was formed as a Delaware limited liability company on December 30, 2009.
- 2. Purpose.** The Company may engage in any and all activities as are permitted for a limited liability company organized in Delaware.
- 3. Management.** Except as otherwise set forth herein, the management of the Company and its business and affairs shall be vested solely in the Member, and the Member shall have the power and authority to exercise all of the rights, powers and privileges granted under the Act, any other applicable law and this Agreement. The Member may appoint officers, representatives and agents to assist with its management of the Company, and such officers, representatives and agents shall have such titles, duties and responsibilities as determined by the Member from time to time. No officer, representative or agent will have authority (general or specific) to act for or bind the Company unless the Member delegates such authority to such officer, representative or agent, and then only to the extent so delegated by the Member.
- 4. Capital Contributions.** Capital contributions by the Member may be made at such times, in such amounts and in such form as the Member may determine.
- 5. Membership Interests.** The Member is hereby admitted as the sole member of the Company. The Member may, in its sole discretion, cause the Company to create additional membership interests in the Company and issue such membership interests to the Member or to new members designated by the Member who agree in writing to be bound by this Agreement, as amended from time to time.

6. Term. The Company shall continue in existence until terminated and liquidated by the Member.

7. Limited Liability. Except as otherwise required by the Act, the debts, expenses, obligations and liabilities of the Company, whether arising in contract, tort or otherwise, shall be solely the debts, expenses, obligations and liabilities of the Company, and the Member shall not have any liability for the same.

8. Indemnification. To the fullest extent permitted under the Act, the Member (irrespective of the capacity in which it acts) shall be entitled to indemnification and advancement of expenses from the Company for and against any loss, damage, claim or expense (including attorneys' fees) whatsoever incurred by the Member relating to or arising out of any act or omission or alleged acts or omissions performed or omitted by the Member on behalf of the Company.

9. Allocations and Distributions. Each item of income, gain, loss, deduction and credit of the Company for Federal income tax purposes shall be allocated to the Member. All distributions in respect of the ownership interests in the Company shall be made to the Member. For U.S. federal and state income tax purposes, it is intended that the Company be disregarded as an entity separate from the Member, within the meaning of Treasury Regulation Section 301.7701-3(b)(1)(ii).

10. Fiscal Year. The fiscal year of the Company shall be determined by the Member.

11. Method of Accounting. The method of accounting used by the Company shall be determined by the Member.

12. Successors and Assigns. This Agreement shall be binding upon and shall inure to the benefit of the Company, the Member and their respective successors and assigns. None of the provisions of this Agreement shall be for the benefit of or enforceable by any person or entity other than a member or the Company, including without limitation any creditor of any member or the Company.

13. Amendments; Waivers. No waiver, modification or amendment of this Agreement shall be valid or binding unless such waiver, modification or amendment is in writing duly executed by the Member, and any such written waiver, modification or amendment shall be binding upon the Company. No delay or omission in exercising any right under this Agreement shall operate as a waiver of that or any other right.

14. Governing Law. This Agreement shall be governed by and interpreted, construed and enforced in accordance with the internal laws of the State of Delaware.

[SIGNATURE PAGE FOLLOWS]

CONFIDENTIAL TREATMENT REQUESTED BY BITNOMIAL EXCHANGE, LLC PURSUANT TO 17 C.F.R. § 200.83.

The Member has executed this Agreement as of the day and year first above set forth.

NINJATRADER GROUP, LLC

By: Martin Franchi _____
Name: Martin Franchi
Title: Chief Executive Officer

**NINJATRADER GROUP HOLDINGS, LLC
NINJATRADER GROUP, LLC
YORK BUSINESS ASSOCIATES, L.L.C.**

Written Consent

January 1, 2021

The undersigned, being (i) a majority of the Managers of the Board (the “**Board**”) of NinjaTrader Group Holdings, LLC, a Delaware limited liability company (“**Holdings**”), (ii) the sole members of NinjaTrader Group, LLC, a Delaware limited liability company (the “**NT Group**”), and (iii) the sole member of York Business Associates, L.L.C., a Delaware limited liability company doing business as TransAct Futures (“**York**”), do hereby consent to adopt the following resolutions in accordance with applicable law on behalf of Holdings, NT Group and York. The following resolutions are being adopted in connection with the consummation of the Securities Purchase Agreement, dated as of December 31, 2020 (the “**Purchase Agreement**”), by and among (i) York; (ii) TransAct IP, LLC, a Delaware limited liability company (“**TransAct IP**” and, together with York, the “**Purchased Entities**” and, each, a “**Purchased Entity**”); (iii) Infinity Futures, LLC, a Delaware limited liability company (“**Infinity Futures**” and, together with York and TransAct IP, the “**TransAct Companies**” and, each, a “**TransAct Company**”); (iv) each of Greg Sabatello Estate Trust dated January 16, 2002, Mark Gordy Trust Dated May 30, 1995, James Mooney and James Cagnina (collectively, the “**Sellers**” and, each, a “**Seller**”); (v) each of Greg Sabatello and Mark Gordy (collectively, the “**Founders**” and, each, a “**Founder**”); (vi) Greg Sabatello, in his capacity as representative of the Sellers and the Founders hereunder (the “**Representative**”); and (vii) NT Group.

As used herein, “**Authorized Representatives**” means any manager, director or officer of the Company.

I. TRANSFER OF INFINITY FUTURES EQUITY FROM YORK TO NT GROUP

WHEREAS: York is the holder of 100% of the issued and outstanding equity interests of Infinity Futures (the “**Infinity Future Units**”).

WHEREAS: York desires to effect a distribution of 100% of the Infinity Future Units to NT Group, to be effective as of the date hereof.

RESOLVED: That the distribution by York of 100% of the Infinity Future Units to NT Group, such distribution to be effective as of the date hereof, be, and it hereby is, authorized, approved and ratified in all respects; and thereafter, NT Group will be the holder of 100% of the Infinity Future Units

II. ADOPTION OF INFINITY FUTURES LLC AGREEMENT

RESOLVED: That the sole members of NT Group, hereby authorize NT Group to execute, deliver and perform its obligations pursuant to that certain Limited Liability Company Agreement of Infinity Futures (the “**Infinity Futures LLC Agreement**”), such document to be effective as of the date hereof and to be in substantially the form

previously made available to the undersigned; and that the Authorized Representatives be, and hereby are authorized, empowered and directed to execute and deliver, on behalf of NT Group, the Infinity Futures LLC Agreement, with such changes as the Authorized Representatives may approve, their execution thereof to be conclusive evidence of such approval and of the due authorization hereunder; and to take such other actions on behalf of NT Group as such Authorized Representatives deem necessary or desirable.

III. ADOPTION OF YORK AMENDED AND RESTATED LLC AGREEMENT

RESOLVED: That the sole members of NT Group, hereby authorize NT Group to execute, deliver and perform its obligations pursuant to that certain Amended and Restated Limited Liability Company Agreement of York (the “**York Business Associates LLC Agreement**”), such document to be effective as of the date hereof and to be in substantially the form previously made available to the undersigned; and that the Authorized Representatives be, and hereby are authorized, empowered and directed to execute and deliver, on behalf of NT Group, the York Business Associates LLC Agreement, with such changes as the Authorized Representatives may approve, their execution thereof to be conclusive evidence of such approval and of the due authorization hereunder; and to take such other actions on behalf of NT Group as such Authorized Representatives deem necessary or desirable.

IV. GENERAL RESOLUTIONS

RESOLVED: That the Authorized Representatives be, and they hereby are, and each of them acting singly hereby is, authorized from time to time, in the name of and on behalf of each Company, to execute, make oath to, acknowledge and deliver any and all such orders, directions, certificates, agreements, filings and other instruments and papers, and to do or cause to be done any and all such other acts and things, as may, in his or their judgment, be necessary, desirable, appropriate or convenient in connection with the foregoing resolutions.

RESOLVED: That all actions previously taken by the Authorized Representatives on behalf of each Company, in furtherance of the foregoing resolutions be, and they hereby are, authorized, ratified, confirmed and approved in all respects as the true acts and deeds of each Company, as applicable, with the same force and effect as if each such action had been specifically authorized in advance by resolution.

CONFIDENTIAL TREATMENT REQUESTED BY BITNOMIAL EXCHANGE, LLC PURSUANT TO 17 C.F.R. § 200.83.

IN WITNESS WHEREOF, the undersigned have executed this consent effective as of the date first written above.

BOARD OF HOLDINGS

James Brown

Jason Melton

Raymond Deux

Martin Franchi
NINJA TRADER GROUP HOLDINGS, LLC

Eliot Wickersheimer

Salo Sredni

HOLDINGS

NinjaTrader Group Holdings, LLC

By: *Martin Franchi* _____
Name
Title: Chief Executive Officer

MEMBER OF YORK

NinjaTrader Group, LLC

By: Martin Franchi
Name: Martin Franchi
Title: Chief Executive Officer

MEMBERS OF NT GROUP

NinjaTrader Group Intermediate Splitter,
LLC

By: Martin Franchi
Name: Martin Franchi
Title: Chief Executive Officer

NinjaTrader Group Intermediate, LLC

By: Martin Franchi
Name: Martin Franchi
Title: Chief Executive Officer

Exhibit C-2(c)

**AMENDED AND RESTATED
LIMITED LIABILITY COMPANY AGREEMENT
OF
YORK BUSINESS ASSOCIATES, L.L.C.**

This Amended and Restated Limited Liability Company Agreement (the “**Agreement**”) of York Business Associates, L.L.C., a Delaware limited liability company (the “**Company**”), is entered into as of January 1, 2021 by NinjaTrader Group, LLC (the “**Member**”). This Agreement amends and restates in its entirety the Operating Agreement of the Company dated as of January 12, 1998.

Introduction

This Agreement is being entered into to provide for, among other things, the membership and management of the Company.

NOW, THEREFORE, in consideration of the mutual covenants herein expressed, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto hereby agree as follows:

The Company will carry on its business as a limited liability company in accordance with the provisions of the Delaware Limited Liability Company Act (the “**Act**”) and pursuant to the following terms:

- 1. Jurisdiction of Organization.** The Company is a limited liability company organized under the laws of the State of Delaware. The Company was formed as a Delaware limited liability company on January 7, 1998.
- 2. Purpose.** The Company may engage in any and all activities as are permitted for a limited liability company organized in Delaware.
- 3. Management.** Except as otherwise set forth herein, the management of the Company and its business and affairs shall be vested solely in the Member, and the Member shall have the power and authority to exercise all of the rights, powers and privileges granted under the Act, any other applicable law and this Agreement. The Member may appoint officers, representatives and agents to assist with its management of the Company, and such officers, representatives and agents shall have such titles, duties and responsibilities as determined by the Member from time to time. No officer, representative or agent will have authority (general or specific) to act for or bind the Company unless the Member delegates such authority to such officer, representative or agent, and then only to the extent so delegated by the Member.
- 4. Capital Contributions.** Capital contributions by the Member may be made at such times, in such amounts and in such form as the Member may determine.
- 5. Membership Interests.** The Member is hereby admitted as the sole member of the Company. The Member may, in its sole discretion, cause the Company to create additional membership interests in the Company and issue such membership interests to the Member or to

new members designated by the Member who agree in writing to be bound by this Agreement, as amended from time to time.

6. Term. The Company shall continue in existence until terminated and liquidated by the Member.

7. Limited Liability. Except as otherwise required by the Act, the debts, expenses, obligations and liabilities of the Company, whether arising in contract, tort or otherwise, shall be solely the debts, expenses, obligations and liabilities of the Company, and the Member shall not have any liability for the same.

8. Indemnification. To the fullest extent permitted under the Act, the Member (irrespective of the capacity in which it acts) shall be entitled to indemnification and advancement of expenses from the Company for and against any loss, damage, claim or expense (including attorneys' fees) whatsoever incurred by the Member relating to or arising out of any act or omission or alleged acts or omissions performed or omitted by the Member on behalf of the Company.

9. Allocations and Distributions. Each item of income, gain, loss, deduction and credit of the Company for Federal income tax purposes shall be allocated to the Member. All distributions in respect of the ownership interests in the Company shall be made to the Member. For U.S. federal and state income tax purposes, it is intended that the Company be disregarded as an entity separate from the Member, within the meaning of Treasury Regulation Section 301.7701-3(b)(1)(ii).

10. Fiscal Year. The fiscal year of the Company shall be determined by the Member.

11. Method of Accounting. The method of accounting used by the Company shall be determined by the Member.

12. Successors and Assigns. This Agreement shall be binding upon and shall inure to the benefit of the Company, the Member and their respective successors and assigns. None of the provisions of this Agreement shall be for the benefit of or enforceable by any person or entity other than a member or the Company, including without limitation any creditor of any member or the Company.

13. Amendments; Waivers. No waiver, modification or amendment of this Agreement shall be valid or binding unless such waiver, modification or amendment is in writing duly executed by the Member, and any such written waiver, modification or amendment shall be binding upon the Company. No delay or omission in exercising any right under this Agreement shall operate as a waiver of that or any other right.

14. Governing Law. This Agreement shall be governed by and interpreted, construed and enforced in accordance with the internal laws of the State of Delaware.

[SIGNATURE PAGE FOLLOWS]

CONFIDENTIAL TREATMENT REQUESTED BY BITNOMIAL EXCHANGE, LLC PURSUANT TO 17 C.F.R. § 200.83.

The Member has executed this Agreement as of the day and year first above set forth.

NINJATRADER GROUP, LLC

By: Martin Franchi

Name: Martin Franchi

Title: Chief Executive Officer

Exhibit C-2(d)

OMB APPROVAL	
OMB Number:	3235-0556
Expires:	April 30, 2026
Estimated average burden hours per response. 30 minutes	

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549**

Form BD-N

**FORM FOR NOTICE OF REGISTRATION AS A BROKER-DEALER FOR THE PURPOSE OF TRADING
SECURITY FUTURES PRODUCTS PURSUANT TO SECTION 15(b)(11) OF THE SECURITIES
EXCHANGE ACT OF 1934**

FORM BD-N INSTRUCTIONS

RECEIVED

JUN 17 2026

BY: _____

SEC 1500 (1-08)

**Persons who potentially are to respond to the collection of
information contained in this form are not required to respond
unless the form displays a currently valid OMB control number.**

1. GENERAL INSTRUCTIONS – Form BD-N is the form for notice of registration as a broker-dealer for the limited purpose of trading security futures products ("Security Futures Product Broker-Dealer") pursuant to Section 15(b)(11) of the Securities Exchange Act of 1934 ("Exchange Act").

- A Security Futures Product Broker-Dealer must be registered with the Commodity Futures Trading Commission as a futures commission merchant or as an introducing broker, and must state that it is so registered by answering "yes" to Item 2A.
- A Security Futures Product Broker-Dealer must be a member of the National Futures Association or another national securities association registered under Section 15A(k) of the Exchange Act, and must indicate such membership by answering "yes" to Item 2B.
- Except for securities transactions that do not require broker-dealer registration (such as transactions in government securities that are incidental to futures-related business as defined in Rules 3a43-1 and 3a44-1 of the Exchange Act), a Security Futures Product Broker-Dealer must limit its business in securities to security futures products, and must indicate that it will properly limit its securities business to security futures products by answering "yes" to Item 2C.

NOTE:

- A Security Futures Product Broker-Dealer may apply for registration as a "full" broker-dealer pursuant to Section 15(b)(1) of the Exchange Act to conduct business in securities other than in security futures products by filing an application on Form BD. A full broker-dealer is not subject to the exemptions contained in Section 15(b)(11)(B) of the Exchange Act, even with respect to its business in security futures products.
- The notice registration of the Security Futures Product Broker-Dealer will remain effective while the Security Futures Product Broker-Dealer's application to become a full broker-dealer is pending. However, the Security Futures Product Broker-Dealer must continue to limit its business in securities to security futures products until it has satisfied all of the requirements under the Exchange Act to become a full broker-dealer. An application by a Security Futures Product Broker-Dealer to become a full broker-dealer constitutes express consent to withdrawal of its notice registration once it has satisfied all of the requirements under the Exchange Act to become a full broker-dealer.

2. CONTACT EMPLOYEE – The individual listed as the contact employee must be authorized to receive all contact information, communications, and mailings and is responsible for disseminating such information within the Security Futures Product Broker-Dealer's organization.

3. FORMAT

- Attach an Execution Page (Page 1) with original manual signatures.
- Please type all information.
- Use only the current version of Form BD-N or a reproduction.

4. WHERE TO FILE AND NUMBER OF COPIES – Submit one original and two copies of Form BD-N to the Commission's designated agent, the NFA to the following address: National Futures Association, Registration Department, 300 South Riverisde Plaza, Suite 1800, Chicago, IL 60606.

5. PAPERWORK REDUCTION ACT DISCLOSURE

- Form BD-N requires a futures commission merchant or an introducing broker registering as a Security Futures Product Broker-Dealer for the sole purpose of trading security futures products pursuant to Section 15(b)(11) of the Exchange Act, to provide the Commission with certain information.
- An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid control number. Sections 15, 17(a), and 23(a) of the Exchange Act authorize the Commission to collect information on Form BD-N. See 15 U.S.C. §§ 78o, 78q(a), and 78w(a).
- Form BD-N is designed to enable the Commission to determine whether a Security Futures Product Broker-Dealer is in compliance with the requirements of the Exchange Act.
- It is estimated that a futures commission merchant or an introducing broker will spend approximately 0.5 hours completing Form BD-N. It also is estimated that each Security Futures Product Broker-Dealer will spend approximately 0.25 hours preparing each amendment to Form BD-N.
- It is mandatory that futures commission merchants and introducing brokers seeking to trade security futures products file a Form BD-N with the Commission through its designated agent, the NFA. It is also mandatory that Security Futures Product Broker-Dealers file amendments to Form BD-N with the Commission's designated agent, the NFA.
- The Commission gives no assurance of confidentiality with respect to the responses submitted on Form BD-N. The public has access to the information contained on Form BD-N.
- This collection of information has been reviewed by the Office of Management and Budget in accordance with the requirements of 44 U.S.C. § 3507.

Form BD-N Page 1 (Execution Page)	U.S. SECURITIES AND EXCHANGE COMMISSION WASHINGTON, D.C. 20549 FORM AND AMENDMENTS FOR NOTICE OF REGISTRATION AS A SECURITY FUTURES PRODUCT BROKER-DEALER FOR THE PURPOSE OF TRADING SECURITY FUTURES PRODUCTS PURSUANT TO SECTION 15(b)(11) OF THE EXCHANGE ACT	Date filed (MM/DD/YYYY) / /
--	---	---------------------------------------

WARNING: Failure to keep this form current and to file accurate supplementary information on a timely basis, or the failure to keep accurate books and records or otherwise to comply with the applicable provisions of law with respect to the conduct of business as a broker-dealer would violate the federal securities laws and may result in disciplinary, administrative or criminal action.
INTENTIONAL MISSTATEMENTS OR OMISSIONS OF FACTS MAY CONSTITUTE CRIMINAL VIOLATIONS.

☒ **APPLICATION**

 ☐ **AMENDMENT**

1. Exact name, principal business address, mailing address, if different, and telephone number of *applicant*:
 - Full name of Security Futures Product Broker-Dealer (if sole proprietor, state last, first and middle name):
NinjaTrader Clearing, LLC
 - IRS Identification No.
36-4208643
 - (1) Name under which Security Futures Product Broker-Dealer's business primarily is conducted, if different from Item 1A:

 - (2) List any other name by which the firm conducts business and where it is used:
NinjaTrader, Tradovate, Kraken Derivatives US
 - If this filing makes a name change on behalf of the Security Futures Product Broker-Dealer, enter the new name and specify whether the name change is of the Security Futures Product Broker-Dealer name or business name:

 - Security Futures Product Broker-Dealer's main address: (Do not use a P.O. Box)

222 N. LaSalle St. Ste 400	Chicago	Illinois	60601-1003
(Number and Street)	(City)	(State/Country)	(Zip + 4/Postal Code)

- Mailing address, if different:

- Business Telephone Number: 312 423-2234
 (Area Code) (Telephone Number)
- Contact Employee:
Julius A. Kaiser, Chief Compliance Officer 954 464-3781
 (Name and Title) (Area Code) (Telephone Number)

EXECUTION – The Security Futures Product Broker-Dealer consents that service of any civil action brought by or notice of any proceeding before the Securities and Exchange Commission in connection with the Security Futures Product Broker-Dealer's activities may be given by registered or certified mail or confirmed telegram to the Security Futures Product Broker-Dealer's contact employee at the main address, or mailing address if different, as provided, above.

The undersigned, being first duly sworn, deposes and says that he/she has executed this form on behalf of, and with the authority of, said Security Futures Product Broker-Dealer. The undersigned and the Security Futures Product Broker-Dealer represent that the information and statements contained herein, including exhibits, schedules, or other documents attached hereto, and other information filed herewith, all of which are made a part hereof, are current, true and complete. The undersigned and the Security Futures Product Broker-Dealer further represent that to the extent any information previously submitted is not amended, such information is currently accurate and complete.

 (Signature)

(Name of Security Futures Product Broker-Dealer)
NinjaTrader Clearing, LLC

 (Print Name and Title)

Subscribed and sworn before me this 8 day of June, 2026 by Andrea Sledz
 (Month) (Year) (Notary Public)

My Commission expires Aug 3, 2026 County of Cook State of Illinois

This page must always be completed in full with original, manual signature and notarization.

ANDREA SLEDZ Official Seal Notary Public - State of Illinois Commission Expires Aug 3, 2026	To amend, circle items being amended. Affix notary stamp or seal where applicable. DO NOT WRITE BELOW THIS LINE – FOR OFFICIAL USE ONLY
---	---

Form BD-N Page 2	U.S. SECURITIES AND EXCHANGE COMMISSION WASHINGTON, D.C. 20549 FORM AND AMENDMENTS FOR NOTICE OF REGISTRATION AS A SECURITY FUTURES PRODUCT BROKER-DEALER FOR THE PURPOSE OF TRADING SECURITY FUTURES PRODUCTS PURSUANT TO SECTION 15(b)(11) OF THE EXCHANGE ACT	OFFICIAL USE	OFFICIAL USE ONLY
		Yes No A. Is the Security Futures Product Broker-Dealer registered with the Commodity Futures Trading Commission as a futures commission merchant or as an introducing broker? ☒ ☐ B. Is the Security Futures Product Broker-Dealer a member of the National Futures Association another national securities association registered under Section 15A(k) of the Exchange Act? ☒ ☐ C. Does the Security Futures Product Broker-Dealer limit, or will it limit its business in securities to business that does not require it to register under Section 15(b)(1), Section 15B, or Section 15C of the Exchange Act? ☒ ☐	

Exhibit C-3(a)

Delaware

The First State

Page 1

*I, CHARUNI PATIBANDA-SANCHEZ, SECRETARY OF STATE OF THE
STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND
CORRECT COPY OF THE RESTATED CERTIFICATE OF "PAYWARD, INC.",
FILED IN THIS OFFICE ON THE TWENTY-FIRST DAY OF NOVEMBER, A.D.
2025, AT 5:16 O`CLOCK P.M.*



C. P. Sanchez

Charuni Patibanda-Sanchez, Secretary of State

5017249 8100
SR# 20254647897

You may verify this certificate online at corp.delaware.gov/authver.shtml

Authentication: 205401472
Date: 11-21-25

**AMENDED AND RESTATED
CERTIFICATE OF INCORPORATION
OF
PAYWARD, INC.**

**(Pursuant to Sections 242 and 245 of the
General Corporation Law of the State of Delaware)**

PAYWARD, INC., a corporation organized and existing under and by virtue of the provisions of the General Corporation Law of the State of Delaware (the "General Corporation Law"),

DOES HEREBY CERTIFY:

FIRST: That the name of this corporation is **PAYWARD, INC.** The original certification of incorporation of this corporation was filed with the Secretary of State of the State of Delaware on July 28, 2011 under the name **Payward, Inc.**

SECOND: An amended and restated certificate of incorporation of this corporation was duly adopted by the Board of Directors in accordance with Sections 242 and 245 of the General Corporation Law and was filed with the Secretary of State of the State of Delaware on July 1, 2019 (the "2019 Amended and Restated Certificate of Incorporation").

THIRD: A certificate of amendment to the 2019 Amended and Restated Certificate of Incorporation was duly adopted by the Board of Directors in accordance with Sections 228 and 242 of the General Corporation Law and was filed with the Secretary of State of the State of Delaware on October 11, 2022.

FOURTH: A second certificate of amendment to the 2019 Amended and Restated Certificate of Incorporation was duly adopted by the Board of Directors in accordance with Sections 228 and 242 of the General Corporation Law and was filed with the Secretary of State of the State of Delaware on March 11, 2025.

FIFTH: An amended and restated certificate of incorporation of this corporation was duly adopted by the Board of Directors in accordance with Sections 242 and 245 of the General Corporation Law and was filed with the Secretary of State of the State of Delaware on August 20, 2025 (the "August 2025 Amended and Restated Certificate of Incorporation").

SIXTH: That the Board of Directors duly adopted resolutions proposing to amend and restate the August 2025 Amended and Restated Certificate of Incorporation of this corporation, declaring said amendment and restatement to be advisable and in the best interests of this corporation and its stockholders, and authorizing the appropriate officers of this corporation to solicit the consent of the stockholders therefor, which resolution setting forth the proposed amendment and restatement is as follows:

RESOLVED, that the certificate of incorporation of this corporation be amended and restated in its entirety as follows:

ARTICLE I

The name of this corporation is Payward, Inc.

ARTICLE II

The address of the registered office of this corporation in the State of Delaware is 1209 Orange Street, in the City of Wilmington, New Castle County 19801. The name of its registered agent at such address is The Corporation Trust Company.

ARTICLE III

The nature of the business or purposes to be conducted or promoted is to engage in any lawful act or activity for which corporations may be organized under the General Corporation Law.

ARTICLE IV

A. Authorization of Stock. This corporation is authorized to issue two classes of stock to be designated, respectively, common stock and preferred stock. The total number of shares that this corporation is authorized to issue is 461,709,124. The total number of shares of common stock authorized to be issued is 354,220,355, par value \$0.00001 per share (the "Common Stock"). The total number of shares of preferred stock authorized to be issued is 107,488,769, par value \$0.00001 per share (the "Preferred Stock"), of which 6,666,660 shares are designated as "Series Seed Preferred Stock," 71,185,290 shares are designated as "Series A Preferred Stock," 2,646,170 shares are designated as "Series B Preferred Stock," 20,483,409 shares are designated as "Series C Preferred Stock," 3,253,620 shares are designated as "Series D Preferred Stock" and 3,253,620 shares are designated as "Series D-1 Preferred Stock."

B. Rights, Preferences and Restrictions of Preferred Stock. The rights, preferences, privileges and restrictions granted to and imposed on the Preferred Stock are as set forth below in this Article IV(B).

(a) Dividend Provisions.

(i) The holders of shares of Series Seed Preferred Stock, Series A Preferred Stock, Series B Preferred Stock and Series D Preferred Stock shall be entitled to receive dividends, out of any assets legally available therefor, prior and in preference to any declaration or payment of any dividend (payable other than in Common Stock or other securities and rights convertible into or entitling the holder thereof to receive, directly or indirectly, additional shares of Common Stock of this corporation) on the Series D-1 Preferred Stock, the Series C Preferred Stock or the Common Stock of this corporation, at the applicable Dividend Rate (as defined below), payable when, as and if declared by the Board of Directors. Such dividends shall not be cumulative. The holders of the outstanding Series Seed Preferred Stock, Series A Preferred Stock, Series B Preferred Stock and Series D Preferred Stock can waive any dividend preference that such holders shall be entitled to receive under this subsection (a) of Article IV(B) upon the affirmative vote or written consent of the holders of a majority of the shares of Preferred Stock then outstanding (voting together as a single class and not as separate

series, and on an as-converted basis). For purposes of this subsection (a), "Dividend Rate" shall mean \$0.0015 per annum for each share of Series Seed Preferred Stock, \$0.01384616 per annum for each share of Series A Preferred Stock, \$1.5872 per annum for each share of Series B Preferred Stock, and \$4.9672 per annum for each share of Series D Preferred Stock (each as adjusted for any stock splits, stock dividends, combinations, subdivisions, recapitalizations or the like).

(ii) After payment of such dividends, any additional dividends or distributions shall be distributed among all holders of Common Stock and Preferred Stock in proportion to the number of shares of Common Stock that would be held by each such holder if all shares of Preferred Stock were converted to Common Stock at the then effective conversion rate.

(b) Liquidation Preference.

(i) In the event of any Liquidation Event (as defined below), either voluntary or involuntary, the holders of (x) Series Seed Preferred Stock, Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock and Series D-1 Preferred Stock shall be entitled to receive out of the proceeds or assets of this corporation available for distribution to its stockholders (the "Proceeds"), prior and in preference to any distribution of the Proceeds of such Liquidation Event to the holders of Common Stock by reason of their ownership thereof, an amount per share equal to the sum of the applicable Original Issue Price (as defined below) for such series of Preferred Stock, plus declared but unpaid dividends on such share and (y) Series D Preferred Stock shall be entitled to receive out of the Proceeds, prior and in preference to any distribution of the Proceeds of such Liquidation Event to the holders of Common Stock by reason of their ownership thereof, an amount per share equal to (A) the sum of the applicable Original Issue Price for the Series D Preferred Stock, plus declared but unpaid dividends on such share, multiplied by (B) 1.45. If, upon the occurrence of such event, the Proceeds thus distributed among the holders of the Preferred Stock shall be insufficient to permit the payment to such holders of the full aforesaid preferential amounts, the entire Proceeds legally available for distribution shall be distributed ratably among the holders of the Series Seed Preferred Stock, Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock and Series D Preferred Stock in proportion to the full preferential amount that each such holder is otherwise entitled to receive under this subsection (b), then to the holders of the Series D-1 Preferred Stock. For purposes of this Amended and Restated Certificate of Incorporation, "Original Issue Price" shall mean \$0.030000 per share for each share of the Series Seed Preferred Stock, \$0.173077 per share for each share of Series A Preferred Stock, \$19.84 per share for each share of Series B Preferred Stock, \$48.73 per share for each share of Series C Preferred Stock, \$61.47 per share for each share of Series D Preferred Stock and \$61.47 per share for each share of Series D-1 Preferred Stock (each as adjusted for any stock splits, stock dividends, combinations, subdivisions, recapitalizations or the like with respect to such series of Preferred Stock).

(ii) Upon completion of the distribution required by subsection (b)(i) of this Article IV(B), all of the remaining Proceeds available for distribution to stockholders shall be distributed among the holders of Common Stock pro rata based on the number of shares of Common Stock held by each.

(iii) Notwithstanding the above, for purposes of determining the amount each holder of shares of Preferred Stock is entitled to receive with respect to a Liquidation Event, each such holder of shares of a series of Preferred Stock shall be deemed to have converted (regardless of whether such holder actually converted) such holder's shares of such series into shares of Common Stock immediately prior to the Liquidation Event if, as a result of an actual conversion, such holder would receive, in the aggregate, an amount greater than the amount that would be distributed to such holder if such holder did not convert such series of Preferred Stock into shares of Common Stock. If any such holder shall be deemed to have converted shares of Preferred Stock into Common Stock pursuant to this paragraph, then such holder shall not be entitled to receive any distribution that would otherwise be made to holders of Preferred Stock that have not converted (or have not been deemed to have converted) into shares of Common Stock.

(iv)

A. For purposes of subsection (b) of this Article IV(B), a "Liquidation Event" shall include (1) the closing of the sale, lease, transfer or other disposition of all or substantially all of this corporation's assets, in one transaction or a series of related transactions, other than to a subsidiary, (2) the consummation of the merger or consolidation of this corporation with or into another entity (except a merger or consolidation in which the holders of capital stock of this corporation immediately prior to such merger or consolidation continue to hold at least 50% of the voting power of the capital stock of this corporation or the surviving or acquiring entity), (3) the closing of the transfer (whether by merger, consolidation or otherwise), in one transaction or a series of related transactions, to a person or group of affiliated persons (other than an underwriter of this corporation's securities), of this corporation's securities if, after such closing, such person or group of affiliated persons would hold 50% or more of the outstanding voting stock of this corporation (or the surviving or acquiring entity) or (4) a liquidation, dissolution or winding up of this corporation; provided, however, that a transaction shall not constitute a Liquidation Event if its sole purpose is to change the state of this corporation's incorporation or to create a holding company that will be owned in substantially the same proportions by the persons who held this corporation's securities immediately prior to such transaction. Notwithstanding the prior sentence, the sale of shares of Preferred Stock in a financing transaction shall not be deemed a "Liquidation Event." The treatment of any particular transaction or series of related transactions as a Liquidation Event may be waived by the vote or written consent of the holders of a majority of the outstanding Preferred Stock (voting together as a single class and not as separate series, and on an as-converted basis).

B. In any Liquidation Event, if Proceeds received by this corporation or its stockholders is other than cash, its value will be deemed its fair market value. Any securities shall be valued as follows:

1. Securities not subject to investment letter or other similar restrictions on free marketability covered by subsection (2) below:

(i) If traded on a securities exchange, the value shall be deemed to be the average of the closing prices of the securities on such exchange over

the twenty (20) trading-day period ending three (3) trading days prior to the closing of the Liquidation Event;

(ii) If actively traded over-the-counter, the value shall be deemed to be the average of the closing bid or sale prices (whichever is applicable) over the twenty (20) trading-day period ending three (3) trading days prior to the closing of the Liquidation Event; and

(iii) If there is no active public market, the value shall be the fair market value thereof, as mutually determined by this corporation and the holders of a majority of the voting power of all then outstanding shares of Preferred Stock.

2. The method of valuation of securities subject to investment letter or other restrictions on free marketability (other than restrictions arising solely by virtue of a stockholder's status as an affiliate or former affiliate) shall be to make an appropriate discount from the market value determined as above in subsections (1)(i), (ii) or (iii) to reflect the approximate fair market value thereof, as mutually determined by this corporation and the holders of a majority of the voting power of all then outstanding shares of such Preferred Stock.

3. The foregoing methods for valuing non-cash consideration to be distributed in connection with a Liquidation Event shall, with the appropriate approval of the definitive agreements governing such Liquidation Event by the stockholders under the General Corporation Law and subsection (e) of this Article IV(B), be superseded by the determination of such value set forth in the definitive agreements governing such Liquidation Event.

C. In the event the requirements of subsection (b) of this Article IV(B) are not complied with, this corporation shall forthwith either:

1. cause the closing of such Liquidation Event to be postponed until such time as the requirements of subsection (b) of this Article IV(B) have been complied with; or

2. cancel such transaction, in which event the rights, preferences and privileges of the holders of the Preferred Stock shall revert to and be the same as such rights, preferences and privileges existing immediately prior to the date of the first notice referred to in subsection (D) hereof.

D. This corporation shall give each holder of record of Preferred Stock written notice of such impending Liquidation Event not later than twenty (20) days prior to the stockholders' meeting called to approve such transaction, or twenty (20) days prior to the closing of such transaction, whichever is earlier, and shall also notify such holders in writing of the final approval of such transaction. The first of such notices shall describe the material terms and conditions of the impending transaction and the provisions of subsection (b) of this Article IV(B), and this corporation shall thereafter give such holders prompt notice of any material changes. The transaction shall in no event take place sooner than twenty (20) days after this corporation has given the first notice provided for herein or sooner than ten (10) days after

this corporation has given notice of any material changes provided for herein; provided, however, that subject to compliance with the General Corporation Law such periods may be shortened or waived upon the written consent of the holders of Preferred Stock that represent a majority of the voting power of all then outstanding shares of such Preferred Stock (voting together as a single class and not as separate series, and on an as-converted basis).

(c) Redemption. The Preferred Stock is not redeemable at the option of the holder thereof.

(d) Conversion. The holders of the Preferred Stock shall have conversion rights as follows (the "Conversion Rights"):

(i) Right to Convert. Each share of Preferred Stock shall be convertible, at the option of the holder thereof, at any time after the date of issuance of such share, at the office of this corporation or any transfer agent for such stock, into such number of fully paid and nonassessable shares of Common Stock as is determined by dividing the applicable Original Issue Price for such series by the applicable Conversion Price for such series (the conversion rate for a series of Preferred Stock into Common Stock is referred to herein as the "Conversion Rate" for such series), determined as hereafter provided, in effect on the date the certificate is surrendered for conversion. The initial Conversion Price per share for each series of Preferred Stock shall be the Original Issue Price applicable to such series; provided, however, that the Conversion Price for the Series D Preferred Stock, Series A Preferred Stock and Series Seed Preferred Stock shall be subject to adjustment as set forth in subsection (d)(iv).

(ii) Automatic Conversion. Each share of Preferred Stock shall automatically be converted into shares of Common Stock at the Conversion Rate at the time in effect for such series of Preferred Stock immediately upon the earlier of (i) the closing of this corporation's sale of its Common Stock in a firm commitment underwritten public offering pursuant to a registration statement on Form S-1 under the Securities Act of 1933, as amended, the public offering price of which was not less than (x) \$20,000,000 in the aggregate, in the case of each share of Series Seed Preferred Stock, Series A Preferred Stock, Series B Preferred Stock, Series C Preferred Stock and Series D-1 Preferred Stock or (y) \$75,000,000 in the aggregate, in the case of each share of Series D Preferred Stock (as applicable, a "Qualified Public Offering") and (ii) the date, or the occurrence of an event, specified by vote or written consent or agreement of the holders of a majority of the then outstanding shares of Preferred Stock (voting together as a single class and not as separate series, and on an as-converted basis).

(iii) Mechanics of Conversion. Before any holder of Preferred Stock shall be entitled to voluntarily convert the same into shares of Common Stock, he or she shall surrender the certificate or certificates therefor, duly endorsed, at the office of this corporation or of any transfer agent for the Preferred Stock, and shall give written notice to this corporation at its principal corporate office, of the election to convert the same and shall state therein the name or names in which the certificate or certificates for shares of Common Stock are to be issued. This corporation shall, as soon as practicable thereafter, issue and deliver at such office to such holder of Preferred Stock, or to the nominee or nominees of such holder, a certificate or certificates for the number of shares of Common Stock to which such holder shall be entitled as aforesaid. Such conversion shall be deemed to have been made immediately prior to the close of

business on the date set forth for conversion in the written notice of the election to convert irrespective of the surrender of the shares of Preferred Stock to be converted, and the person or persons entitled to receive the shares of Common Stock issuable upon such conversion shall be treated for all purposes as the record holder or holders of such shares of Common Stock as of such date. If the conversion is in connection with an underwritten offering of securities registered pursuant to the Securities Act of 1933, as amended, the conversion may, at the option of any holder tendering Preferred Stock for conversion, be conditioned upon the closing with the underwriters of the sale of securities pursuant to such offering, in which event the persons entitled to receive the Common Stock upon conversion of the Preferred Stock shall not be deemed to have converted such Preferred Stock until immediately prior to the closing of such sale of securities. If the conversion is in connection with Automatic Conversion provisions of subsection (d)(ii) above, such conversion shall be deemed to have been made on the conversion date described in the stockholder consent approving such conversion, and the persons entitled to receive shares of Common Stock issuable upon such conversion shall be treated for all purposes as the record holders of such shares of Common Stock as of such date.

(iv) Conversion Price Adjustments of Series D Preferred Stock, Series A Preferred Stock and Series Seed Preferred Stock for Certain Dilutive Issuances, Splits and Combinations. The Conversion Price of the Series D Preferred Stock, Series A Preferred Stock and Series Seed Preferred Stock shall be subject to adjustment from time to time as follows:

A. If this corporation shall issue, on or after the date upon which this Amended and Restated Certificate of Incorporation is accepted for filing by the Secretary of State of the State of Delaware (the "Filing Date"), any Additional Stock (as defined below) without consideration or for a consideration per share less than the Conversion Price applicable to the Series D Preferred Stock, the Series A Preferred Stock or the Series Seed Preferred Stock in effect immediately prior to the issuance of such Additional Stock, the Conversion Price for such series in effect immediately prior to each such issuance shall forthwith (except as otherwise provided in this clause (i)) be adjusted to a price (calculated to the nearest one-thousandth of a cent) determined by multiplying such Conversion Price by a fraction, the numerator of which shall be the number of shares of Common Stock Outstanding (as defined below) immediately prior to such issuance plus the number of shares of Common Stock that the aggregate consideration received by this corporation for such issuance would purchase at such Conversion Price; and the denominator of which shall be the number of shares of Common Stock Outstanding (as defined below) immediately prior to such issuance plus the number of shares of such Additional Stock. For purposes of this subsection (d)(iv)(A), the term "Common Stock Outstanding" shall mean and include the following: (1) outstanding Common Stock, (2) Common Stock issuable upon conversion of outstanding Preferred Stock, (3) Common Stock issuable upon exercise of outstanding stock options and (4) Common Stock issuable upon exercise (and, in the case of warrants to purchase Preferred Stock, conversion) of outstanding warrants. Shares described in (1) through (4) above shall be included whether vested or unvested, whether contingent or non-contingent and whether exercisable or not yet exercisable. In the event that this corporation issues or sells, or is deemed to have issued or sold, shares of Additional Stock that results in an adjustment to a Conversion Price pursuant to the provisions of this subsection (d)(iv) (the "First Dilutive Issuance"), and this corporation then issues or sells, or is deemed to have issued or sold, shares of Additional Stock in a subsequent issuance other than the First Dilutive Issuance that would result in further adjustment to a Conversion Price (a

“Subsequent Dilutive Issuance”) pursuant to the same instruments as the First Dilutive Issuance, then and in each such case upon a Subsequent Dilutive Issuance the applicable Conversion Price for each such series of Preferred Stock shall be reduced to the applicable Conversion Price that would have been in effect had the First Dilutive Issuance and each Subsequent Dilutive Issuance all occurred on the closing date of the First Dilutive Issuance. No adjustment of the Conversion Price for the Series D Preferred Stock, Series A Preferred Stock or Series Seed Preferred Stock, as applicable, shall be made in an amount less than one-tenth of one cent per share. Except to the limited extent provided for in subsection (D) of this subsection (d)(iv), no adjustment of such Conversion Price pursuant to this subsection (d)(iv) shall have the effect of increasing the Conversion Price above the Conversion Price in effect immediately prior to such adjustment.

1. In the case of the issuance of Additional Stock for cash, the consideration shall be deemed to be the amount of cash paid therefor before deducting any reasonable discounts, commissions or other expenses allowed, paid or incurred by this corporation for any underwriting or otherwise in connection with the issuance and sale thereof.

2. In the case of the issuance of the Additional Stock for a consideration in whole or in part other than cash, the consideration other than cash shall be deemed to be the fair market value thereof as determined by the Board of Directors irrespective of any accounting treatment.

3. In the case of the issuance of options to purchase or rights to subscribe for Common Stock, securities by their terms convertible into or exchangeable for Common Stock or options to purchase or rights to subscribe for such convertible or exchangeable securities, the following provisions shall apply for purposes of determining the number of shares of Additional Stock issued and the consideration paid therefor:

(i) The aggregate maximum number of shares of Common Stock deliverable upon exercise (assuming the satisfaction of any conditions to exercisability, including without limitation, the passage of time, but without taking into account potential antidilution adjustments) of such options to purchase or rights to subscribe for Common Stock shall be deemed to have been issued at the time such options or rights were issued and for a consideration equal to the consideration (determined in the manner provided in subsections (d)(iv)(A)(1) and (d)(iv)(A)(2)), if any, received by this corporation upon the issuance of such options or rights plus the minimum exercise price provided in such options or rights (without taking into account potential antidilution adjustments) for the Common Stock covered thereby.

(ii) The aggregate maximum number of shares of Common Stock deliverable upon conversion of, or in exchange (assuming the satisfaction of any conditions to convertibility or exchangeability, including, without limitation, the passage of time, but without taking into account potential antidilution adjustments) for, any such convertible or exchangeable securities or upon the exercise of options to purchase or rights to subscribe for such convertible or exchangeable securities and subsequent conversion or exchange thereof shall be deemed to have been issued at the time such securities were issued or such options or rights were issued and for a consideration equal to the consideration, if any, received by this corporation for any such securities and related options or rights (excluding any cash received on

account of accrued interest or accrued dividends), plus the minimum additional consideration, if any, to be received by this corporation (without taking into account potential antidilution adjustments) upon the conversion or exchange of such securities or the exercise of any related options or rights (the consideration in each case to be determined in the manner provided in subsections (d)(iv)(A)(1) and (d)(iv)(A)(2)).

(iii) In the event of any change in the number of shares of Common Stock deliverable or in the consideration payable to this corporation upon exercise of such options or rights or upon conversion of or in exchange for such convertible or exchangeable securities, the Conversion Price of the Series D Preferred Stock, Series A Preferred Stock or Series Seed Preferred Stock, as applicable, to the extent in any way affected by or computed using such options, rights or securities, shall be recomputed to reflect such change, but no further adjustment shall be made for the actual issuance of Common Stock or any payment of such consideration upon the exercise of any such options or rights or the conversion or exchange of such securities.

(iv) Upon the expiration of any such options or rights, the termination of any such rights to convert or exchange or the expiration of any options or rights related to such convertible or exchangeable securities, the Conversion Price of the Series D Preferred Stock, Series A Preferred Stock or Series Seed Preferred Stock, as applicable, to the extent in any way affected by or computed using such options, rights or securities or options or rights related to such securities, shall be recomputed to reflect the issuance of only the number of shares of Common Stock (and convertible or exchangeable securities that remain in effect) actually issued upon the exercise of such options or rights, upon the conversion or exchange of such securities or upon the exercise of the options or rights related to such securities.

(v) The number of shares of Additional Stock deemed issued and the consideration deemed paid therefor pursuant to subsections (d)(iv)(A)(3)(i) and (d)(iv)(A)(3)(ii) shall be appropriately adjusted to reflect any change, termination or expiration of the type described in either subsection (d)(iv)(A)(3)(iii) or (d)(iv)(A)(3)(iv).

B. “Additional Stock” shall mean any shares of Common Stock issued (or deemed to have been issued pursuant to subsection (d)(iv)(A)(3)) by this corporation on or after the Filing Date other than:

1. Common Stock issued pursuant to a transaction described in subsection (d)(iv) hereof;

2. Shares of Common Stock issued to employees, directors, consultants and other service providers for the primary purpose of soliciting or retaining their services pursuant to plans or agreements approved by this corporation’s Board of Directors;

3. Common Stock issued pursuant to a Qualified Public Offering;

4. Common Stock issued pursuant to the conversion or exercise of convertible or exercisable securities outstanding on the Filing Date;

5. Common Stock issued in connection with a bona fide business acquisition by this corporation, whether by merger, consolidation, sale of assets, sale or exchange of stock or otherwise;

6. Common Stock issued to persons or entities with which this corporation has business relationships, provided such issuances are approved by the Board of Directors and are primarily for non-equity financing purposes;

7. Common Stock issued or deemed issued pursuant to subsection (d)(iv)(A)(3) as a result of a decrease in the Conversion Price of any series of Preferred Stock resulting from the operation of subsection (d)(iv);

8. Common Stock issued upon conversion of the Preferred Stock;

9. Shares of Common Stock issued pursuant to any equipment leasing arrangement or debt financing arrangement, which arrangement is approved by the Board of Directors and is primarily for non-equity financing purposes;

10. Securities issued or issuable pursuant to equipment lease financings or bank credit arrangements that are approved by the Board; or

11. Common Stock that is issued with the unanimous approval of the Board of Directors of this corporation and the Board specifically states that it shall not be Additional Stock.

C. In the event this corporation should at any time or from time to time after the Filing Date fix a record date for the effectuation of a split or subdivision of the outstanding shares of Common Stock or the determination of holders of Common Stock entitled to receive a dividend or other distribution payable in additional shares of Common Stock or other securities or rights convertible into, or entitling the holder thereof to receive directly or indirectly, additional shares of Common Stock (hereinafter referred to as "Common Stock Equivalents") without payment of any consideration by such holder for the additional shares of Common Stock or the Common Stock Equivalents (including the additional shares of Common Stock issuable upon conversion or exercise thereof), then, as of such record date (or the date of such dividend distribution, split or subdivision if no record date is fixed), the Conversion Price of the Series D Preferred Stock, Series A Preferred Stock or Series Seed Preferred Stock, as applicable, shall be appropriately decreased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be increased in proportion to such increase of the aggregate of shares of Common Stock outstanding and those issuable with respect to such Common Stock Equivalents with the number of shares issuable with respect to Common Stock Equivalents determined from time to time in the manner provided for deemed issuances in subsection (d)(iv)(A)(3).

D. If the number of shares of Common Stock outstanding at any time after the Filing Date is decreased by a combination of the outstanding shares of Common Stock, then, following the record date of such combination, the Conversion Price for the Series D Preferred Stock, Series A Preferred Stock or Series Seed Preferred Stock, as applicable, shall be appropriately increased so that the number of shares of Common Stock issuable on conversion of each share of such series shall be decreased in proportion to such decrease in outstanding shares.

(v) Other Distributions. In the event this corporation shall declare a distribution payable in securities of other persons, evidences of indebtedness issued by this corporation or other persons, assets (excluding cash dividends) or options or rights not referred to in subsection (d)(iv)(B), then, in each such case for the purpose of this subsection (d)(v), the holders of the Preferred Stock shall be entitled to a proportionate share of any such distribution as though they were the holders of the number of shares of Common Stock of this corporation into which their shares of Preferred Stock are convertible as of the record date fixed for the determination of the holders of Common Stock of this corporation entitled to receive such distribution.

(vi) Recapitalizations. If at any time or from time to time there shall be a recapitalization of the Common Stock (other than a subdivision, combination or merger or sale of assets transaction provided for elsewhere in this subsection (d) or in subsection (b)) provision shall be made so that the holders of the Preferred Stock shall thereafter be entitled to receive upon conversion of the Preferred Stock the number of shares of stock or other securities or property of this corporation or otherwise, to which a holder of Common Stock deliverable upon conversion would have been entitled on such recapitalization. In any such case, appropriate adjustment shall be made in the application of the provisions of this subsection (d) with respect to the rights of the holders of the Preferred Stock after the recapitalization to the end that the provisions of this subsection (d) (including adjustment of the Conversion Price then in effect and the number of shares purchasable upon conversion of the Series D Preferred Stock, Series A Preferred Stock and the Series Seed Preferred Stock) shall be applicable after that event as nearly equivalently as may be practicable.

(vii) No Fractional Shares and Certificate as to Adjustments.

A. No fractional shares shall be issued upon the conversion of any share or shares of the Preferred Stock and the aggregate number of shares of Common Stock to be issued to particular stockholders, shall be rounded down to the nearest whole share and this corporation shall pay in cash the fair market value of any fractional shares as of the time when entitlement to receive such fractions is determined. Whether or not fractional shares would be issuable upon such conversion shall be determined on the basis of the total number of shares of Preferred Stock the holder is at the time converting into Common Stock and the number of shares of Common Stock issuable upon such conversion.

B. Upon the occurrence of each adjustment or readjustment of the Conversion Price of the Series D Preferred Stock, Series A Preferred Stock or Series Seed Preferred Stock, as applicable, pursuant to this subsection (d), this corporation, at its expense, shall promptly compute such adjustment or readjustment in accordance with the terms hereof and

prepare and furnish to each holder of such series of Preferred Stock a certificate setting forth such adjustment or readjustment and showing in detail the facts upon which such adjustment or readjustment is based. This corporation shall, upon the written request at any time of any holder of Series D Preferred Stock, Series A Preferred Stock or Series Seed Preferred Stock, furnish or cause to be furnished to such holder a like certificate setting forth (A) such adjustment and readjustment, (B) the Conversion Price for such series of Preferred Stock at the time in effect, and (C) the number of shares of Common Stock and the amount, if any, of other property that at the time would be received upon the conversion of a share of such series of Preferred Stock.

(viii) Notices of Record Date. In the event of any taking by this corporation of a record of the holders of any class of securities for the purpose of determining the holders thereof who are entitled to receive any dividend (other than a cash dividend) or other distribution, this corporation shall mail to each holder of Preferred Stock, at least ten (10) days prior to the date specified therein, a notice specifying the date on which any such record is to be taken for the purpose of such dividend or distribution, and the amount and character of such dividend or distribution.

(ix) Reservation of Stock Issuable Upon Conversion. This corporation shall at all times reserve and keep available out of its authorized but unissued shares of Common Stock, solely for the purpose of effecting the conversion of the shares of the Preferred Stock, such number of its shares of Common Stock as shall from time to time be sufficient to effect the conversion of all outstanding shares of the Preferred Stock; and if at any time the number of authorized but unissued shares of Common Stock shall not be sufficient to effect the conversion of all then outstanding shares of the Preferred Stock, in addition to such other remedies as shall be available to the holder of such Preferred Stock, this corporation will take such corporate action as may, in the opinion of its counsel, be necessary to increase its authorized but unissued shares of Common Stock to such number of shares as shall be sufficient for such purposes, including, without limitation, engaging in best efforts to obtain the requisite stockholder approval of any necessary amendment to this Amended and Restated Certificate of Incorporation.

(x) Waiver of Adjustment to Conversion Price. Notwithstanding anything herein to the contrary, any downward adjustment of the Conversion Price of the Series D Preferred Stock, Series A Preferred Stock or Series Seed Preferred Stock may be waived, either prospectively or retroactively and either generally or in a particular instance, by the consent or vote of the holders of a majority of the outstanding shares of such series of Preferred Stock. Any such waiver shall bind all future holders of shares of such series of Preferred Stock.

(e) Voting Rights.

(i) General Voting Rights. The holder of each share of Preferred Stock shall have the right to one vote for each share of Common Stock into which such Preferred Stock could then be converted, and with respect to such vote, such holder shall have full voting rights and powers equal to the voting rights and powers of the holders of Common Stock, and shall be entitled, notwithstanding any provision hereof, to notice of any stockholders' meeting in accordance with the Bylaws of this corporation, and except as provided by law or in subsection (e)(ii) below with respect to the election of directors by the separate class vote of the holders of Common Stock, shall be entitled to vote, together with holders of Common Stock,

with respect to any question upon which holders of Common Stock have the right to vote. Fractional votes shall not, however, be permitted and any fractional voting rights available on an as-converted basis (after aggregating all shares into which shares of Preferred Stock held by each holder could be converted) shall be rounded to the nearest whole number (with one-half being rounded upward).

(ii) Voting for the Election of Directors. As long as the outstanding shares of Series A Preferred Stock represent at least five percent (5%) of the total outstanding capital stock of the Company, the holders of such shares of Series A Preferred Stock shall be entitled to elect one (1) director of this corporation at any election of directors. The holders of outstanding Common Stock shall be entitled to elect two (2) directors of this corporation at any election of directors. The holders of Common Stock and Preferred Stock, voting together as a single class, shall be entitled to elect any remaining directors of this corporation.

Notwithstanding the provisions of Section 223(a)(1) and 223(a)(2) of the General Corporation Law, any vacancy, including newly created directorships resulting from any increase in the authorized number of directors or amendment of this Amended and Restated Certificate of Incorporation, and vacancies created by removal or resignation of a director, may be filled by a majority of the directors then in office, though less than a quorum, or by a sole remaining director, and the directors so chosen shall hold office until the next annual election and until their successors are duly elected and shall qualify, unless sooner displaced; provided, however, that where such vacancy occurs among the directors elected by the holders of a class or series of stock, the holders of shares of such class or series may override the Board's action to fill such vacancy by (i) voting for their own designee to fill such vacancy at a meeting of this corporation's stockholders or (ii) written consent, if the consenting stockholders hold a sufficient number of shares to elect their designee at a meeting of the stockholders. Any director may be removed during his or her term of office, either with or without cause, by, and only by, the affirmative vote of the holders of the shares of the class or series of stock entitled to elect such director or directors, given either at a special meeting of such stockholders duly called for that purpose or pursuant to a written consent of stockholders, and any vacancy thereby created may be filled by the holders of that class or series of stock represented at the meeting or pursuant to written consent.

(f) Protective Provisions. So long as a majority of the Series D-1 Preferred Stock, Series D Preferred Stock, Series C Preferred Stock, Series A Preferred Stock and Series Seed Preferred Stock originally issued remain outstanding, this corporation shall not (by amendment, merger, consolidation or otherwise) without (in addition to any other vote required by law or this Amended and Restated Certificate of Incorporation) first obtaining the approval (by vote or written consent, as provided by law), of the holders of a majority of the then outstanding shares of Series D-1 Preferred Stock, Series D Preferred Stock, Series C Preferred Stock, Series A Preferred Stock and Series Seed Preferred Stock (voting together as a single class and not as separate series, on an as-converted basis):

(i) amend, alter or repeal any material provision of this Amended and Restated Certificate of Incorporation or this corporation's Bylaws;

(ii) increase or decrease (other than by redemption or conversion) the total number of authorized shares of Common Stock or Preferred Stock or designated shares of any series of Preferred Stock;

(iii) authorize or issue any equity security (including any other security convertible into or exercisable for any such equity security) having a preference over, or being on a parity with, any series of Preferred Stock with respect to dividends, liquidation or redemption, other than the issuance of any authorized but unissued shares of Series D Preferred Stock or Series D-1 Preferred Stock designated in this Amended and Restated Certificate of Incorporation (including any security convertible into or exercisable for such shares of Preferred Stock);

(iv) redeem, purchase or otherwise acquire (or pay into or set aside for a sinking fund for such purpose) any share or shares of Preferred Stock or Common Stock; provided, however, that this restriction shall not apply to (i) the repurchase of shares of Common Stock from employees, officers, directors, consultants or other persons performing services for this corporation or any subsidiary pursuant to agreements under which this corporation has the option to repurchase such shares upon the occurrence of certain events, such as the termination of employment or service, or pursuant to a right of first refusal or (ii) the repurchase of shares of Series D Preferred Stock; or

(v) pay or declare any dividend on any shares of capital stock of this corporation.

(g) Status of Converted Stock. In the event any shares of Preferred Stock shall be converted pursuant to subsection (d) hereof, the shares so converted shall be cancelled and shall not be issuable by this corporation, and this corporation may thereafter take such appropriate action (without the need for stockholder action) as may be necessary to effect the corresponding reduction in this corporation's authorized capital stock.

(h) Notices. Any notice required by the provisions of this Article IV(B) to be given to the holders of shares of Preferred Stock shall be deemed given (i) if deposited in the United States mail, postage prepaid, and addressed to each holder of record at his, her or its address appearing on the books of this corporation, (ii) if such notice is provided by electronic transmission in a manner permitted by Section 232 of the General Corporation Law, or (iii) if such notice is provided in another manner then permitted by the General Corporation Law.

C. Common Stock. The rights, preferences, privileges and restrictions granted to and imposed on the Common Stock are as set forth below in this Article IV(C).

(a) Dividend Rights. Subject to the prior rights of holders of all classes of stock at the time outstanding having prior rights as to dividends, the holders of the Common Stock shall be entitled to receive, when, as and if declared by the Board of Directors, out of any assets of this corporation legally available therefor, any dividends as may be declared from time to time by the Board of Directors.

(b) Liquidation Rights. Upon the liquidation, dissolution or winding up of this corporation, the assets of this corporation shall be distributed as provided in subsection (b) of Article IV(B) hereof.

(c) Redemption. The Common Stock is not redeemable at the option of the holder.

(d) Voting Rights. The holder of each share of Common Stock shall have the right to one vote for each such share, and shall be entitled to notice of any stockholders' meeting in accordance with the Bylaws of this corporation, and shall be entitled to vote upon such matters and in such manner as may be provided by law; provided, however, that, except as otherwise required by law, holders of Common Stock, as such, shall not be entitled to vote on any amendment to the Certificate of Incorporation that relates solely to the terms of one or more outstanding series of Preferred Stock if the holders of such affected series are entitled, either separately or together with the holders of one or more other such series, to vote thereon pursuant to the Certificate of Incorporation or pursuant to the General Corporation Law. The number of authorized shares of Common Stock may be increased or decreased (but not below the number of shares thereof then outstanding) by the affirmative vote of the holders of a majority of the stock of this corporation entitled to vote, irrespective of the provisions of Section 242(b)(2) of the General Corporation Law.

ARTICLE V

Except as otherwise provided in this Amended and Restated Certificate of Incorporation, in furtherance and not in limitation of the powers conferred by statute, the Board of Directors is expressly authorized to make, repeal, alter, amend and rescind any or all of the Bylaws of this corporation.

ARTICLE VI

The number of directors of this corporation shall be determined in the manner set forth in the Bylaws of this corporation.

ARTICLE VII

Elections of directors need not be by written ballot unless the Bylaws of this corporation shall so provide.

ARTICLE VIII

Meetings of stockholders may be held within or without the State of Delaware, as the Bylaws of this corporation may provide. The books of this corporation may be kept (subject to any provision contained in the statutes) outside the State of Delaware at such place or places as may be designated from time to time by the Board of Directors or in the Bylaws of this corporation.

ARTICLE IX

A director or officer of this corporation shall not be personally liable to this corporation or its stockholders for monetary damages for breach of fiduciary duty by such director or officer, except for liability (i) for any breach of such director or officer's duty of loyalty to this corporation or its stockholders, (ii) for acts or omissions not in good faith or that

involve intentional misconduct or a knowing violation of law, (iii) under Section 174 of the General Corporation Law, or (iv) for any transaction from which such director or officer derived any improper personal benefit. If the General Corporation Law is amended after approval by the stockholders of this Article IX to authorize corporate action further eliminating or limiting the personal liability of directors or officers, then the liability of a director or officer of this corporation shall be eliminated or limited to the fullest extent permitted by the General Corporation Law, as so amended.

Any amendment, repeal or modification of the foregoing provisions of this Article IX by the stockholders of this corporation shall not adversely affect any right or protection of a director or officer of this corporation existing at the time of, or increase the liability of any director or officer of this corporation with respect to any acts or omissions of such director or officer occurring prior to, such amendment, repeal or modification.

ARTICLE X

This corporation reserves the right to amend, alter, change or repeal any provision contained in this Amended and Restated Certificate of Incorporation, in the manner now or hereafter prescribed by statute, and all rights conferred upon stockholders herein are granted subject to this reservation.

ARTICLE XI

To the fullest extent permitted by applicable law, this corporation is authorized to provide indemnification of (and advancement of expenses to) directors, officers, employees and agents of this corporation (and any other persons to which General Corporation Law permits this corporation to provide indemnification) through Bylaw provisions, agreements with such persons, vote of stockholders or disinterested directors or otherwise, in excess of the indemnification and advancement otherwise permitted by Section 145 of the General Corporation Law, subject only to limits created by applicable General Corporation Law (statutory or non-statutory), with respect to actions for breach of duty to this corporation, its stockholders, and others.

Any amendment, repeal or modification of the foregoing provisions of this Article XI shall not adversely affect any right or protection of a director, officer, employee, agent or other person existing at the time of, or increase the liability of any such person with respect to any acts or omissions of such person occurring prior to, such amendment, repeal or modification.

ARTICLE XII

In connection with repurchases by this corporation of its Common Stock from employees, officers, directors, advisors, consultants or other persons performing services for this corporation or any subsidiary pursuant to agreements under which this corporation has the option to repurchase such shares at cost upon the occurrence of certain events, such as the termination of employment, Section 500 of the California Corporations Code shall not apply in all or in part with respect to such repurchases. In the case of any such repurchases, distributions by the corporation may be made without regard to the "preferential dividends arrears amount" or any

“preferential rights amount,” as such terms are defined in Section 500(b) of the California Corporations Code.

* * *

SEVENTH: The foregoing amendment and restatement was approved by the holders of the requisite number of shares of said corporation in accordance with Section 228 of the General Corporation Law.

EIGHTH: That said Amended and Restated Certificate of Incorporation, which restates and integrates and further amends the provisions of this corporation’s Restated Certificate of Incorporation, has been duly adopted in accordance with Sections 242 and 245 of the General Corporation Law.

IN WITNESS WHEREOF, this Amended and Restated Certificate of Incorporation has been executed by a duly authorized officer of this corporation on this 21st day of November, 2025.

Signed by:


4A1DC7DD9A6F430...

Arjun Sethi
Co-Chief Executive Officer

Exhibit C-3(b)

BYLAWS

OF

PAYWARD, INC.

TABLE OF CONTENTS

	<u>Page</u>
ARTICLE I CORPORATE OFFICES	1
1.1 Registered Office.	1
1.2 Other Offices.....	1
ARTICLE II MEETINGS OF STOCKHOLDERS	1
2.1 Place Of Meetings.....	1
2.2 Annual Meetings.	1
2.3 Special Meetings.....	2
2.4 Notice Of Stockholders’ Meetings.....	2
2.5 Manner Of Giving Notice; Affidavit Of Notice.	2
2.6 Advance Notice of Stockholder Nominees and Other Stockholder Proposals.	3
2.7 Quorum.	4
2.8 Adjourned Meeting; Notice.	4
2.9 Organization; Conduct of Business.	4
2.10 Voting.	4
2.11 Waiver Of Notice.....	5
2.12 Stockholder Action By Written Consent Without A Meeting.	5
2.13 Record Date For Stockholder Notice; Voting; Giving Consents.....	6
2.14 Proxies.....	7
2.15 Inspectors Of Election.....	7
ARTICLE III DIRECTORS.....	8
3.1 Powers.....	8
3.2 Number Of Directors.	8
3.3 Election And Term Of Office Of Directors.	8
3.4 Resignation And Vacancies.	8
3.5 Place Of Meetings; Meetings By Telephone.	10
3.6 Regular Meetings.....	10
3.7 Special Meetings; Notice.	10
3.8 Quorum.	11
3.9 Waiver Of Notice.....	11
3.10 Board Action By Written Consent Without A Meeting.....	11
3.11 Fees And Compensation Of Directors.	11
3.12 Approval Of Loans To Officers.....	12
3.13 Removal Of Directors.	12
3.14 Chairman Of The Board Of Directors.	12
ARTICLE IV COMMITTEES	13
4.1 Committees Of Directors.	13
4.2 Committee Minutes.....	13
4.3 Meetings And Action Of Committees.	13

TABLE OF CONTENTS **(continued)**

	<u>Page</u>
ARTICLE V OFFICERS	14
5.1 Officers.	14
5.2 Appointment Of Officers.	14
5.3 Subordinate Officers.	14
5.4 Removal And Resignation Of Officers.	14
5.5 Vacancies In Offices.	15
5.6 Chief Executive Officer.	15
5.7 President.	15
5.8 Vice Presidents.	15
5.9 Secretary.	15
5.10 Chief Financial Officer.	16
5.11 Representation Of Shares Of Other Corporations.	16
5.12 Authority And Duties Of Officers.	16
ARTICLE VI INDEMNIFICATION OF DIRECTORS, OFFICERS, EMPLOYEES, AND OTHER AGENTS	17
6.1 Indemnification Of Directors And Officers.	17
6.2 Indemnification Of Others.	17
6.3 Payment Of Expenses In Advance.	18
6.4 Indemnity Not Exclusive.	18
6.5 Insurance.	18
ARTICLE VII RECORDS AND REPORTS	19
7.1 Maintenance And Inspection Of Records.	19
7.2 Inspection By Directors.	19
7.3 Annual Report To Stockholders; Waiver.	19
ARTICLE VIII GENERAL MATTERS.....	20
8.1 Checks.	20
8.2 Execution Of Corporate Contracts And Instruments.	20
8.3 Stock Certificates.	20
8.4 Special Designation On Certificates.	21
8.5 Lost Certificates.	21
8.6 Construction; Definitions.	21
8.7 Fiscal Year.	22
8.8 Seal.	22
8.9 Registered Stockholders.	22
8.10 Facsimile Signature.	22
8.11 Transfers of Stock.	22

TABLE OF CONTENTS
(continued)

	<u>Page</u>
ARTICLE IX AMENDMENTS.....	22

BYLAWS
OF
PAYWARD, INC.

ARTICLE I
CORPORATE OFFICES

1.1 Registered Office.

The registered office of the corporation shall be in the City of Lewes, County of Sussex, State of Delaware. The name of the registered agent of the corporation at such location is Harvard Business Services, Inc.¹

1.2 Other Offices.

The Board of Directors may at any time establish other offices at any place or places where the corporation is qualified to do business.

ARTICLE II
MEETINGS OF STOCKHOLDERS

2.1 Place Of Meetings.

Meetings of stockholders shall be held at any place within or outside Delaware designated by the Board of Directors. The Board of Directors may, in its sole discretion, determine that the meeting may be held solely by means of remote communication, as permitted by Section 211 of the Delaware General Corporation Law (“DGCL”).² In the absence of any such designation, stockholders’ meetings shall be held at the principal executive office of the corporation.

2.2 Annual Meetings.

The annual meeting of stockholders shall be held on such date, time and place, either within or outside Delaware, as may be designated by resolution of the Board of Directors each year. At such meetings, directors shall be elected and any other proper business may be transacted.³

¹ Delaware General Corporation Law (DGCL) § 132(a).

² DGCL § 211(a). Although Delaware law provides that the company must hold a shareholder meeting at least once every 13 months, many early-stage startup companies forego such meetings, and therefore prefer not to state a meeting deadline in the Bylaws to avoid a violation of the Bylaws if the date is missed.

³Under DGCL § 211(b), the manner for fixing the date of the Annual Meeting must be set forth in the Bylaws.

2.3 **Special Meetings.**

A special meeting of the stockholders, other than such special meetings as may be required by statute, may be called at any time by the Board of Directors acting pursuant to a resolution adopted by a majority of the Board of Directors, the Chairman of the Board of Directors or the President. The Board of Directors may postpone or reschedule any previously-scheduled special meeting.⁴

2.4 **Notice Of Stockholders' Meetings.**

All notices of meetings with stockholders shall be in writing and shall be sent or otherwise given in accordance with Section 2.5 of these Bylaws not less than 10 nor more than 60 days before the date of the meeting to each stockholder entitled to vote at such meeting. The notice shall specify the place (if any), date and hour of the meeting, and the means of remote communication, if any, by which stockholders and proxyholders may be deemed to be present and vote at such meeting, and in the case of a special meeting, the purpose or purposes for which the meeting is called.⁵

2.5 **Manner Of Giving Notice; Affidavit Of Notice.**

Written notice of any meeting of stockholders, if mailed, is given when deposited in the United States mail, postage prepaid, directed to the stockholder at his address as it appears on the records of the corporation. Without limiting the manner by which notice otherwise may be given effectively to stockholders, any notice to stockholders may be given by electronic mail or other electronic transmission, in the manner provided in Section 232 of the DGCL. An affidavit of the secretary or an assistant secretary or of the transfer agent of the corporation that the notice has been given shall, in the absence of fraud, be prima facie evidence of the facts stated therein.

2.6 **Advance Notice of Stockholder Nominees and Other Stockholder Proposals.**

(a) Nominations of persons for election to the Board of Directors may be made at a meeting of stockholders by or at the direction of the Board of Directors or by any stockholder entitled to vote for the election of directors at the meeting who complies with the notice procedures set forth in this Section 2.6. Stockholder nominations shall be made pursuant to timely notice in writing to the secretary of the corporation. Other business may be brought forward in an annual meeting of stockholders, by or at the direction of the Board of Directors or by any stockholder entitled to vote at such annual meeting, provided that such stockholder has provided timely notice to the secretary of the corporation in accordance with this section, and provided further that such business is a proper matter for stockholder action under the DGCL.

(b) To be timely, a stockholder's notice shall be delivered to or mailed and received at the principal executive offices of the corporation not less than 90 days nor more than 120 days before the anniversary date of the prior year's meeting; provided, however, that (i) if

⁴Under DGCL § 211(d), the Bylaws must set forth who has the authority to call a special meeting. The company is permitted, but not required, to allow stockholders or designated officers to call a special meeting.

⁵ DGCL § 222 (a), (b).

the meeting is an annual meeting and the date of the annual meeting is more than 30 days before or after such anniversary date, (ii) if the meeting is the first annual meeting of the Corporation or (iii) if the meeting is a special meeting, then notice by the stockholder to be timely must be so received not later than the close of business on the later of the 90th day prior to the meeting or the 10th day following the day on which a public announcement of the meeting was made. For purposes of this Section 2.6, "public announcement" shall mean disclosure in a press release reported by the Dow Jones News Service, Associated Press or a comparable national news service.

(c) Such stockholder's notice shall set forth (i) as to each person whom the stockholder proposes to nominate for election or re-election as a director, the name, age, business address and residence address of such person; the principal occupation or employment of such person and the class and number of shares of the corporation which are beneficially owned by such person; (ii) as to any other business that the stockholder proposes to bring forward in the meeting, a brief description of such business, the reasons for conducting such business at the meeting and any material interest in such business of such stockholder and the beneficial owner, if any, on whose behalf the proposal is made; and (iii) as to the stockholder giving the notice and the beneficial owner, if any, on whose behalf the proposal is made, the name and address of such stockholder and of such beneficial owner and the class and number of shares of the corporation which are owned of record by such stockholder and beneficially by such beneficial owner.

(d) Only persons who are nominated in accordance with the procedures set forth in this Section 2.6 shall be eligible for election as directors. The chairman of the meeting shall, if the facts warrant, determine and declare to the meeting that a nomination was not made in accordance with the procedures prescribed by the Bylaws, and if he or she should so determine, he or she shall so declare to the meeting and the defective nomination shall be disregarded.

2.7 **Quorum.**

The holders of a majority of the shares of stock issued and outstanding and entitled to vote thereat, present in person or represented by proxy, shall constitute a quorum at all meetings of the stockholders for the transaction of business.⁶

2.8 **Adjourned Meeting; Notice.**

The chairman of the meeting shall have the power to adjourn the meeting to another place (if any), date or time. When a meeting is adjourned to another place (if any), date or time, unless these Bylaws otherwise require, written notice need not be given of the adjourned meeting if the time and place (if any) thereof and the means of remote communication, if any, by which stockholders and proxyholders may be deemed to be present and vote at such adjourned meeting, are announced at the meeting at which the adjournment is taken. At the adjourned meeting the corporation may transact any business that might have been transacted at the original meeting. If the adjournment is for more than 30 days, or if after the adjournment a new record date is fixed for the adjourned meeting, notice of the place (if any), date and time of the

⁶ DGCL § 216.

adjourned meeting and the means of remote communication, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at such adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting.⁷

2.9 **Organization; Conduct of Business.**

(a) The chief executive officer of the company or, if no such officer has been appointed or in his or her absence, the president of the corporation or, in his or her absence, the chairman of the Board of Directors, shall call to order any meeting of the stockholders and act as chairman of the meeting. In the absence of the secretary of the corporation, the secretary of the meeting shall be such person as the chairman of the meeting appoints.

(b) The chairman of any meeting of stockholders shall determine the order of business and the procedure at the meeting, including the manner of voting and the conduct of business. The date and time of opening and closing of the polls for each matter upon which the stockholders will vote at the meeting shall be announced at the meeting.

2.10 **Voting.**

All elections of directors shall be determined by a plurality of the votes cast, and except as otherwise required by law, all other matters shall be determined by a majority of the votes cast affirmatively or negatively.⁸ Notwithstanding the previous sentence, as long as the corporation is subject to Section 2115 of the California Corporations Code, then at every election of directors, stockholders may cumulate votes and give one candidate a number of votes equal to the number of directors to be elected multiplied by the number of votes to which the shares are entitled, or distribute voted according to the same principle among as many candidates as desired. No stockholder shall be entitled to cumulate votes for any candidate unless such candidate's name has been placed in nomination prior to the voting and at least one stockholder has given notice at the meeting prior to the voting of such stockholder's intention to cumulate votes.⁹

Unless otherwise provided in the certificate of incorporation, all voting on the election of directors shall be by written ballot. Voting on other matters may be by voice vote, except if otherwise required by law or by the certificate of incorporation; provided, however, that a vote by written ballot shall be taken if the chairman of the meeting so elects or if so demanded by a stockholder.

The requirement, if any, of a written ballot may be satisfied by a ballot submitted by electronic transmission, provided that any such electronic transmission must either set forth or be submitted with information from which it can be determined that the electronic transmission was authorized by the stockholder or proxyholder.¹⁰

⁷ DGCL § 222(e).

⁸ DGCL § 212(a).

⁹ California Corporations Code §§ 708(a), (b) and (c) and 2115.

¹⁰ Under DGCL § 211(e), all voting for the election of directors must be by written ballot unless otherwise provided in the certificate of incorporation. If the company wants to permit electronic transmission of written ballots, this

2.11 **Waiver Of Notice.**

Whenever notice is required to be given under any provision of the DGCL or of the certificate of incorporation or these Bylaws, a written waiver thereof, signed by the person entitled to notice, or waiver by electronic mail or other electronic transmission by such person, whether before or after the time stated therein, shall be deemed equivalent to notice. Attendance of a person at a meeting shall constitute a waiver of notice of such meeting, except when the person attends a meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Neither the business to be transacted at, nor the purpose of, any regular or special meeting of the stockholders need be specified in any written waiver of notice, or any waiver of notice by electronic transmission, unless so required by the certificate of incorporation or these Bylaws.¹¹

2.12 **Stockholder Action By Written Consent Without A Meeting.**

Unless otherwise provided in the certificate of incorporation, any action required to be taken at any annual or special meeting of stockholders of the corporation, or any action that may be taken at any annual or special meeting of such stockholders, may be taken without a meeting, without prior notice, and without a vote if a consent in writing, setting forth the action so taken, is (i) signed by the holders of outstanding stock having not less than the minimum number of votes that would be necessary to authorize or take such action at a meeting at which all shares entitled to vote thereon were present and voted, and (ii) delivered to the corporation in accordance with Section 228(a) of the DGCL.¹²

Every written consent shall bear the date of signature of each stockholder who signs the consent and no written consent shall be effective to take the corporate action referred to therein unless, within 60 days after the date the earliest dated consent is delivered to the corporation, a written consent or consents signed by a sufficient number of holders to take action are delivered to the corporation in the manner prescribed in this Section 2.12.¹³ A telegram, cablegram, electronic mail or other electronic transmission consenting to an action to be taken and transmitted by a stockholder or proxyholder, or by a person or persons authorized to act for a stockholder or proxyholder, shall be deemed to be written, signed and dated for purposes of this Section to the extent permitted by law. Any such consent shall be delivered in accordance with Section 228(d)(1) of the DGCL.¹⁴

Any copy, facsimile or other reliable reproduction of a consent in writing may be substituted or used in lieu of the original writing for any and all purposes for which the original writing could be used, provided that such copy, facsimile or other reproduction shall be a complete reproduction of the entire original writing.¹⁵

(..continued)

form of communication should be specifically authorized by resolution of the Board of Directors as well as in these Bylaws.

¹¹ DGCL § 229.

¹² DGCL § 228(a).

¹³ DGCL § 228(a).

¹⁴ DGCL § 228(d)(1).

¹⁵ DGCL § 228(d)(2).

Prompt notice of the taking of the corporate action without a meeting by less than unanimous written consent shall be given to those stockholders who have not consented in writing (including by electronic mail or other electronic transmission as permitted by law). If the action which is consented to is such as would have required the filing of a certificate under any section of the DGCL if such action had been voted on by stockholders at a meeting thereof, then the certificate filed under such section shall state, in lieu of any statement required by such section concerning any vote of stockholders, that written notice and written consent have been given as provided in Section 228 of the DGCL.¹⁶

2.13 Record Date For Stockholder Notice; Voting; Giving Consents.

In order that the corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, or entitled to express consent to corporate action in writing without a meeting, or entitled to receive payment of any dividend or other distribution or allotment of any rights, or entitled to exercise any rights in respect of any change, conversion or exchange of stock or for the purpose of any other lawful action, the Board of Directors may fix a record date, which record date may not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which (i) with respect to a stockholder meeting, shall not be not less than 10 nor more than 60 days before the date of such meeting, (ii) with respect to a consent to corporate action without a meeting, shall not be more than 10 days after the date upon which the resolution fixing the record date is adopted by the Board of Directors or (iii) with respect to any other action, shall not be more than 60 days before such other action.

If the Board of Directors does not so fix a record date:

(a) The record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day next preceding the day on which notice is given, or, if notice is waived, at the close of business on the day next preceding the day on which the meeting is held.

(b) The record date for determining stockholders entitled to consent to corporate action in writing without a meeting (i) when no prior action by the Board of Directors is necessary, shall be the day on which the first written consent (including consent by electronic mail or other electronic transmission as permitted by law) is delivered to the corporation by a stockholder of record as of the close of business on the prior business day and (ii) when prior action by the Board of Directors is required, shall be the close of business on the day the Board of Directors adopts the resolution taking such prior action.

(c) The record date for determining stockholders for any other purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating thereto.¹⁷

A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting, if such adjournment is

¹⁶ DGCL § 228(e).

¹⁷ DGCL § 213.

for 30 days or less; provided, however, that the Board of Directors may fix a new record date for the adjourned meeting.

2.14 Proxies.

Each stockholder entitled to vote at a meeting of stockholders or to express consent or dissent to corporate action in writing without a meeting may authorize another person or persons to act for such stockholder by proxy, but no such proxy shall be voted or acted upon after three years from its date, unless the proxy provides for a longer period. Such proxy must be authorized in writing or by a transmission authorized by law filed in accordance with the procedure established for the meeting. Any copy, facsimile telecommunication or other reliable reproduction of the writing or transmission created pursuant to this Section 2.14 may be substituted or used in lieu of the original writing or transmission for any and all purposes for which the original writing of transmission could be used, provided that such copy, facsimile telecommunication or other reproduction shall be a complete reproduction of the entire original writing or transmission.¹⁸ The revocability of a proxy that states on its face that it is irrevocable shall be governed by the provisions of Section 212(e) of the DGCL.

2.15 Inspectors Of Election.

Before any meeting of stockholders, the corporation may, and to the extent required by law shall, appoint one or more inspectors of election to act at the meeting or and make a written report thereof. The corporation may designate one or more alternate inspectors to replace any inspectors who fail to act. If no inspector or alternate is able to act at a meeting of stockholders, the person presiding at the meeting may, and to the extent required by law shall, appoint one or more inspectors to act at the meeting. Each inspector, before entering upon the discharge of his or her duties, shall take and sign an oath faithfully to execute the duties of inspector with strict impartiality and according to the best of his or her ability. Every vote taken by ballots shall be counted by a duly appointed inspector or inspectors.¹⁹

ARTICLE III

DIRECTORS

3.1 Powers.

Subject to the provisions of the DGCL and any limitations in the certificate of incorporation or these Bylaws relating to action required to be approved by the stockholders or by the outstanding shares, the business and affairs of the corporation shall be managed and all corporate powers shall be exercised by or under the direction of the Board of Directors.²⁰

3.2 Number Of Directors.

¹⁸ DGCL § 212(b), (c).

¹⁹ DGCL § 231.

²⁰ DGCL § 141(a).

Upon the adoption of these bylaws, the number of directors constituting the entire Board of Directors shall be two (2). Thereafter, this number may be changed by a resolution of the Board of Directors or of the stockholders, subject to Section 3.4 of these Bylaws.²¹

No decrease to the number of directors constituting the Board of Directors shall shorten the term of any incumbent director.²²

3.3 Election And Term Of Office Of Directors.

Except as provided in Section 3.4 of these Bylaws, and unless otherwise provided in the certificate of incorporation, directors shall be elected at each annual meeting of stockholders to hold office until the next annual meeting. Directors need not be stockholders. Each director, including a director elected to fill a vacancy, shall hold office until his or her successor is elected or until his or her earlier resignation or removal.²³

3.4 Resignation And Vacancies.

Any director may resign at any time upon written notice to the attention of the Secretary of the corporation or, if there is no Secretary in office, then to the attention of any other corporate officer or to the Board of Directors as a whole. When one or more directors so resigns and the resignation is effective at a future date, a majority of the directors then in office, including those who have so resigned, shall have power to fill such vacancy or vacancies, the vote thereon to take effect when such resignation or resignations shall become effective, and each director so chosen shall hold office as provided in this section in the filling of other vacancies.

Unless otherwise provided in the certificate of incorporation:

(a) Vacancies and newly created directorships resulting from any increase in the authorized number of directors elected by all of the stockholders together may be filled by a majority of the directors then in office, although less than a quorum, or by a sole remaining director.

(b) Whenever the holders of any class or classes of stock or series thereof are entitled to elect one or more directors by the provisions of the certificate of incorporation, vacancies and newly created directorships of such class or classes or series may be filled by a majority of the directors elected by such class or classes or series thereof then in office, or by a sole remaining director so elected.

(c) If any vacancy or newly created directorship has not been filled by director action as provided above, it may be filled by vote of the shareholders entitled to vote on such director, at an annual or special meeting of stockholders or by written consent of a majority

²¹ Under DGCL § 141(b), the number of directors, or the manner of fixing the number of directors, must be set forth in the Bylaws.

²² See also California Corporations Code §§ 303(c), 2115.

²³ DGCL § 141(b).

of the stockholders so entitled to vote, subject to the other requirements set forth for stockholder voting at a meeting or by written consent set forth elsewhere in these Bylaws.

(d) If at any time, by reason of death or resignation or other cause, the corporation should have no directors in office, then any officer or any stockholder or an executor, administrator, trustee or guardian of a stockholder, or other fiduciary entrusted with like responsibility for the person or estate of a stockholder, may call a special meeting of stockholders in accordance with the provisions of the certificate of incorporation or these Bylaws, or may apply to the Court of Chancery for a decree summarily ordering an election as provided in Section 211 of the DGCL.²⁴

(e) If, at the time of filling any vacancy or any newly created directorship, the directors then in office constitute less than a majority of the whole board (as constituted immediately before any such increase), then the Court of Chancery may, upon application of any stockholder or stockholders holding at least 10% of the total number of the shares at the time outstanding having the right to vote for such directors, summarily order an election to be held to fill any such vacancies or newly created directorships, or to replace the directors chosen by the directors then in office as aforesaid, which election shall be governed by the provisions of Section 211 of the DGCL as far as applicable.²⁵ Notwithstanding the previous sentence, as long as the corporation is subject to Section 2115 of the California Corporations Code, then any holder or holders of an aggregate of 5% or more of the total number of shares at the time outstanding having the right to vote for such directors may call a special meeting of the stockholders or petition the court to order such a special meeting.²⁶

3.5 **Place Of Meetings; Meetings By Telephone.**

The Board of Directors of the corporation may hold meetings, both regular and special, either within or outside Delaware.²⁷

Unless otherwise restricted by the certificate of incorporation or these Bylaws, members of the Board of Directors, or any committee designated by the Board of Directors, may participate in a meeting of the Board of Directors, or any committee, by means of conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other, and such participation in a meeting shall constitute presence in person at the meeting.²⁸

3.6 **Regular Meetings.**

Regular meetings of the Board of Directors may be held without notice at such time and at such place as shall from time to time be determined by the Board. A regular meeting

²⁴ DGCL §§ 211, 223(a).

²⁵ DGCL §§ 211, 223(c).

²⁶ California Corporations Code §§ 305(c), 2115.

²⁷ DGCL § 141(g).

²⁸ DGCL § 141(i). Note that directors, unlike stockholders, may not “attend” a meeting electronically.

of the Board of Directors shall be held immediately after the conclusion of each annual meeting of stockholders.²⁹

3.7 **Special Meetings; Notice.**

Special meetings of the Board of Directors for any purpose or purposes may be called at any time by the chairman of the board, the chief executive officer, the president, the secretary or any two directors.

Notice of the time and place of special meetings shall be delivered personally or by telephone to each director or sent by first-class mail, charges prepaid, or by facsimile or electronic mail, addressed to each director at that director's address as it is shown on the records of the corporation. If the notice is mailed, it shall be deposited in the United States mail at least four days before the time of the holding of the meeting. If the notice is delivered personally or by facsimile, electronic mail, or telephone, it shall be delivered at least 24 hours before the time of the holding of the meeting. The notice need not specify the purpose of the meeting. The notice need not specify the place of the meeting, if the meeting is to be held at the principal executive office of the corporation. Unless otherwise indicated in the notice thereof, any and all business may be transacted at a special meeting.³⁰

3.8 **Quorum.**

At all meetings of the Board of Directors, a majority of the total number of directors (including vacant seats) shall constitute a quorum for the transaction of business and the act of a majority of the directors present at any meeting at which there is a quorum shall be the act of the Board of Directors, except as may be otherwise specifically provided by statute or by the certificate of incorporation.³¹ If a quorum is not present at any meeting of the Board of Directors, then the directors present thereat may adjourn the meeting from time to time, without notice other than announcement at the meeting, until a quorum is present.

A meeting at which a quorum is once present may continue to transact business notwithstanding the withdrawal of directors, if any action taken is approved by at least a majority of the required quorum for that meeting.

3.9 **Waiver Of Notice.**

Whenever notice of a Board of Directors meeting is required to be given under any provision of the DGCL or of the certificate of incorporation or these Bylaws, a written waiver thereof, signed by the person entitled to notice, or waiver by electronic mail or other electronic transmission by such person, whether before or after the time stated therein, shall be deemed equivalent to notice. Attendance of a person at a meeting shall constitute a waiver of notice of such meeting, except when the person attends a meeting for the express purpose of

²⁹ Although holding a meeting after the annual meeting of stockholders is no longer common for public companies, whose Board meetings are typically set by the company's public reporting requirements, it is still a recommended best practice for private companies.

³⁰ Delaware law has no specific requirements for who may convene special meetings of directors, or what the notice requirements for meetings of directors should be.

³¹ DGCL § 141(b).

objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Neither the business to be transacted at, nor the purpose of, any regular or special meeting of the directors, or members of a committee of directors, need be specified in any written waiver of notice or any waiver by electronic transmission, unless so required by the certificate of incorporation.

3.10 Board Action By Written Consent Without A Meeting.

Unless otherwise restricted by the certificate of incorporation, any action required or permitted to be taken at any meeting of the Board of Directors, or of any committee thereof, may be taken without a meeting if all members of the board or committee, as the case may be, consent thereto in writing or by electronic transmission, and the writing or writings or electronic transmission or transmissions are filed with the minutes of proceedings of the board or committee. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form.³²

3.11 Fees And Compensation Of Directors.

Unless otherwise restricted by the certificate of incorporation, the Board of Directors shall have the authority to fix the compensation of directors including, without limitation, compensation for serving on Board committees. No such compensation shall preclude any director from serving the corporation in any other capacity and receiving compensation therefor.³³

3.12 Approval Of Loans To Officers.

Subject to applicable law, including Section 13(k) of the Securities Exchange Act of 1934, the corporation may lend money to, or guarantee any obligation of, or otherwise assist any officer or other employee of the corporation or of its subsidiary, including any officer or employee who is a director of the corporation or its subsidiary, whenever, in the judgment of the directors, such loan, guaranty or assistance may reasonably be expected to benefit the corporation. The loan, guaranty or other assistance may be with or without interest and may be unsecured, or secured in such manner as the Board of Directors shall approve, including, without limitation, a pledge of shares of stock of the corporation. Nothing in this section shall be deemed to deny, limit or restrict the powers of guaranty or warranty of the corporation at common law or under any statute.³⁴

3.13 Removal Of Directors.

Unless otherwise restricted by statute, by the certificate of incorporation or by these Bylaws, any director or the entire Board of Directors may be removed, with or without cause, by the holders of a majority of the shares then entitled to vote at an election of directors; provided, however, that as long as the corporation is subject to Section 2115(b) of the California

³² DGCL § 141(f).

³³ DGCL § 141(h).

³⁴ DGCL § 143; see also Section 13(k) of the Securities Exchange Act of 1934 for restrictions applicable once the Company has filed an IPO registration statement.

Corporations Code, if less than the entire Board of Directors is to be removed, no director may be removed without cause if the votes cast against his removal, or not consenting in writing to his removal, would be sufficient to elect him if then cumulatively voted at an election of the entire Board of Directors.³⁵

3.14 Chairman Of The Board Of Directors.

The corporation may also have, at the discretion of the Board of Directors, a chairman of the Board of Directors who shall not be considered by virtue of holding such position to be an officer of the corporation.

ARTICLE IV

COMMITTEES

4.1 Committees Of Directors.

The Board of Directors may designate one or more committees, each committee to consist of one or more of the directors of the corporation. The Board may at any time appoint, remove or replace members of any committee. The Board shall designate, and may change at any time, the number of seats on any committee. The Board may designate one or more directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee. In the event of the absence or disqualification of a member of a committee, the member or members present at any meeting and not disqualified from voting, whether or not such member or members constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in the place of any such absent or disqualified member. Any such committee, to the extent provided in the resolution of the Board of Directors, shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the corporation, and may authorize the seal of the corporation to be affixed to all papers which may require it; but no such committee shall have the power or authority in reference to the following matters: (i) approving or adopting, or recommending to the stockholders, any action or matter (other than the election or removal of directors) expressly required by the DGCL to be submitted to stockholders for approval or (ii) adopting, amending or repealing any Bylaw of the corporation.³⁶

Unless otherwise provided in the certificate of incorporation, any Board committee may create one or more subcommittees, each subcommittee to consist of one or more members of such committee, and delegate to the subcommittee any or all of the powers and authority of the committee.³⁷

4.2 Committee Minutes.

³⁵ DGCL § 141(k). Note that companies subject to California Corporations Code § 2115 are required to provide for cumulative voting.

³⁶ Under DGCL § 141(c)(2), Boards may not designate committees unless the power to do so is set forth in the Bylaws.

³⁷ DGCL § 141(c)(3).

Each committee shall keep regular minutes of its meetings and maintain them in the corporation's official minute book.

4.3 Meetings And Action Of Committees.

Meetings and actions of committees shall be governed by, and held and taken in accordance with, the provisions of Section 3.5 (place of meetings and meetings by telephone), Section 3.6 (regular meetings), Section 3.7 (special meetings and notice), Section 3.8 (quorum), Section 3.9 (waiver of notice), and Section 3.10 (action without a meeting) of these Bylaws, with such changes in the context of such provisions as are necessary to substitute the committee and its members for the Board of Directors and its members; provided, however, that the date and time of regular meetings of committees may be determined either by resolution of the Board of Directors or by resolution of the committee, that special meetings of committees may also be called by resolution of the Board of Directors and that notice of special meetings of committees shall also be given to all alternate members, who shall have the right to attend all meetings of the committee. The Board of Directors may adopt rules for the government of any committee not inconsistent with the provisions of these Bylaws.

ARTICLE V

OFFICERS

5.1 Officers.

The officers of the corporation shall be a president, a secretary, and a chief financial officer. The corporation may also have, at the discretion of the Board of Directors, a chief executive officer, one or more vice presidents, one or more assistant secretaries, one or more assistant treasurers, and any such other officers as may be appointed in accordance with the provisions of Section 5.3 of these Bylaws. Any number of offices may be held by the same person.³⁸

5.2 Appointment Of Officers.

The officers of the corporation, except such officers as may be appointed in accordance with the provisions of Sections 5.3 or 5.5 of these Bylaws, shall be appointed by the Board of Directors, subject to the rights, if any, of an officer under any contract of employment.³⁹

5.3 Subordinate Officers.

The Board of Directors may appoint such other officers and agents as the business of the corporation may require, each of whom shall hold office for such period, have such authority, and perform such duties as are provided in these Bylaws or as the Board of Directors may from time to time determine. The Board of Directors may empower the chief executive officer or the president to define the authorities and duties of such subordinate officers.

³⁸ Under DGCL § 142(a), the manner of selecting officers must be set forth in the bylaws.

³⁹ DGCL § 141(b).

5.4 **Removal And Resignation Of Officers.**

Subject to the rights, if any, of an officer under any contract of employment, any officer may be removed, either with or without cause, by an affirmative vote of the majority of the Board of Directors at any regular or special meeting of the board or, except in the case of an officer chosen by the Board of Directors, by the chief executive officer, the president, or any officer upon whom the power of removal is conferred by the Board of Directors, the chief executive officer or the president.⁴⁰

Any officer may resign at any time by giving written notice to the corporation. Any resignation shall take effect at the date of the receipt of that notice or at any later time specified in that notice (unless the officer is removed before such later time); and, unless otherwise specified in that notice, the acceptance of the resignation shall not be necessary to make it effective. Any resignation is without prejudice to the rights, if any, of the corporation under any contract to which the officer is a party.

5.5 **Vacancies In Offices.**

Any vacancy occurring in any office of the corporation shall be filled in the manner prescribed in these Bylaws for regular appointments to that office.

5.6 **Chief Executive Officer.**

Subject to such supervisory powers, if any, as may be given by the Board of Directors to the chairman of the board, if any, the chief executive officer of the corporation (if such an officer is appointed) shall, subject to the control of the Board of Directors, have general supervision, direction, and control of the business and the officers of the corporation. He or she shall preside at all meetings of the stockholders and, in the absence or nonexistence of a chairman of the board, at all meetings of the Board of Directors and shall have the general powers and duties of management usually vested in the office of chief executive officer of a corporation and shall have such other powers and duties as may be prescribed by the Board of Directors or these Bylaws.

5.7 **President.**

Subject to such supervisory powers, if any, as may be given by the Board of Directors to the chairman of the board, if there is one, or to the chief executive officer, if such an officer is appointed, the president shall be the principal executive officer of the corporation and shall, subject to the control of the Board of Directors, have general supervision, direction, and control of the business and other officers of the corporation. He or she shall have the general powers and duties of management usually vested in the office of president of a corporation and such other powers and duties as may be prescribed by the Board of Directors or these Bylaws.

5.8 **Vice Presidents.**

⁴⁰ DGCL § 141(b).

In the absence or disability of the chief executive officer and president, the vice presidents, if any, in order of their rank as fixed by the Board of Directors or, if not ranked, a vice president designated by the Board of Directors, shall perform all the duties of the president and when so acting shall have all the powers of, and be subject to all the restrictions upon, the president. The vice presidents shall have such other powers and perform such other duties as from time to time may be prescribed for them respectively (in order of priority) by the Board of Directors, the chief executive officer or the president.

5.9 **Secretary.**

The secretary shall keep or cause to be kept, at the principal executive office of the corporation or such other place as the Board of Directors may direct, a book of minutes of all meetings and actions of directors, committees of directors, and stockholders. The minutes shall show the time and place of each meeting, the names of those present at directors' meetings or committee meetings and the proceedings thereof.

The secretary shall keep, or cause to be kept, at the principal executive office of the corporation or at the office of the corporation's transfer agent or registrar, as determined by resolution of the Board of Directors, a share register, or a duplicate share register, showing the names of all stockholders and their addresses, the number and classes of shares held by each, the number and date of certificates evidencing such shares, and the number and date of cancellation of every certificate surrendered for cancellation.

The secretary shall give, or cause to be given, notice of all meetings of the stockholders and of the Board of Directors required to be given by law or by these Bylaws. He or she shall keep the seal of the corporation, if one be adopted, in safe custody and shall have such other powers and perform such other duties as may be prescribed by the Board of Directors, by custom or by these Bylaws.

5.10 **Chief Financial Officer.**

The chief financial officer shall keep and maintain, or cause to be kept and maintained, adequate and correct books and records of accounts of the properties and business transactions of the corporation, including accounts of its assets, liabilities, receipts, disbursements, gains, losses, capital retained earnings, and shares.

The chief financial officer shall deposit all moneys and other valuables in the name and to the credit of the corporation with such depositories as may be designated by the Board of Directors. He or she shall disburse the funds of the corporation as may be ordered by the Board of Directors, shall render to the president, the chief executive officer, or the directors, upon request, an account of all his or her transactions as chief financial officer and of the financial condition of the corporation, and shall have other powers and perform such other duties as may be prescribed by the Board of Directors, by custom or by these Bylaws.

5.11 **Representation Of Shares Of Other Corporations.**

The chairman of the board, the chief executive officer, the president, any vice president, the chief financial officer, the secretary or assistant secretary of this corporation, or

any other person authorized by the Board of Directors or the chief executive officer or the president or a vice president, is authorized to vote, represent, and exercise on behalf of this corporation all rights incident to any and all shares of any other corporation or corporations standing in the name of this corporation. The authority granted herein may be exercised either by such person directly or by any other person authorized to do so by proxy or power of attorney duly executed by the person having such authority.

5.12 **Authority And Duties Of Officers.**

In addition to the foregoing authority and duties, all officers of the corporation shall respectively have such authority and perform such duties in the management of the business of the corporation as may be designated from time to time by the Board of Directors.

ARTICLE VI

INDEMNIFICATION OF DIRECTORS, OFFICERS, EMPLOYEES, AND OTHER AGENTS

6.1 **Indemnification Of Directors And Officers.**

Subject to any limitations resulting from the application of Section 2115 of the California Corporations Code to the corporation, each person who was or is made a party to or is threatened to be made a party to, witness or other participant in any action, suit or proceeding, whether civil, criminal, administrative or investigative (a "Proceeding"), by reason of the fact that he or she is or was a director or officer of the corporation (an "Indemnatee"), whether the basis of the Proceeding is alleged action in an official capacity as a director or officer or in any other capacity while serving as a director or officer, shall be indemnified and held harmless by the corporation to the fullest extent authorized by the DGCL, as the same exists or may hereafter be amended (but, in the case of any such amendment, only to the extent that such amendment permits the corporation to provide broader indemnification rights than such law permitted the corporation to provide prior to such amendment), against all expense, liability and loss (including attorneys' fees, judgments, fines, ERISA excise taxes or penalties and amounts paid in settlement) reasonably incurred or suffered by Indemnatee in connection therewith; provided, however, the corporation shall not indemnify any such Indemnatee in connection with a Proceeding (or part thereof) (i) initiated by such Indemnatee against the corporation or any director or officer of the corporation unless the corporation has joined in or consented to the initiation of such Proceeding or (ii) made on account of Indemnatee's conduct which constitutes a breach of Indemnatee's duty of loyalty to the Corporation or its stockholders, or is an act or omission not in good faith which involves intentional misconduct or a knowing violation of the law. For purposes of this Section 6.1, a "director" or "officer" of the corporation includes any person who (i) is or was a director or officer of the corporation, (ii) is or was serving at the request of the corporation as a director or officer of another corporation, partnership, joint venture, trust or other enterprise, or (iii) who was an employee or agent of a Corporation which

was a predecessor corporation of the corporation or of another enterprise at the request of such predecessor corporation.⁴¹

6.2 Indemnification Of Others.

The Corporation shall have the power, to the maximum extent and in the manner permitted by the DGCL, as the same exists or may hereafter be amended (but, in the case of any such amendment, only to the extent that such amendment permits the corporation to provide broader indemnification rights than such law permitted the corporation to provide prior to such amendment), to indemnify each of its employees and agents against all expense, liability and loss (including attorneys' fees, judgments, fines, ERISA excise taxes or penalties and amounts paid in settlement) reasonably incurred or suffered by such employees and agents in connection therewith; provided, however, provided, however, the corporation shall not indemnify any such employee or agent in connection with a Proceeding (or part thereof) (i) initiated by such employee or agent against the corporation or any director or officer of the corporation unless the corporation has joined in or consented to the initiation of such Proceeding or (ii) made on account of such employee's or agent's conduct which constitutes a breach of such employee's or agent's duty of loyalty to the corporation or its stockholders, or is an act or omission not in good faith which involves intentional misconduct or a knowing violation of the law. For purposes of this Section 6.2, an "employee" or "agent" of the corporation includes any person other than a director or officer (i) who is or was an employee or agent of the corporation, (ii) who is or was serving at the request of the corporation as an employee or agent of another corporation, partnership, joint venture, trust or other enterprise, or (iii) who was an employee or agent of a corporation which was a predecessor corporation of the corporation or of another enterprise at the request of such predecessor corporation.⁴²

6.3 Payment Of Expenses In Advance.

Expenses incurred in defending any Proceeding for which indemnification is required pursuant to Section 6.1 or for which indemnification is permitted pursuant to Section 6.2 following authorization thereof by the Board of Directors shall be paid by the corporation in advance of the final disposition of such Proceeding upon receipt of an undertaking by or on behalf of the indemnified party to repay such amount if it shall ultimately be determined by final judicial decision from which there is no further right to appeal that the indemnified party is not entitled to be indemnified as authorized in this Article VI.⁴³

6.4 Indemnity Not Exclusive.

The indemnification provided by this Article VI shall not be deemed exclusive of any other rights to which those seeking indemnification may be entitled under any bylaw, agreement, vote of stockholders or disinterested directors or otherwise, both as to action in an official capacity and as to action in another capacity while holding such office.

6.5 Insurance.

⁴¹ DGCL § 145(a), (b).

⁴² DGCL § 145(a), (b).

⁴³ DGCL § 145(e).

The corporation may purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise against any liability asserted against him or her and incurred by him or her in any such capacity, or arising out of his or her status as such, whether or not the corporation would have the power to indemnify him or her against such liability under the provisions of the DGCL.

ARTICLE VII

RECORDS AND REPORTS

7.1 Maintenance And Inspection Of Records.

The corporation shall, either at its principal executive offices or at such place or places as designated by the Board of Directors, keep a record of its stockholders listing their names and addresses and the number and class of shares held by each stockholder, a copy of these Bylaws as amended to date, and the corporation's accounting books and other records.

Any stockholder of record, in person or by attorney or other agent, shall, upon written demand under oath stating the purpose thereof, have the right during the usual hours for business to inspect for any proper purpose the corporation's stock ledger, a list of its stockholders, and its other books and records and to make copies or extracts therefrom. A proper purpose shall mean a purpose reasonably related to such person's interest as a stockholder. In every instance where an attorney or other agent is the person who seeks the right to inspection, the demand under oath shall be accompanied by a power of attorney or such other writing that authorizes the attorney or other agent to so act on behalf of the stockholder. The demand under oath shall be directed to the corporation at its registered office in Delaware or at its principal place of business.⁴⁴

A complete list of stockholders entitled to vote at any meeting of stockholders, arranged in alphabetical order for each class of stock and showing the address of each such stockholder and the number of shares registered in each such stockholder's name, shall be open to the examination of any such stockholder for a period of at least 10 days before the meeting to the extent and in the manner provided by law. The stock list shall also be open to the examination of any stockholder during the whole time of the meeting as provided by law. This list shall presumptively determine the identity of the stockholders entitled to vote at the meeting and the number of shares held by each of them.⁴⁵

7.2 Inspection By Directors.

Any director shall have the right to examine the corporation's stock ledger, a list of its stockholders, and its other books and records for a purpose reasonably related to his or her position as a director.

⁴⁴ DGCL § 220(h).

⁴⁵ DGCL § 219(a).

7.3 Annual Report To Stockholders; Waiver.

As long as the Corporation is subject to Section 2115 of the California Corporations Code, the Board of Directors shall cause an annual report to be sent to the stockholders not later than 120 days after the close of the fiscal year adopted by the corporation. Such report shall be sent at least 15 days (or, if sent by third-class mail 35 days) before the annual meeting of stockholders to be held during the next fiscal year and in the manner specified in Section 2.5 of these bylaws for giving notice to stockholders of the corporation.

The annual report shall contain (a) a balance sheet as of the end of the fiscal year, (b) an income statement, (c) a statement of changes in financial position for the fiscal year, and (d) any report of independent accountants or, if there is no such report, the certificate of an authorized officer of the corporation that the statements were prepared without audit from the books and records of the corporation.

The foregoing requirement of an annual report shall be waived so long as the shares of the corporation are held by fewer than 100 holders of record.⁴⁶

ARTICLE VIII

GENERAL MATTERS

8.1 Checks.

From time to time, the Board of Directors shall determine by resolution which person or persons may sign or endorse all checks, drafts, other orders for payment of money, notes or other evidences of indebtedness that are issued in the name of or payable to the corporation, and only the persons so authorized shall sign or endorse those instruments.

8.2 Execution Of Corporate Contracts And Instruments.

The Board of Director may authorize any officer or officers, or agent or agents, to enter into any contract or execute any instrument in the name of and on behalf of the corporation; such authority may be general or confined to specific instances. Unless so authorized or ratified by the Board of Directors or within the agency power of an officer, no officer, agent or employee shall have any power or authority to bind the corporation by any contract or engagement or to pledge its credit or to render it liable for any purpose or for any amount.

8.3 Stock Certificates.

The shares of the corporation shall be represented by certificates, provided that the Board of Directors of the corporation may provide by resolution or resolutions that some or all of any or all classes or series of its stock shall be uncertificated shares. Any such resolution shall not apply to shares represented by a certificate until such certificate is surrendered to the corporation. Notwithstanding the adoption of such a resolution by the Board of Directors, every holder of stock represented by certificates and upon request every holder of uncertificated shares

⁴⁶ California Corporations Code §§ 1501(a), 2115.

shall be entitled to have a certificate signed by, or in the name of the corporation by the chairman or vice-chairman of the Board of Directors, or the chief executive officer, president or vice-president, and by the chief financial officer, or the secretary or an assistant secretary of such corporation representing the number of shares registered in certificate form. Any or all of the signatures on the certificate may be a facsimile. In case any officer, transfer agent or registrar who has signed or whose facsimile signature has been placed upon a certificate has ceased to be such officer, transfer agent or registrar before such certificate is issued, it may be issued by the corporation with the same effect as if he or she were such officer, transfer agent or registrar at the date of issue.

No stock certificates will be issued in bearer form.⁴⁷

8.4 Special Designation On Certificates.

If the corporation is authorized to issue more than one class of stock or more than one series of any class, then the powers, the designations, the preferences, and the relative, participating, optional or other special rights of each class of stock or series thereof and the qualifications, limitations or restrictions of such preferences and/or rights shall be set forth in full or summarized on the face or back of the certificate that the corporation shall issue to represent such class or series of stock; provided, however, that, except as otherwise provided in Section 202 of the DGCL, in lieu of the foregoing requirements there may be set forth on the face or back of the certificate that the corporation shall issue to represent such class or series of stock a statement that the corporation will furnish without charge to each stockholder who so requests the powers, the designations, the preferences, and the relative, participating, optional or other special rights of each class of stock or series thereof and the qualifications, limitations or restrictions of such preferences and/or rights.⁴⁸

8.5 Lost Certificates.

Except as provided in this Section 8.5, no new certificates for shares shall be issued to replace a previously issued certificate unless the latter is surrendered to the corporation and cancelled at the same time. The corporation may issue a new certificate of stock or uncertificated shares in the place of any certificate previously issued by it, alleged to have been lost, stolen, mutilated or destroyed, and the corporation may require the owner of the lost, stolen, mutilated or destroyed certificate, or the owner's legal representative, to give the corporation a bond sufficient to indemnify it against any claim that may be made against it on account of the alleged loss, theft or destruction of any such certificate or the issuance of such new certificate or uncertificated shares.⁴⁹

8.6 Construction; Definitions.

Unless the context requires otherwise, the general provisions, rules of construction, and definitions in the DGCL shall govern the construction of these Bylaws. Without limiting the generality of this provision, the singular number includes the plural, the

⁴⁷ DGCL § 158.

⁴⁸ DGCL §§ 157, 202.

⁴⁹ DGCL § 167.

plural number includes the singular, and the term “person” includes both a corporation (or other entity) and a natural person.

8.7 **Fiscal Year.**

The fiscal year of the corporation shall be fixed by resolution of the Board of Directors and may be changed by the Board of Directors.

8.8 **Seal.**

The corporation may adopt a corporate seal, which may be altered at pleasure, and may use the same by causing it or a facsimile thereof, to be impressed or affixed or in any other manner reproduced.

8.9 **Registered Stockholders.**

The corporation shall be entitled to recognize the exclusive right of a person registered on its books as the owner of shares to receive dividends and to vote as such owner, shall be entitled to hold liable for calls and assessments the person registered on its books as the owner of shares, and shall not be bound to recognize any equitable or other claim to or interest in such share or shares on the part of another person, whether or not it shall have express or other notice thereof, except as otherwise provided by the laws of Delaware.

8.10 **Facsimile Signature.**

In addition to the provisions for use of facsimile signatures elsewhere specifically authorized in these Bylaws, facsimile signatures of any officer or officers of the Corporation may be used whenever and as authorized by the Board of Directors.

8.11 **Transfers of Stock.**

Transfers of stock shall be made only upon the transfer books of the Corporation kept at an office of the corporation or by transfer agents designated to transfer shares of the stock of the corporation.

ARTICLE IX

AMENDMENTS

The Bylaws of the corporation may be adopted, amended or repealed by the stockholders entitled to vote; provided, however, that the corporation may, in its certificate of incorporation, confer the power to adopt, amend or repeal Bylaws upon the directors. The fact that such power has been so conferred upon the directors shall not divest the stockholders of the power, nor limit their power to adopt, amend or repeal Bylaws.⁵⁰

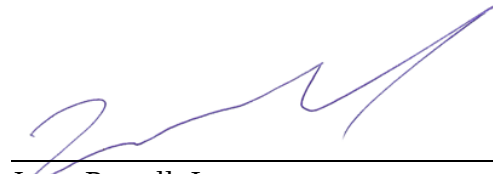
⁵⁰ DGCL § 109(a).

CERTIFICATE OF ADOPTION OF BYLAWS
OF
PAYWARD, INC.

ADOPTION BY INCORPORATOR

The undersigned person appointed in the certificate of incorporation to act as the Incorporator of Payward, Inc. hereby adopts the foregoing bylaws as the Bylaws of the corporation.

Executed this 28th day of July, 2011.



Jesse Powell, Incorporator

CERTIFICATE BY SECRETARY OF ADOPTION BY INCORPORATOR

The undersigned hereby certifies that the undersigned is the duly elected and acting Secretary of Payward, Inc., and that the foregoing Bylaws were adopted as the Bylaws of the corporation on July 28, 2011, by the person identified in the certificate of incorporation as the Incorporator of the corporation, and were re-adopted in their entirety by the Board of Directors of the corporation on July 28, 2011, and by the stockholders of the corporation on July 28, 2011.

Executed this 28th day of July, 2011.



Jesse Powell, Secretary

Exhibit D-7

Bitnomial Exchange & Clearinghouse
API and Market Operations Documentation
(Form 1-N — Exhibit D-7: Users' Manual)

Bitnomial Exchange, LLC

July 23, 2026

Contents

Disclaimer	2
API	3
API Overview	3
Connection IDs	4
Network Setup	4
Binary (BTP) API	6
Environments	18
REST API	18
WebSocket API	35
FIX API	40
Market Operations	45
Market Taxonomy	45
Overview	47
Product Notation	47
Settlements	51
Market Hours	53
Order Entry Risk Management	53
Customer Roles	54
Block Trades	55
Digital Asset Delivery	56

Disclaimer

This documentation is provided for informational purposes only and does not constitute legal, financial, or trading advice. The information contained herein is subject to change without notice and may not reflect the most current version of the Exchange's rules, procedures, or systems. While every effort is made to ensure accuracy, the Exchange makes no guarantee that the documentation is error-free, complete, or up-to-date. Users are responsible for ensuring their compliance with all applicable laws, regulations, and Exchange rules. The Exchange shall not be liable for any damages arising from the use of or reliance on this documentation.

API

API Overview

Bitnomial provides two methods for connecting and trading on the Exchange: Direct and Indirect.

Direct Market Access

Direct Market Access (DMA) provides low-latency connectivity to the exchange through private network connections for high-performance trading.

Network Types

Currently Bitnomial provides DMA via TCP/IP-based binary protocol over:

- [AWS PrivateLink](#)
- [AWS Direct Connect](#)
- [VPC Peering](#)
- [VPN](#)

Network Setup

- [Network Setup](#) - Detailed configuration instructions for AWS PrivateLink, Direct Connect, VPC Peering, VPN, and routing
- [Environments](#) - Information about Production and Disaster Recovery environments

The Bitnomial matching engine is hosted in [Amazon Web Services \(AWS\) US-East-2 \(Ohio\)](#).

Direct Connection Protocols

- [Binary \(BTP\) API](#) - Low latency binary protocol for order entry and price feeds. Requires DMA network setup.
- [FIX API](#) - Dropcopy functionality using FIX 4.4 protocol

Contact help@exchange.bitnomial.com to begin the DMA registration and on-boarding process.

Public Internet APIs

These APIs are accessible over the public internet without requiring Direct Market Access setup.

- [REST API](#) - HTTPS API for products, orders, fills, block trades, indexes, and funding rates
- [WebSocket API](#) - Real-time market data feed for trades, order books, blocks, and market status

Indirect Connection

[CQG](#) is an Independent Software Vendor (ISV) who provides an array of methods for connecting to the exchange. Contact help@exchange.bitnomial.com to begin on-boarding process.

Connection IDs

A Bitnomial connection is a logical “connection” to the Bitnomial exchange which allows participants to access clearing accounts that have been provisioned for them. Participants can provision any number of connections associated with any number of accounts that they have been granted access.

Bitnomial connections consist of a hex-encoded `ConnectionId` with a hex-encoded `AuthToken`. This id and token pair constitute an API key to the exchange, and they are used to authenticate both direct market access messages via [Login](#) as well as exchange API messages via [Exchange API Authentication](#).

Direct Market Access

For direct market access, each connection is considered unique to the exchange in that it can only be logged into a single instance of any given service (order entry, pricefeed, drop copy) at a given time. Additionally, a connection can only see its own orders (not orders placed through other connections) via the [Order Entry](#). However, the connection can see all orders for its associated accounts in the [Exchange REST API](#) and the [FIX Execution Report](#).

Network Setup

This page provides detailed configuration instructions for setting up Direct Market Access (DMA) network connectivity to the Bitnomial Exchange.

AWS PrivateLink

[AWS PrivateLink](#) allows the exchange to share an AWS Network Load Balancer (NLB) with another AWS account easily.

The exchange needs the DMA participant’s AWS account ID and the DMA participant needs the exchange’s VPC Endpoint service name and ports for the various services. Contact help@exchange.bitnomial.com to exchange this information.

1. Exchange adds DMA participant’s AWS account to the list of authorized AWS accounts on the PrivateLink service
2. The DMA participant adds an Interface type VPC Endpoint with the exchange’s VPC Endpoint service name to their VPC with an appropriate security group.

AWS Direct Connect

[AWS Direct Connect](#) allows DMA participants to connect to AWS from their private datacenter over a fiber connection. Contact help@exchange.bitnomial.com to learn more about the AWS Direct Connect onboarding

VPC Peering

DMA participants can use [AWS VPC Peering](#) to peer DMA participant VPCs with Bitnomial VPCs.

1. Bitnomial assigns VPC CIDR block and Availability Zone to the DMA participant.
2. The participant reports VPC ID and AWS Account ID to Bitnomial.
3. Bitnomial sends peering request to the participant, and reports request ID to the participant.
4. Participant accepts peering request and creates route to Bitnomial subnet.

Example VPC Peering Values

The tables below outlines example values for what information needs to be exchanged.

From the participant to Bitnomial:

Participant → Bitnomial	Value
Participant Account ID	0000000000
Participant VPC ID	vpc-iab32123

From Bitnomial to the participant:

Bitnomial → Participant	Value
Bitnomial CIDR Block	10.240.0.0/16
Participant VPC CIDR Block	10.192.5.0/24
VPC Availability Zone	us-east-2a
Peering Request ID	pcx-afb2f421
Gateway IP:Port	10.240.2.32:9000
Pricefeed IP:Port	10.240.4.42:9001

VPN

Customer DMA connectivity is provided via an [IPsec VPN](#) using BGP routing. A primary and backup tunnel are provided for fail-over redundancy.

To establish a VPN connection (4 steps):

1. Customer Information Gathering

The customer reports the intended public IP address of the VPN server to Bitnomial.

2. Bitnomial VPN Configuration

Bitnomial provisions customer access and the VPN connection and reports the primary and backup tunnel IP addresses to the customer. Primary and backup pre-share keys will be communicated via a conference call set up by Bitnomial.

3. Customer VPN Configuration

The customer configures Primary/Backup Tunnels Phase 1 (IKE) with the following information:

Configuration	Value
IKE version	IKEv1
Authentication Method	Pre-Shared Key
Authentication Algorithm	sha1
Encryption Algorithm	aes-128-cbc
Lifetime	28800 seconds
Phase 1 Negotiation Mode	main
Diffie-Hellman	Group 2

The customer configures Primary/Backup Tunnels Phase 2 (IPsec) with the following information:

Configuration	Value
Protocol	esp
Authentication Algorithm	hmac-sha1-96
Encryption Algorithm	aes-128-cbc

Configuration	Value
Lifetime	3600 seconds
Mode	tunnel
Perfect Forward Secrecy	Diffie-Hellman Group 2

4. VPN Tunnel Confirmation

Both Bitnomial and the customer confirm primary and backup tunnel statuses are UP.

Routing

Bitnomial uses static IP routing and address blocks to avoid overlapping IP addresses (per [RFC 1918](#)). Customers assign hosts within the assigned range. For example, a customer may be assigned a [CIDR Block](#) of the form 10.192.5.0/24.

Firewalls need to allow TCP traffic from the order entry gateway/pricefeed IPs and ports that have been allocated. Customers can test exchange connectivity by attempting to login to their order entry gateway/pricefeed.

*Note: ICMP messages (**pings**) are disabled.*

Binary (BTP) API

BTP Overview

Bitnomial Transfer Protocol (BTP) is the Exchange's low latency, direct market access, binary protocol for order entry and price feeds. Messages are made up of a standardized binary [header](#) and [body](#). The header describes how the body is encoded.

Types

Numerical fields are little endian byte order.

- char: 1 byte ASCII character.
- byte[]: An array of bytes.
- uint: Unsigned 2, 4, or 8 byte **little endian** integer depending on field's byte length.
- int: Signed 2, 4, or 8 byte **little endian** integer depending on field's byte length.

Header

Byte Offset	Byte Length	Type	Name	Description
0	2	byte[]	protocolId	ASCII string BT for "Bitnomial Transfer Protocol".
2	2	uint16	version	BTP protocol version. <i>See Version</i>
4	4	uint32	sequenceId	Monotonically incremented message number per sender. <i>See Sequence ID</i>
8	2	byte[]	bodyEncoding	ASCII string for body encoding. <i>See Body Encoding</i>
10	2	uint16	bodyLength	Length, in bytes, of the following message body.
12				

Sequence ID Sequence IDs sequentially identify each message in a single direction of a connection. Sequence IDs are monotonically incremented so repeat sequence IDs identify a duplicate message while a gap

identifies missed messages. Sequence IDs start at 1 for disambiguation with `NULL`. If an invalid Sequence ID fault is detected the connection is disconnected with a [Disconnect message](#).

For example, a [Login Request](#), as the first message in the stream, must have a Sequence ID of 1. Subsequent messages must monotonically increment the Sequence ID.

Body Encoding The body encoding describes how to parse the body of the BTP message and may have the following values:

- OE: [Order Entry](#)
- PF: [Pricefeed](#)
- LG: [Login](#)
- MS: [Market State](#)
- HB: [Heartbeat Message](#)
- DN: [Disconnect Message](#)

Version

- BTP Version 3

Versions will be updated according to the following guidelines:

- Breaking Changes
 - Updated or deleted messages
 - Updated/Added fields
 - Any header change
- Non-Breaking Changes
 - New message types (clients should skip ahead by body length when they find an unexpected message type)

Additionally, all BTP services are versioned together. So, for example, it would not be valid for the Gateway to have version 2 while the Pricefeed is on version 3.

The BTP version can be set to a future version for User Acceptability Testing. Connected sessions cannot mix different versions, the version set in the Login message must be used for all subsequent connection messages. Details of new protocol versions can be read in [Upcoming Changes](#).

Heartbeat Message

- Body encoding HB (*See [BTP Body Encoding](#)*).

Heartbeat messages are sent and expected to be received every **heartbeatInterval** (*See [Login Request](#)*) if no other messages have been sent within the interval. Connections are disconnected with a [Disconnect Message](#) if a heartbeat is not received in the interval period.

All BTP connections must send and receive heartbeat messages. Heartbeat messages must always be of the following form:

Field	Value
sequenceId	0
bodyLength	0
Body	Always Empty

Disconnect Message

- Body encoding DN (*See [BTP Body Encoding](#)*).

An order entry gateway or pricefeed may disconnect a connection at any time for the following disconnect [Disconnect Reasons](#).

Byte Offset	Byte Length	Type	Name	Description
0	1	uint8	disconnectReason	See Disconnect Reason
1	4	uint32	expectedSequenceId	Sequence ID expected to see next, <code>NULL</code> if not a sequence ID fault.
5	4	uint32	actualSequenceId	Sequence ID actually received, <code>NULL</code> if not a sequence ID fault.
9				

Disconnect Reason

Value	Reason
0x01	Sequence ID fault
0x02	Heartbeat fault
0x03	Unused (reserved)
0x04	Messaging rate exceeded (reserved)
0x05	Failed to parse message

Login

- Body encoding LG (See [BTP Body Encoding](#)).

Login Request

The Bitnomial trading system requires a **Connection** to be provisioned in order to login. To provision a connection, visit the **customer portal**. `ConnectionIDs` are provided in a hex-encoded byte string that must be converted into a single uint64. `AuthTokens` are provided as hex-encoded byte strings.

A connection can simultaneously connect to a single order entry gateway and pricefeed instance but cannot connect to another order entry gateway or pricefeed at the same time.

Byte Offset	Byte Length	Type	Name	Description
0	1	char	messageType	Always L
1	8	uint64	connectionId	Connection ID
9	32	byte[]	authToken	Shared secret
41	1	uint8	heartbeatInterval	Heartbeat interval in seconds
42				

Login Heartbeat Interval If the heartbeat interval is less than or equal to 5 seconds, a default value of 30 seconds will be used instead.

Logout Request

Byte Offset	Byte Length	Type	Name	Description
0	1	char	messageType	Always K

Byte Offset	Byte Length	Type	Name	Description
1	1	char	persistOrders	Cancel-on-disconnect is default (unused, reserved)
2				

Login/out Reply

Login/out Ack

Byte Offset	Byte Length	Type	Name	Description
0	1	char	messageType	Always A
1				

Login/out Reject

Byte Offset	Byte Length	Type	Name	Description
0	1	char	messageType	Always R
1	1	uint8	rejectReason	<i>See Login/out Reject Reason</i>
2				

Login/out Reject Reason

Value	Reason
0x01	No request received, didn't receive a login within 1 s
0x02	Unauthorized
0x03	Already logged in
0x04	Bad protocol version

Market State

- Body encoding MS (*See BTP Body Encoding*).

Market state updates are sent over the **Order Entry** and **Pricefeed** connections. The message structures are the same for each.

Market State

Byte Offset	Byte Length	Type	Name	Description
0	1	char	marketState	<i>See Market State Code</i>
1	8	uint64	ackId	Ack ID
9	8	uint64	productId	Product ID
17				

Market State Code

Value	Market State
o	Open
H	Halt
c	Close

Market State Semantics There are 3 possible market states: Open, Halt, and Close.

- Open: New orders and cancels can be submitted. Matches are possible.
- Halt: The market is “paused”. The book is persisted, but new orders cannot be submitted and no new matches can happen. Cancels are allowed. Book snapshots will be updated with orders that were cancelled being removed. New levels may appear in the book snapshot during a halt, but those are from previously hidden levels being revealed from closes at tighter levels.
- Close: The market has been closed, no new orders are allowed, and the book has been cleared.

Market State	Matching	New Orders	Cancels	Persist Book
Open	X	X	X	X
Halt			X	X
Close				

*The only market state update message that is useful when constructing the book is close. A close destroys the book, where open and halt **do not** alter the book. Multiple open updates in a row do not imply any changes either.*

Order Entry

- Body encoding 0E (See *BTP Body Encoding*).
- Requires a login (See *Login*).
- Sends market state updates (See *Market State*).

Order Entry IDs

- **orderId**: A customer-defined, per **connectionId**, unique order identifier. This ID stays the same across subsequent modifications of the specific order.
- **modifyId**: A customer-defined, per **orderId**, unique modify identifier. This ID must be different across subsequent modifications of the specific order.
- **ackId**: A matching engine-defined, per engine instance, unique identifier for messages successfully applied to the order book. This ID includes **Ack**, **Fill**, and **Closed** messages but excludes **Reject** messages.
- The (**ackId**, **orderId**) pair uniquely identifies an order accepted by the matching engine and applied to the order book.
- The (**ackId**, **orderId**, **modifyId**) triplet uniquely identifies a modify to the respective order.

Order Entry Request

Open Order types: All orders are limit orders. We do not support market orders, stops, stop limits, etc. We support Day and IOC orders for Time in Force.

Byte Offset	Byte Length	Type	Name	Description
0	1	char	messageType	Always 0

Byte Offset	Byte Length	Type	Name	Description
1	8	uint64	orderId	Order ID from customer
9	8	uint64	productId	Product ID
17	1	char	side	Side: B = bid, A = ask
18	8	int64	price	Price in ticks
26	4	uint32	quantity	Quantity
30	1	char	timeInForce	Time in force: D = Day, I = IOC
31				

Attributed Open An **Attributed Open** is an [Open](#) that specifies which clearing account the order belongs to and the Customer Type Indicator (CTI) code for the order. This allows a single connection to submit orders on behalf of multiple clearing accounts associated with the connection's clearing firm. The **accountId** is the textual account code assigned by the clearing firm and is scoped to the **clearingMemberFcmCode**. The required **cti** value applies to the attributed order instead of the CTI configured for the connection's clearing account. See [Rule 511](#) for CTI code definitions.

Byte Offset	Byte Length	Type	Name	Description
0	1	char	messageType	Always T
1	8	uint64	orderId	Order ID from customer
9	8	uint64	productId	Product ID
17	1	char	side	Side: B = bid, A = ask
18	8	int64	price	Price in ticks
26	4	uint32	quantity	Quantity
30	1	char	timeInForce	Time in force: D = Day, I = IOC
31	1	uint8	clearingMemberFcmCodeLen	Length, in bytes, of clearingMemberFcmCode
32	3	byte[]	clearingMemberFcmCode	Order clearing firm code (ASCII, right-padded with NULL bytes)
35	1	uint8	accountIdLen	Length, in bytes, of accountId
36	16	byte[]	accountId	Account code assigned by the clearing firm (ASCII, right-padded with NULL bytes)
52	1	uint8	cti	CTI code: 1 = CTI 1, 2 = CTI 2, 3 = CTI 3, 4 = CTI 4
53				

Replies follow the same [Ack](#), [Reject](#), [Closed](#), and [Fill](#) messages as [Open](#). An **accountId** that cannot be resolved against the connection's clearing firm produces a [Reject](#) with reason **0x01** (Account not found).

Modify Cancels: A modify with a quantity less than or equal to the order's fill quantity cancels the order. A modify that changes the price *and* sets the quantity to less than or equal to the order's fill quantity cancels the order and the price change is ignored. A quantity = **0** will short circuit the price limit rules. A modify order with quantity > **0** must conform to the price limit rules regardless of order cancellation.

Byte Offset	Byte Length	Type	Name	Description
0	1	char	messageType	Always M
1	8	uint64	orderId	Order ID from customer
9	8	uint64	modifyId	Modify ID from customer
17	8	int64	price	Price in ticks
25	4	uint32	quantity	Quantity
29				

Note: NULL is indistinguishable from 0 in the case of `modifyId`. It is *highly* recommended to not use 0 as a `modifyId` to avoid this ambiguity.

Order Entry Reply

Ack

Byte Offset	Byte Length	Type	Name	Description
0	1	char	messageType	Always A
1	8	uint64	ackId	Matching engine acked sequence
9	8	uint64	orderId	Order ID from customer
17	8	uint64	modifyId	Modify ID from customer, NULL for open acks
25				

Reject

Byte Offset	Byte Length	Type	Name	Description
0	1	char	messageType	Always R
1	8	uint64	orderId	Order ID from customer
9	8	uint64	modifyId	Modify ID from customer, NULL for open rejects
17	1	uint8	rejectReason	See Reject Reason
18				

Reject Reason Request processing, and respective reject precedence, is as follows:

1. Connection state (ex: enabled/disabled)
2. Order state (ex: order closed)
3. Quantity (a modify with a closing quantity is processed regardless of an invalid price modification)
4. Price

Value	Reason
0x01	Account not found
0x02	Product not found
0x03	Order not found
0x04	Order already exists
0x05	Order already closed
0x06	Order not changed by modify
0x07	Quantity greater than max order size
0x08	Quantity less than min order size
0x09	Price outside price bands
0x0A	Price outside price limits
0x0B	Price not tick aligned (reserved)
0x0C	Market halted. Only close requests accepted
0x0D	Market closed. No requests accepted
0x0E	Give-up account not found
0x0F	Give-up unauthorized
0x10	Messaging rate exceeded
0x11	Position limit exceeded
0x12	Connection disabled

Value	Reason
0x13	Feature not supported

Closed A closed message **will be** sent when the order state cannot be inferred from the normal request-reply flow. This happens when an IOC is finished matching, self-match is prevented, or a customer cancels an order outside the order entry gateway connection.

A closed message **will not be** sent when an order is fully filled or a modify is acked, closing the order. For example, if an IOC misses or is partially filled, a closed message will be sent. If the IOC is fully filled, a closed message will not be sent.

Byte Offset	Byte Length	Type	Name	Description
0	1	char	messageType	Always c
1	8	uint64	ackId	Matching engine acked sequence
9	8	uint64	orderId	Order ID from customer
17	1	char	closeReason	See Close Reason
18				

Close Reason

Value	Reason
i	IOC finished
g	Non-connection cancel
s	Self-match prevention canceled

Fill

Byte Offset	Byte Length	Type	Name	Description
0	1	char	messageType	Always F
1	8	uint64	ackId	Matching engine acked sequence
9	8	uint64	orderId	Order ID from customer
17	8	int64	price	Price in ticks
25	4	uint32	quantity	Quantity
29	1	char	liquidity	Liquidity: A = Add, R = Remove, S = Spread leg match
30				

When dealing with **calendar spreads**, 3 Fill messages are sent for each match. One will have either A or R liquidity corresponding to the spread contract itself. Then there will be one Fill message for each leg with S liquidity and 0 quantity which have the implied price. The order of these fills is guaranteed, where the spread fill is always immediately followed by the leg 1 fill and the leg 2 fill in that order.

Message Rate Throttling

Order entry requests are limited using a sliding window throttle. Unless otherwise stated or negotiated, order entry gateways have a 500 message per 3 seconds messaging rate. Cancels are always allowed past the messaging rate throttle. Rejects are sent in response to messages exceeding the message rate limit with a reason code 0x10 (Message rate exceeded).

Pricefeed

- Body encoding **PF** (See *BTP Body Encoding*).
- Requires a login (See *Login*).
- Sends market state updates (See *Market State*).

The pricefeed protocol sends incremental level and trade updates as needed and book snapshots every 10 seconds. When connecting to the pricefeed intra-day, the customer must wait for a book snapshot to apply incremental updates. In other words, after connecting to the pricefeed, the customer should ignore level updates until they receive a book snapshot. Once that happens they can correctly apply level updates. This process is independent of any market state update as the market state message is not sufficient to construct the book. For example if the customer receives a market open message, that could be the market opening from a halted state which means there is existing book state and the book is **NOT** clear.

Ack IDs are monotonically incremented at the engine but may appear out of sequence, repeated, and gapped in the pricefeed due in part to inside-out sequencing. Use sequence IDs to determine dropped or duplicated messages.

See **Examples** for some practical examples.

Trade

Byte Offset	Byte Length	Type	Name	Description
0	1	char	messageType	Always τ
1	8	uint64	ackId	Matching engine acked sequence
9	8	uint64	productId	Product ID
17	1	char	takerSide	Taker side: B = bid, A = ask
18	8	int64	price	Price in ticks
26	4	uint32	quantity	Quantity
30				

Customers are not expected to mutate the book upon receiving a trade message. Each trade message will be accompanied with a corresponding level update which the customer can use to mutate the book. For example, if a Bid is submitted for 10@9015 and a subsequent Ask is submitted for 20@9015 the customer can see the following messages:

```
{
  "messageType": "Level",
  "ackId": 1,
  "price": 9015,
  "side": "Bid",
  "productId": 4,
  "quantity": 10
}
{
  "messageType": "LastTrade",
  "ackId": 2,
  "price": 9015,
  "productId": 4,
  "takerSide": "Ask",
  "quantity": 10
}
{
  "messageType": "Level",
  "ackId": 3,
  "price": 9015,
  "side": "Bid",
  "productId": 4,
  "quantity": 0
}
```

```
{
  "messageType": "Level",
  "ackId": 4,
  "price": 9015,
  "side": "Ask",
  "productId": 4,
  "quantity": 10
}
```

Note that the previous example also applies to **calendar spreads**. More explicitly, there are no extra pricefeed messages for calendar spread events. They all operate on the spread product only.

Level

A level update reflects the current quantity at the respective price level. A cleared level is represented by a zero quantity. Trade updates from a match event are sent before the respective level updates. Ack IDs on level messages represent the latest available ack ID when we calculated the book update.

Byte Offset	Byte Length	Type	Name	Description
0	1	char	messageType	Always L
1	8	uint64	ackId	Latest matching engine acked sequence number
9	8	uint64	productId	Product ID
17	1	char	side	Side: B = bid, A = ask
18	8	int64	price	Price in ticks
26	4	uint32	quantity	Quantity
30				

Book

Only the top 10 levels on each side are generated. It is important to note that Level updates are **NOT** sent when a level goes out of scope (i.e. there are 10 or more “better” orders on that side). For example, if there are 10 contiguous bids on price levels 9000 through 9009 and someone bids at 9010, no message will be sent for level 9000. The next book update will not contain level 9000, but **the order still exists!** Additionally, if level 9000 is deleted we will not send a level update as it is out of scope in that scenario. If it comes back into scope (re-enters the top 10 bids) then we will send level updates again.

Byte Offset	Byte Length	Type	Name	Description
0	1	char	messageType	Always B
1	8	uint64	lastAckId	Last ackId
9	8	uint64	productId	Product ID
17	4	uint32	bidsLength	Number of bytes for bid levels
21	<i>bidsLength</i>	Levels	bidLevels	See Book Level
21 + <i>bidsLength</i>	4	uint32	asksLength	Number of bytes for ask levels
25 + <i>bidsLength</i>	<i>asksLength</i>	Levels	askLevels	See Book Level
25 + bidsLength + asksLength				

Book Level

Byte Offset	Byte Length	Type	Name	Description
0	8	int64	price	Price in ticks
8	4	uint32	quantity	Quantity
12				

Block Trade

A block trade is very similar to a Trade message except that it does not have `takerSide` and these messages do not interact with the book.

Byte Offset	Byte Length	Type	Name	Description
0	1	char	messageType	Always x
1	8	uint64	ackId	Matching engine acked sequence
9	8	uint64	productId	Product ID
17	8	int64	price	Price in ticks
25	4	uint32	quantity	Quantity
29				

Examples

Level Goes Out of Scope Assuming there are 10 contiguous levels already on the book, a book message similar to the following would be received.

```
{
  "asks": [],
  "bids": [
    [10000, 10],
    [10001, 10],
    [10002, 10],
    [10003, 10],
    [10004, 10],
    [10005, 10],
    [10006, 10],
    [10007, 10],
    [10008, 10],
    [10009, 10]
  ],
  "lastAckId": 7158621609438216263,
  "productId": 12,
  "messageType": "Book"
}
```

After another bid is submitted for 10@10010, a book message like this would be received.

```
{
  "asks": [],
  "bids": [
    [10001, 10],
    [10002, 10],
    [10003, 10],
    [10004, 10],
    [10005, 10],
    [10006, 10],
    [10007, 10],
    [10008, 10],
    [10009, 10],
    [10010, 10]
  ],
  "lastAckId": 7158621609438216264,
  "productId": 12,
}
```

```

    "messageType": "Book"
}

```

Notice how the 10000 level is not in the book snapshot, but **is still on the book!** If the original order at the 10000 level were modified, no Level update would be received.

Aggressor Order Full Fill

- Submit bid for 20@10000
- Submit ask for 10@10000

```

{
  "ackId": 7158621609438216346,
  "price": 10000,
  "productId": 12,
  "quantity": 20,
  "side": "Bid",
  "messageType": "Level"
}
{
  "ackId": 7158621609438216348,
  "price": 10000,
  "productId": 12,
  "quantity": 10,
  "takerSide": "Ask",
  "messageType": "LastTrade"
}
{
  "ackId": 7158621609438216348,
  "price": 10000,
  "productId": 12,
  "quantity": 10,
  "side": "Bid",
  "messageType": "Level"
}

```

There is no Level update for the aggressor order as it is fully filled and never rests on the book.

Aggressor Order Partial Fill

- Submit bid for 10@15000
- Submit ask for 20@15000

```

{
  "ackId": 7158621609438216349,
  "price": 15000,
  "productId": 12,
  "quantity": 10,
  "side": "Bid",
  "messageType": "Level"
}
{
  "ackId": 7158621609438216351,
  "price": 15000,
  "productId": 12,
  "quantity": 10,
  "takerSide": "Ask",
  "messageType": "LastTrade"
}
{
  "ackId": 7158621609438216351,
  "price": 15000,
  "productId": 12,
  "quantity": 0,
  "side": "Bid",
  "messageType": "Level"
}

```

```

}
{
  "ackId": 7158621609438216351,
  "price": 15000,
  "productId": 12,
  "quantity": 10,
  "side": "Ask",
  "messageType": "Level"
}

```

Since the aggressor order was only partially filled, we get a `Level` update for both the aggressor and an update which clears out the original passive order since it was fully filled.

Environments

Bitnomial supports two customer-facing environments:

1. **Production (Prod)**, used for the production trading, clearing, and settlement.
2. **Disaster Recovery (DR)**, used for disaster fail over.

Production

Production environment settings are defined on a per-customer basis.

Disaster Recovery

Disaster Recovery environment is used for disaster fail over scenarios.

REST API

REST API Overview

Base URL

All REST API endpoints are relative to the base URL:

<https://bitnomial.com/exchange/api/v1/prod/>

Endpoints

The exchange API provides the following endpoints:

Market Data (Public)

- The **Products** endpoint for publicly available product data
- The **Block Trades** endpoint for block trade information
- The **Indexes** endpoint for index data information
- The **Funding Rates** endpoint for perpetual future funding rate information
- The **Charts** endpoint for historical price, volume, and open interest data
- The **Market Stats** endpoint for trailing (24h) market statistics

Account Data (Authenticated)

- The **Orders** endpoint for authenticated account requests
- The **Fills** endpoint for authenticated fills

Rate Limiting

The exchange API is rate-limited to 200 requests per 5 minutes. Exceeding this rate will result in HTTP 403 responses.

Time

In the exchange REST API, time values may be either: - an ISO8601 timestamp - now, corresponding to the current time in UTC

Pagination

Some API endpoints are paginated, and will return pagination info in addition to queried data. This pagination info in the response can be used to browse through records in a sorted manner, large queries can be accumulated by clients depending on the users needs.

```
export type Pagination<T1, T2> = IPagination<T1, T2>;
```

```
export interface IPagination<T1, T2> {  
  data: T1;  
  pagination: T2;  
}
```

```
export interface CursorInfo {  
  cursor: string;  
}
```

The Pagination result types will have the required info to continue the query. Currently all paginated APIs return a CursorInfo, with a cursor string that can be passed to the endpoint by a cursor query parameter. Future endpoints might add new kinds of pagination info.

Authentication

Private endpoints require a **Connection** to be provisioned in order to sign a request. To provision a connection, visit the **customer portal**. The connection allows access to data for all accounts associated with the connection.

Signing Requests

All HTTP requests to private API endpoints must contain the following headers:

Header	Description
BTNL-AUTH-TIMESTAMP	ISO 8601 timestamp. Must be within 30 seconds of API time
BTNL-CONNECTION-ID	Hex-encoded ConnectionId
BTNL-SIGNATURE	Base64-encoded HMAC-SHA256 signature

Signing A Request The BTNL-SIGNATURE header is the base64-encoded signature generated by using HMAC-SHA256 to sign the concatenated string method + requestPath + queryString + headers + body using the ConnectionId's hex-encoded AuthToken as the secret. Each individual string value is described here:

String	Description
method	Upper case http method of request. (e.g. GET POST)
requestPath	API endpoint path (e.g. /exchange/api/v1/prod/fills)
queryString	Query string of request, which is not HTML encoded. Expects ? for an empty query string. (e.g. ?order=asc&limit=10)
headers	BTNL-AUTH-TIMESTAMP<iso8601 timestamp>BTNL-CONNECTION-ID<hex-encoded connectionId>

String	Description
body	Request body string. Empty when the body is empty.

Timestamp Formatting The timestamp format is not as general as the ISO-8601 specification. The timestamp must be formatted the following way YYYY-MM-DDTHH:MM:SS.SSSZ.

Example Prehash String For example, the BTNL-SIGNATURE prehash string to get all fills for ConnectionId 3f would be:

```
GET/exchange/api/v1/prod/fills?BTNL-AUTH-TIMESTAMP2023-08-08T17:34:48.348ZBTNL-CONNECTION-ID3f
```

Note that the queryString = ? and body is an empty string.

Example Signature The following Javascript code shows how to generate the signature for the above request:

```
var CryptoJS = require("crypto-js");

var btnlAuthTimestamp = new Date().toISOString();
// connection id hex string
var btnlConnectionId = '3f'
// 64 character auth token hex string
var btnlAuthToken = '01234567890abcdef0123456789abcdef0123456789abcdef0123456789abcde';

var method = 'GET';
var requestPath = '/exchange/api/v1/prod/fills';
var queryString = '?';
var headers = 'BTNL-AUTH-TIMESTAMP' + btnlAuthTimestamp + 'BTNL-CONNECTION-ID' + btnlConnectionId;
var body = '';

var prehashString = method + requestPath + queryString + headers + body;

// base-64 encoded SHA256 HMAC signature
var signature = CryptoJS.enc.Base64.stringify(CryptoJS.HmacSHA256(prehashString, btnlAuthToken));
```

The valid BTNL-SIGNATURE for this request is U6NRnV8v00fCU1Wcq3CSwIqn5ykLDVV5nHsEvlegXU0=

Example Signature With Time Parameters An example prehash string to get all fills for ConnectionId 3f between the times 2024-01-16T20:08:34.000Z & 2024-02-28T20:08:34.000Z is:

```
GET/exchange/api/v1/prod/fills?begin_time=2024-01-16T20:08:34.000Z&end_time=2024-02-28T20:08:34.000ZBTNL-AUTH-TIMESTAMP2024-02-29T18:07:06.745ZBTNL-CONNECTION-ID3f
```

The valid BTNL-SIGNATURE for this request is a19KTfskTLZDWSVZcxDJv+r4cR5tzmhUikpCdL0DXEk=

Products

The product API is publicly available and provides information and specs for all products at the exchange.

Product API Endpoints

Get All Product Data

HTTP Method	Endpoint
GET	/product/data/

Returns a list of all product data objects for each product in the system.

Get Product Data by ID

HTTP Method	Endpoint
GET	/product/data/:product_id

Returns the product data for the specified product, where `:product_id` is the product ID.

Get All Product Specs

HTTP Method	Endpoint
GET	/product/specs/

Returns a list of all product spec objects for each product in the system.

Get Product Spec by ID

HTTP Method	Endpoint
GET	/product/spec/:product_id

Returns the spec for the specified product, where `:product_id` is the product ID.

Product API Flags

Each of these endpoints supports the following flags:

- `day`, show products only for that given day, the current day is used if this is not supplied.
- `active=true`, filter products only to active products, `active=false` has the same behavior as omitting the flag altogether.
- `base_symbol`, show only products that share a given base symbol

Product API Objects

Product Data objects have the following TS type:

```
export interface ProductData {  
  product_id: number;  
  last_price_time: string | null;  
  last_price: number | null;  
  settlement_time: string | null;  
  settlement_price: number | null;  
  settlement_price_comment: string | null;  
  open_price: number | null;  
  high_price: number | null;  
  low_price: number | null;  
  close_price: number | null;  
  price_change: number | null;  
  volume: number | null;  
  notional_volume: number | null;  
  block_volume: number | null;  
  notional_block_volume: number | null;  
  price_limit_upper: number;  
  price_limit_lower: number;  
  open_interest: number | null;  
  open_interest_change: number | null;  
}
```

The Product Spec objects have the following TS type

```
export type ProductSpec = IFutureSpec | ISpreadSpec | IOptionSpec;

export type IFutureSpec = ProductFutureSpec;

export type ISpreadSpec = ProductSpreadSpec;

export type IOptionSpec = ProductOptionSpec;

export type ProductStatus = "active" | "forthcoming" | "expired";

export interface ProductFutureSpec {
  type: string;
  product_id: number;
  product_name: string;
  margin_unit: string;
  settlement_method: string;
  max_order_quantity: number;
  min_block_size: number;
  contract_size: number;
  contract_size_unit: string;
  price_increment: number;
  price_quotation_unit: string;
  price_band_variation: number;
  price_limit_percentage: number;
  first_trading_day: string;
  final_settle_time: string;
  daily_open_time: string;
  daily_settle_time: string;
  symbol: string;
  month: number;
  year: number;
  base_symbol: string;
  cqg_symbol: string;
  product_status: ProductStatus;
}

export interface ProductSpreadSpec {
  type: string;
  product_id: number;
  product_name: string;
  max_order_quantity: number;
  min_block_size: number;
  price_band_variation: number;
  price_limit_percentage: number;
  first_trading_day: string;
  final_settle_time: string;
  daily_open_time: string;
  daily_settle_time: string;
  symbol: string;
  base_symbol: string;
  price_increment: number;
  cqg_symbol: string;
  product_status: ProductStatus;
  legs: SpreadSpecLeg[];
}

export interface SpreadSpecLeg {
  product_id: number;
  weight: number;
}

export interface ProductOptionSpec {
  type: string;
  product_id: number;
  product_name: string;
  max_order_quantity: number;
```

```

min_block_size: number;
price_band_variation: number;
price_limit_percentage: number;
first_trading_day: string;
final_settle_time: string;
daily_open_time: string;
daily_settle_time: string;
symbol: string;
cqq_symbol: string;
underlying_product: number;
strike_price: number;
base_symbol: string;
price_increment: number;
option_type: string;
product_status: ProductStatus;
}

```

Product API Fields

The following are the fields provided in the product data API. This data comes from sources such as the settlement process ran each day or live market activity. The settlement process is usually ran between 2:30 and 3:00 PM CT, or within 30 minutes of the daily settle time of the respective field for that process.

volume, open_interest, and open_interest_change have their own semantics. They are updated by 8:30 AM the following day. Those values will be null until they are published.

Price Field Units All price fields are expressed in ticks. To convert to USD, multiply by the product's price_increment from the spec:

$\text{price_in_usd} = \text{price_in_ticks} \times \text{price_increment}$

For example, if settlement_price is 85950 and price_increment is 1, the settlement price in USD is \$85,950.00.

Notional Volume Units The notional_volume and notional_block_volume fields are expressed in cents. To convert to USD, divide by 100:

$\text{notional_volume_usd} = \text{notional_volume} / 100$

Field	Units	Notes
product_id		The product ID for a given product
last_price_time		The time of the last trade, updated live
last_price	ticks	The price of the last trade, updated live
settlement_time		The time that the settlement process was ran, updated by the settlement process
settlement_price	ticks	Settlement price, updated by the settlement process. When the product has expired this is the final settlement price.
settlement_price_comment		Settlement price comment, updated by the settlement process
open_price	ticks	Open price, updated live as the price of the first trade of the day
high_price	ticks	High price, updated live as the highest price of a trade for the day
low_price	ticks	Low price, updated live as the lowest price of a trade for the day
close_price	ticks	Close price, updated by the settlement process
price_change	percent	Price change computed as either the percentage change between the last_price and settlement_price, or, if there are no trades on the day, the percentage change between the last two settlement prices.
volume	contracts	Trade volume, fetched from the clearing house, during trading it is updated live
notional_volume	cents	Notional trade volume, fetched from the clearing house, during trading it is updated live
block_volume	contracts	Block trade volume

Field	Units	Notes
notional_block_volume	contracts	Notional block trade volume
price_limit_upper	ticks	The upper price limit for the product
price_limit_lower	ticks	The lower price limit for the product
open_interestcontracts		Open interest, fetched from the clearing house
open_interestchange	contracts	Open interest change in number of contracts day over day. Positive for increases, negative for decreases.

The following are the fields provided in the product spec API. These fields are mostly static, they do not change day to day. The changes seen through this API will be new contract listings near the end of a given quarter. If there are other changes, such as to market hours, customers will be notified well in advance of API changes.

The increment of price_band_variation is expressed in terms of the price_quotation_unit field.

Field	Product Types	Notes
product_id	All	Product ID
product_name	All	Product name
max_order_quantity	All	Max order quantity
min_block_size	All	Minimum block size
price_band_variation	All	Price band variation
price_limit_percentage	All	Price limit percentage
type	All	Product type, either “future” or “spread” or “option”
first_trading_day	All	First trading day
final_settle_time	All	Final settle time
daily_open_time	All	Daily open time
daily_settle_time	All	Daily settle time
symbol	All	Binomial product symbol
cqg_symbol	All	CQG product symbol (for use on CQG IC/Desktop)
product_status	All	Product status, either “active” or “forthcoming” or “expired”
legs	Spread	Legs for a given spread product, with “product_id” and “weight” fields
underlying_product	Option	Product ID of the underlying product
strike_price	Option	Option strike price
option_type	Option	Option type, either call or put
margin_unit	Future	Margin unit
settlement_method	Future	Settlement method
contract_size	Future	Contract size
contract_size_unit	Future	Contract size unit
price_increment	Future	Price increment
price_quotation_unit	Future	Price quotation unit
month	Future	Contract month
year	Future	contract year
base_symbol	Future	Contract base symbol

Orders

The orders API contains a private endpoint for querying order state. Requires a base64-encoded SHA256 HMAC signature as defined in [Authentication](#).

Querying Order State

HTTP Method	Endpoint
GET	/orders

The endpoint supports the following query parameters:

Parameter	Optionality	Notes
symbol	optional	Filter orders by product symbol, only works in production
product_id	optional	Filter orders by product ID, only works in production
product_type	optional	Filter orders by product type, only works in production
clearing_firm_code	optional	Filter orders by clearing firm code, only works in production
account_id	optional	Filter orders by account code, only works in production
connection_id	optional	Filter orders by connection ID, only works in production
day	optional	Get range for day, overrides <code>begin_time</code> and <code>end_time</code>
limit	optional	Limit number of orders per page
begin_time	optional	Begin time for order time range, see Time for more details
end_time	optional	End time for order time range, see Time for more details
order	optional	Page order, either <code>asc</code> or <code>desc</code>
cursor	optional	Cursor string for paginated query

The endpoint returns a pagination response of the type `Pagination<Order, CursorInfo>`. More details on paginated APIs can be found in [Pagination](#). `Order` is defined as follows:

```
export interface Order {
  symbol: string;
  product_id: number;
  product_type: ProductType;
  id: string;
  connection_id: string;
  clearing_firm_code: string;
  account_id: string;
  open_ack_id: string;
  side: Side;
  price: number;
  quantity_requested: number;
  quantity_filled: number;
  status: OrderStatus;
  time_in_force: TimeInForce;
}

export type ProductType = "Future" | "Spread" | "Option";

export type Side = 'Bid' | 'Ask';

export type OrderStatus = 'Working' | 'Closed';

export type TimeInForce = 'IOC' | 'Day' | 'GTC';
```

Fills

The fills API contains private endpoints for querying order fills. It requires a Base64-encoded SHA256 HMAC signature as defined in [Authentication](#).

HTTP Method	Endpoint
GET	/fills

The endpoint supports the following query parameters:

Parameter	Optionality	Notes
symbol	optional	Filter fills by product symbol, only works in production
product_id	optional	Filter fills by product ID, only works in production
product_type	optional	Filter fills by product type, only works in production
clearing_firm_code	optional	Filter fills by clearing firm code, only works in production
account_id	optional	Filter fills by account code, only works in production
connection_id	optional	Filter fills by connection ID, only works in production
day	optional	Get range for day, overrides begin_time and end_time
limit	optional	Limit number of fills per page
begin_time	optional	Begin time for fill time range, see Time for more details
end_time	optional	End time for fill time range, see Time for more details
order	optional	Page order, either asc or desc
cursor	optional	Cursor string for paginated query

The endpoint returns a pagination response of the type `Pagination<Fill, CursorInfo>`. More details on paginated APIs can be found in [Pagination](#). `Fill` is defined as follows:

```
export interface Fill {
  symbol: string;
  product_id: number;
  product_type: ProductType;
  order_id: string;
  clearing_firm_code: string;
  time: string;
  connection_id: string;
  account_id: string;
  ack_id: string;
  side: Side;
  price: number;
  quantity_requested: number;
  quantity_filled: number;
  liquidity: Liquidity;
}

export type Liquidity = "Add" | "Remove" | "SpreadLeg";

export type Side = "Bid" | "Ask";

export type ProductType = "Future" | "Spread" | "Option";
```

Block Trades

The block trades API contains private endpoints for querying block trades. It requires a Base64-encoded SHA256 HMAC signature as defined in [Authentication](#).

HTTP Method	Endpoint
GET	/block-trades

The endpoint supports the following query parameters:

Parameter	Notes
symbol	Filter by product symbol, only works in production
product_id	Filter by product ID, only works in production
product_type	Filter by product type, only works in production
clearing_firm_code	Filter by clearing firm code, only works in production
account_id	Filter by account code, only works in production
connection_id	Filter by connection ID, only works in production
status	Block trade status filter
day	Get range for day, overrides begin_time and end_time
limit	Limit number of block trades per page
begin_time	Begin time for block trade execution time range, see Time for more details
end_time	End time for block trade execution time range, see Time for more details
order	Page order, either asc or desc
cursor	Cursor string for paginated query

The endpoint returns a pagination response of the type `Pagination<BlockTrade, CursorInfo>`. More details on paginated APIs can be found in [Pagination](#). `BlockTrade` is defined as follows:

For more information on block trades, see [Block Trades](#). For specifics on the status of a block trade, see [Block Trade Statuses](#).

```
export interface BlockTrade {
  account_id: string;
  block_trade_id: number;
  counterparty_id: string;
  counterparty_email: string | null;
  symbol: string;
  side: Side;
  price: number;
  product_id: number;
  quantity: number;
  exec_time: string;
  report_time: string;
  status: BlockTradeStatus;
  status_reason: string | null;
  status_time: string | null;
}

export type BlockTradeStatus = 'Pending' | 'Canceled' | 'Rejected' | 'Confirmed' | 'Accepted';
```

Indexes

The index API is publicly available and provides data for all indexes at the exchange.

Hashrate

HTTP Method	Endpoint
GET	<code>/index/hashrate/data/</code>

Returns a list of all hashrate data within a specified time range. Hashrate data is available going back to 2024-04-27.

The endpoint supports the following query parameters:

Parameter	Notes
limit	Limit number of hashrate datapoints per page
begin_time	Begin time for hashrate data, see Time for more details
end_time	End time for hashrate data, see Time for more details
order	Page order, either <code>asc</code> or <code>desc</code>
cursor	Cursor string for paginated query

And returns a pagination response of the type `Pagination<string[], CursorInfo>`. More details on paginated APIs can be found in [Pagination](#).

The schema for the hashrate data array is `[timestamp, price]`, where `timestamp` is an ISO 8601 string and `price` is in US Dollar Cents.

Funding Rates

The funding rates API is publicly available and provides data for all perpetual future funding rates at the exchange.

Funding Rate Overview

Perpetual futures at Bitnomial use a funding rate mechanism to keep the contract price anchored to the underlying spot price. Funding rates are calculated and applied at **8-hour intervals** (00:00, 08:00, and 16:00 UTC). A positive funding rate means long position holders pay short position holders, while a negative rate means shorts pay longs.

For more details on how funding rates are calculated, see [Digital Asset Perpetual Pricing](#).

Funding Rate API Endpoints

Get All Funding Rates

HTTP Method	Endpoint
GET	<code>/funding-rates/</code>

Returns a paginated list of historical funding rate data for perpetual products.

Query Parameters

Parameter	Notes
product_id	Filter funding rates by product ID
base_symbol	Filter funding rates by base symbol (e.g., <code>BTCUC</code> for Bitcoin Centi perpetual)
limit	Limit number of funding rate datapoints per page (default varies)
begin_time	Begin time for funding rate data (required for historical data), see Time
end_time	End time for funding rate data, see Time for more details
order	Page order, either <code>asc</code> or <code>desc</code> (default: <code>desc</code> , most recent first)
cursor	Cursor string for paginated query

Important: Without `begin_time`, the API returns only the most recent funding rate(s). To retrieve historical funding rates, you must specify a `begin_time` parameter.

More details on paginated APIs can be found in [Pagination](#).

Example Requests

Get the most recent funding rate:

```
GET /exchange/api/v1/funding-rates/?base_symbol=BTCUC
```

Get historical funding rates (last 30 days):

```
GET /exchange/api/v1/funding-rates/?base_symbol=BTCUC&begin_time=2025-11-16T00:00:00Z&limit=100&order=desc
```

Response

Returns a pagination response of the type `Pagination<FundingRateData[], CursorInfo>`.

```
export interface FundingRateData {
  product_id: number;
  price_index: number;
  mark_price: number;
  interest_rate: number;
  funding_rate: number;
  interval_start: string;
  interval_end: string;
}

{
  "data": [
    {
      "product_id": 123,
      "price_index": 101234.56,
      "mark_price": 101250.00,
      "interest_rate": 0.0001,
      "funding_rate": 0.000125,
      "interval_start": "2025-12-12T00:00:00Z",
      "interval_end": "2025-12-12T08:00:00Z"
    }
  ],
  "pagination": {
    "cursor": "eyJzYXN0X2lkIjoxMjM0ND0="
  }
}
```

Response Fields

Field	Description
product_id	The product ID of the perpetual future
price_index	The price index value at the time of funding rate calculation
mark_price	The mark price at the time of funding rate calculation
interest_rate	The interest rate component used in funding rate calculation
funding_rate	The final funding rate as a decimal (e.g., 0.0001 = 0.01%)
interval_start	Start time of the funding interval (ISO 8601 UTC)
interval_end	End time of the funding interval (ISO 8601 UTC)

Get Estimated Funding Rate

HTTP Method	Endpoint
GET	/funding-rates/estimated/:base_symbol

Returns the estimated funding rate for the current (in-progress) interval, where `:base_symbol` is the base symbol for a given perpetual product. This estimate is continuously updated based on current market conditions and will be finalized at the end of the funding interval.

GET /exchange/api/v1/funding-rates/estimated/BTCUC

```
export interface EstimatedFundingRateData {
  funding_rate: number;
  interval_start: string;
  interval_end: string;
}
```

```
{
  "funding_rate": 0.000089,
  "interval_start": "2025-12-12T08:00:00Z",
  "interval_end": "2025-12-12T16:00:00Z"
}
```

Notes

- **Data Availability:** For newly launched perpetual products, funding rate history will only be available from the product's launch date. The first funding rate is recorded at the end of the first complete 8-hour interval after launch.
- **Interval Timing:** Funding intervals are fixed at 8-hour periods aligned to UTC: 00:00-08:00, 08:00-16:00, and 16:00-00:00.
- **Rate Interpretation:** Funding rates are expressed as decimals. A rate of **0.0001** equals 0.01% (1 basis point). Annualized rates can be calculated as: $\text{funding_rate} * 3 * 365$.

Charts

Draft API - Use at Own Risk: These /web endpoints are non-stable draft endpoints subject to change without notice. They are provided for convenience but are not covered by API stability guarantees.

The charts API provides historical market data optimized for charting and visualization. This includes price history, volume, and open interest data.

Charts API Endpoints

Get Price History

HTTP Method	Endpoint
GET	/web/charts/price/:id

Returns historical price data for a specific product, suitable for rendering price charts. The `:id` parameter is the product ID.

Query Parameters

Parameter	Notes
begin_time	Start time for data range, see Time for more details
end_time	End time for data range, see Time for more details

GET /exchange/api/web/charts/price/123?begin_time=2025-01-01T00:00:00Z&end_time=now

Response Returns an array of price data points.

```
export interface PriceDataPoint {
  date: string;           // Date in YYYY-MM-DD format
  time: string;           // ISO 8601 timestamp of the settlement
  ohlc: {
    open: string;         // Opening price in USD (decimal string)
    high: string;         // High price in USD (decimal string)
    low: string;          // Low price in USD (decimal string)
    close: string;        // Closing price in USD (decimal string)
    volume: number;       // Trading volume in contracts
  };
  settlementPrice: string; // Settlement price in USD (decimal string)
}
```

Note: All price fields in this endpoint are expressed in **USD** (already converted from ticks). Prices are returned as decimal strings for precision.

```
[
  {
    "date": "2025-12-14",
    "time": "2025-12-14T21:30:00.000000Z",
    "ohlc": {
      "open": "87500.0000000000",
      "high": "88200.0000000000",
      "low": "86800.0000000000",
      "close": "87100.0000000000",
      "volume": 45
    },
    "settlementPrice": "87150.0000000000"
  },
  {
    "date": "2025-12-15",
    "time": "2025-12-15T22:05:31.664146Z",
    "ohlc": {
      "open": "89160.0000000000",
      "high": "89160.0000000000",
      "low": "86030.0000000000",
      "close": "86030.0000000000",
      "volume": 27
    },
    "settlementPrice": "86240.0000000000"
  }
]
```

Get Volume and Open Interest History

HTTP Method	Endpoint
GET	/web/charts/voi

Returns historical volume and open interest data. Can return data for a single product or aggregated across multiple products.

Query Parameters

Parameter	Notes
product_id	Filter by specific product ID (can specify multiple, e.g., product_id=1&product_id=2)
begin_time	Start time for data range, see Time for more details
end_time	End time for data range, see Time for more details

Example Requests

Single product:

```
GET /exchange/api/web/charts/voi?product_id=123&begin_time=2025-01-01T00:00:00Z&end_time=now
```

Multiple products (aggregated):

```
GET /exchange/api/web/charts/voi?product_id=123&product_id=124&product_id=125&begin_time=2025-01-01T00:00:00Z&end_time=now
```

Response

Returns an array of volume and open interest data points.

```
export interface VOIDataPoint {
  date: string; // Date in YYYY-MM-DD format
  productId: number; // Product ID
  baseSymbol: string; // Base symbol (e.g., "BUS", "ETU")
  volume: number | null; // Trading volume in contracts
  notionalVolume: number | null; // Trading volume in cents (divide by 100 for USD)
  openInterest: number | null; // Open interest in contracts
  notionalOpenInterest: number | null; // Open interest in cents (divide by 100 for USD)
}
```

Important: The notionalVolume and notionalOpenInterest fields are expressed in **cents**. To convert to USD:

```
notional_volume_usd = notionalVolume / 100
```

```
[
  {
    "date": "2025-12-01",
    "productId": 1547,
    "baseSymbol": "PBU",
    "volume": 27,
    "notionalVolume": 2365870,
    "openInterest": 392,
    "notionalOpenInterest": 33806080
  },
  {
    "date": "2025-12-02",
    "productId": 1547,
    "baseSymbol": "PBU",
    "volume": 35,
    "notionalVolume": 3067500,
    "openInterest": 400,
    "notionalOpenInterest": 35000000
  }
]
```

In the example above, the first entry shows: - Volume: 27 contracts - Notional Volume: 2,365,870 cents = **\$23,658.70 USD** - Open Interest: 392 contracts - Notional Open Interest: 33,806,080 cents = **\$338,060.80 USD**

Notes

- **Time Range:** If no time range is specified, the API returns data for a default period (typically the past 30 days).
- **Data Frequency:** Price history data is provided at daily granularity, with one data point per trading day.
- **Null Values:** Some fields may be `null` if data is not available for that time period (e.g., no trades occurred, or open interest hasn't been published yet).
- **Aggregation:** When multiple `product_id` parameters are provided to the VOI endpoint, the response contains aggregated totals across all specified products. This is useful for viewing combined volume/OI for all contract months of a product series.

Market Stats

Draft API - Use at Own Risk: These `/web` endpoints are non-stable draft endpoints subject to change without notice. They are provided for convenience but are not covered by API stability guarantees.

The market stats API provides real-time and trailing market statistics for products at the exchange.

Market Stats API Endpoints

Get Trailing Statistics for All Products

HTTP Method	Endpoint
GET	<code>/web/market/stats/trailing/all-products</code>

Returns trailing (24-hour) market statistics for all active products. This endpoint provides volume data that is updated in near real-time during trading hours.

GET `/exchange/api/web/market/stats/trailing/all-products`

Response Returns an array of trailing statistics objects for each product.

```
export interface ProductTrailingStats {
  productId: number;           // Product ID
  volume: number | null;       // 24h trading volume in contracts
  notionalVolume: number | null; // 24h trading volume in USD (already converted)
}
```

Note: Unlike the VOI Charts endpoint, `notionalVolume` in this endpoint is expressed in **USD** (not cents). No conversion is needed.

```
[
  {
    "productId": 1547,
    "volume": 27,
    "notionalVolume": 23658
  },
  {
    "productId": 826,
    "volume": 5,
    "notionalVolume": 429750
  }
]
```

In the example above: - Product 1547: 27 contracts with notional volume of **\$23,658 USD** - Product 826: 5 contracts with notional volume of **\$429,750 USD**

Get Trailing Statistics for Single Product

HTTP Method	Endpoint
GET	/web/market/stats/trailing/:product_id

Returns trailing (24-hour) market statistics for a specific product, where `:product_id` is the product ID.

GET /exchange/api/web/market/stats/trailing/123

```
export interface ProductTrailingStats {
  productId: number;           // Product ID
  volume: number | null;       // 24h trading volume in contracts
  notionalVolume: number | null; // 24h trading volume in USD (already converted)
}
```

```
{
  "productId": 123,
  "volume": 150,
  "notionalVolume": 15075000
}
```

Notes

- **Trailing Window:** The statistics represent a rolling 24-hour window that updates continuously during trading hours.
- **Update Frequency:** Volume statistics are updated in near real-time as trades occur.
- **Null Values:** Values may be `null` if no trading activity has occurred in the trailing window.
- **Use Case:** This endpoint is particularly useful for displaying real-time volume information on market data displays, as it reflects current trading activity rather than the previous day's settled values from the Products API.

WebSocket API

WebSocket Overview

The websocket server can be found at <wss://bitnomial.com/exchange/ws>. It uses a bidirectional feed with all messages encoded as JSON objects. Each message has a `type` field which allows the consumer to handle it appropriately.

Product Codes

A few messages in the WebSocket protocol use product codes. The product codes are designed to be flexible so that clients don't necessarily have to spell out 10s or 100s of product symbols if they don't want to. To that end, there are a few different ways each product code can be interpreted:

1. Symbol: If the product code exactly matches a product symbol it will apply only to that product.
2. Futures: If the product code exactly matches a future base symbol (eg. "BUC"), then that will apply to all futures that share the same base symbol.
3. Options: If the product code exactly matches a base symbol with an "O" appended to it (eg. "BUCO"), then that will apply to all options with an underlying future having that base symbol.

Book Mechanics

When subscribing to the **Book** channel, refer to the Book Mechanics in the **BTP Pricefeed Docs**.

Available Channels

There are currently 4 channels available on the Bitnomial WebSocket feed:

- **Trade** - Trade execution messages
- **Book** - Order book snapshots and level updates
- **Block** - Block trade execution messages
- **Status** - Market state updates

Subscribe

WebSocket clients must send a subscribe message within 10 seconds of connecting or they will be disconnected.

Subscribe

```
interface SubscribeMessage {
  type: "subscribe";
  product_codes: string[];
  channels: ChannelSubscription[];
}
```

```
interface ChannelSubscription {
    name: string;
    product_codes: string[];
}
```

```
{
  "type": "subscribe",
  "product_codes": ["BUCZ26", "BUC0"],
  "channels": [
    {
      "name": "trade",
      "product_codes": ["BUCH27"]
    },
    {
      "name": "book",
      "product_codes": ["BUCM27"]
    }
  ]
}
```

This message will subscribe the client to **all** channels for BUCZ26 as well as **all** options with a BUC underlying future. See [Product Codes](#) for additional details on what strings are allowed in the `product_codes` field. Additionally, this message will subscribe the client to only **trade** updates for BUCH27 and only **book** updates for BUCM27.

Unsubscribe

Unsubscribe messages have the same structure as subscribe messages, except for the `type` field is "unsubscribe".

```
{
  "type": "unsubscribe",
  "product_codes": [
    "BUCH27"
  ],
  "channels": [
    {
      "name": "trade",
      "product_codes": [
        "BUC0"
      ]
    }
  ]
}
```

This unsubscribe message will unsubscribe the client from **all** updates to BUCH27 as well as **trade** updates from BUC0 meaning all options with a BUC underlying. Note that even when subscribing to all updates for a product code, it is still possible to unsubscribe from specific channels later.

Disconnect

Clients will receive a disconnect message when they are disconnected for any reason.

```
interface DisconnectMessage {
    type: "disconnect";
    reason: string;
}

{
    "type": "disconnect",
    "reason": "Client requested logout"
}
```

Trade

When subscribing to the trade channel, only trades for the specific product codes requested will be received.

Message Format

```
interface TradeMessage {
    type: "trade";
    ack_id: string;
    price: number;
    quantity: number;
    symbol: string;
    taker_side: string;
    timestamp: string;
}
```

Example

```
{
    "type": "trade",
    "ack_id": "7148460953766461527",
    "price": 19000,
    "quantity": 10,
    "symbol": "BUSZ22",
    "taker_side": "Bid",
    "timestamp": "2022-09-28T16:06:39.022836179Z"
}
```

Book

The book channel provides level and book updates for the requested product codes. Upon subscribing, a book snapshot is received for each product matching the subscribed product code. After receiving a book snapshot, level updates can be applied. A level update can be applied to the book snapshot if `level.ack_id > book.ack_id`. A level update with a quantity of 0 means that price level has been cleared out, either from a match or a cancel.

Note: It is possible for the book snapshot to not arrive immediately upon subscribing to a book channel. This is only possible when the WebSocket is recovering from an error and is reconciling the pricefeed to make sure it has an accurate book snapshot to send. In this case it will send the book snapshot as soon as it has confirmed it's correct. This also means that clients will not receive *any* book snapshots until it has been reconciled even though they are indeed subscribed.

Level Updates

```
interface LevelMessage {
    type: "level";
    ack_id: string;
    price: number;
    quantity: number;
    side: string;
    symbol: string;
    timestamp: string;
}
```

```
{
  "type": "level",
  "ack_id": "7148460953766461522",
  "price": 20000,
  "quantity": 10,
  "side": "Bid",
  "symbol": "BUSZ22",
  "timestamp": "2022-09-28T16:04:32.357586392Z"
}
```

```
{
  "type": "level",
  "ack_id": "7148460953766461524",
  "price": 20000,
  "quantity": 0,
  "side": "Bid",
  "symbol": "BUSZ22",
  "timestamp": "2022-09-28T16:04:37.003590493Z"
}
```

Book Update

```
interface BookMessage {
    type: "book";
    ack_id: string;
    asks: [number, number][];
    bids: [number, number][];
    symbol: string;
    timestamp: string;
}
```

```
{
  "type": "book",
  "ack_id": "7148460953766461532",
  "asks": [
    [21000, 10],
    [22000, 10]
  ],
  "bids": [
    [19000, 15],
    [18000, 10]
  ],
  "symbol": "BUSZ22",
  "timestamp": "2022-09-28T16:07:36.93709645Z"
}
```

Each book update contains an array of asks and bids, which are aggregated per price level and represented as a tuple of (price, quantity). They are ordered such that the first element is the best ask or best bid, respectively. Note that the `ack_id` of a book update will be `0` when the market is closed.

Block

The `block` channel only provides updates when **Block Trade** has occurred.

Message Format

```
interface BlockTradeMessage {
  type: "block";
  ack_id: string;
  leader_side: string;
  price: number;
  quantity: number;
  symbol: string;
  timestamp: string;
}
```

Example

```
{
  "type": "block",
  "ack_id": "7148466850756558935",
  "leader_side": "Bid",
  "price": 19500,
  "quantity": 10,
  "symbol": "BUSZ22",
  "timestamp": "2022-09-28T16:26:01.440681563Z"
}
```

Status

The `status` channel provides updates on **Market State** events.

Message Format

```
interface StatusMessage {
  type: "status";
  ack_id: string;
  state: "Open" | "Close" | "Halt";
  symbol: string;
  timestamp: string;
}
```

The `state` field is one of:

- `Open` — new orders and cancels can be submitted, and matches are possible.
- `Halt` — the market is paused. The book is persisted, but new orders cannot be submitted and no matches can happen. Cancels are still allowed.

- **close** — the market is closed. No new orders are allowed and the book has been cleared.

See **Market State** for the full semantics.

Example

```
{
  "type": "status",
  "ack_id": "7148460953766461485",
  "state": "Open",
  "symbol": "BUSZ22",
  "timestamp": "2022-09-28T16:03:38.37944775Z"
}
```

FIX API

FIX Protocol Overview

The Bitnomial FIX API provides dropcopy functionality using the FIX 4.4 protocol. The CompID of the Bitnomial FIX dropcopy is **BTNL_DC**.

Message Types

- **Common Messages** - Header, trailer, and administrative messages
- **Execution Report** - Order and fill information

Bitnomial Symbology

Bitnomial uses standard futures month codes, and the year code is a single digit representing the next year ending in that number. See **Product Specifications** for a detailed list of products.

Product Type	Symbol	Example	Description
Future		BUCH29	Mar 2029 BUC contract
Put Option	OP	BUCOZ26P90000	Dec 2026 BUC Put option with \$90000 strike
Call Option	OC	BUCOM27C90000	Dec 2027 BUC Call option with \$90000 strike
Two Leg Spread	-	BUCH27-BUCM27	Spread between Mar and Jun 2027 BUC contracts

Bitnomial Order Replace

In the Bitnomial system, orders are modified in place instead of being canceled and replaced with a new order. This means that a Cancel/Replace order will only send an `ExecType (150) = 5` (Replaced) Execution Report and no report of a canceled order. Additionally, the `clOrdId (11)` and `origClOrdId (41)` will contain the same client order id because the existing order has just been modified.

Common Messages

Header Format

Standard FIX Header format.

Field tag	Field name	Format	Req	Comments
8	BeginString	String	Y	Always <code>FIX.4.4</code>
9	BodyLength	Length	Y	Message length in bytes forward to the <code>checksum (10)</code> field
35	MessageType	String	Y	Message type
49	SenderCompID	String	Y	<code>BTNL_PF</code> (pricefeed) or <code>BTNL_DC</code> (dropcopy)
50	SenderSubID	String	N	
56	TargetCompID	String	Y	Negotiated value to identify receiving firm
34	MsgSeqNum	SeqNum	Y	Integer message sequence number
52	SendingTime	UTCTimestamp	Y	Time of message transmission
43	PossDupFlag	Boolean	C	Required for resent messages. <code>Y</code> = Possible duplicate
97	PossResend	Boolean	C	Required for messages resent under a new sequence number. <code>Y</code> = Possible resend

Trailer Format

Standard FIX Trailer Format.

Field tag	Field name	Format	Req	Comments
10	Checksum	String	Y	Three byte, simple checksum. Always last field in message. See Volume 2: "Checksum Calculation"

Administrative Messages

Message type	Tag 35 (MsgType)
Logon	A
Heartbeat	0
Test Request	1
Logout	5

Logon Message The Logon (A) message authenticates a user establishing a connection to a remote system.

Field tag	Field name	Format	Req	Comments
553	Username	String	Y	Username is the connection id in hexadecimal.
554	Password	String	Y	Password is the connection auth token.
98	EncryptMethod	Int	Y	Constant 0 (None) required.
108	HeartBtInt	Int	Y	Heartbeat interval in seconds (No less than 10). Recommend 30-60.
141	ResetSeqNumFlag	Bool	N	Y or N indicates that both sides of a FIX session should reset seq nums.

Example:

```
8=FIX.4.4 | 9=88 | 35=A | 49=fix_client | 56=BTNL_PF | 34=1 | 52=20061124-15:47:02.951 | 98=0 | 108=30 | 553=10 | 554=AUTHTOKEN | 141=Y | 10=CHECKSUM |
```

Heartbeat The Heartbeat (0) message monitors the status of the communication link and identifies when the last of a string of messages was not received.

Field tag	Field name	Format	Req	Comments
112	TestReqID	String	C	Required if the result of a Test Request (1) message

Example:

```
8=FIX.4.4 | 9=57 | 35=0 | 34=2 | 49=BTNL_DC | 56=BTNL_DC | 52=20210525-16:59:02.564 | 10=012 |
```

Test Request The TestRequest (1) message forces a heartbeat from the connected application.

Field tag	Field name	Format	Req	Comments
112	TestReqID	String	Y	Identifier to be returned in the resulting Heartbeat (0)

Example:

```
8=FIX.4.4 | 9=75 | 35=1 | 49=BTNL_PF | 56=fix_client | 34=2 | 52=20061124-15:50:32.215 | 112=PostLogon_00001 | 10=CHECKSUM |
```

Logout The Logout (5) message terminates the FIX session. Disconnection without the exchange of Logout (5) messages should be interpreted as an abnormal condition.

Field tag	Field name	Format	Req	Comments
58	Text	String	N	Free format text string

Example:

```
8=FIX.4.4 | 9=95 | 35=5 | 49=BTNL_PF | 56=fix_client | 34=25 | 52=20061124-15:59:50.524 | 58=
NormalLogoutInitiatedByCounterparty | 10=054 |
```

Execution Report

Application Messages

Message type	Tag 35 (MsgType)
Execution Report	8

Execution Reports

The Execution Report (8) message relays order information relating to new, modded, or filled orders.

Field tag	Field name	Format	Req	Comments
60	TransactTime	String	Y	Time of execution report creation (UTC)
37	OrderId	String	Y	Unique identifier among all active orders. Corresponds to most recent Open or Modify ackId . Encoded as a decimal number
11	ClOrdId	String	Y	Corresponds to orderId . Encoded as a decimal number. clOrdId (11) and SecondaryClOrdId (526) or BlockTraderId (20526) represent a unique order identifier per order originator
526	SecondaryClOrdId	String	C	Corresponds to connectionId . Encoded as a hexadecimal number. Required if TradeType (828) = 0
20526	BlockTraderId	String	C	Unique identifier for block trader. Encoded as a UUID. Required if TradeType (828) = 1
41	OrigClOrdId	String	C	clOrdId (11) of the order to be replaced (<i>See Bitnomial Order Replace</i>). Encoded as a decimal number
17	ExecId	String	Y	Unique identifier of the execution report. Corresponds to ackId . Encoded as a decimal number
150	ExecType	Char	Y	0 = New, 4 = Canceled, 5 = Replaced, F = Fill
39	OrdStatus	Char	Y	0 = New, 1 = Partial Fill, 2 = Fill, 4 = Canceled
1	Account	String	Y	Clearing account identifier. Max len 10
55	Symbol	String	C	Product identifier. (<i>See Bitnomial Symbology</i>)
20055	ProductId	Int	C	Integer identifier for Symbol (55). Corresponds to product_id in the Product API
54	Side	Char	Y	1 = Buy, 2 = Sell
44	Price	Price	Y	Price of order in dollars with cents eg. price of 9000 = '9000.00'
59	TimeInForce	Char	Y	0 = Day, 1 = GTC, 3 = IOC
38	OrderQty	Qty	Y	Quantity of order
31	LastPx	Price	C	Price of this fill in dollars with cents eg. price of 9000 = '9000.00'. Required if ExecType (150) = F
32	LastQty	Qty	C	Quantity of this last fill. Required if ExecType (150) = F
151	LeavesQty	Qty	Y	Quantity open for further execution

Field tag	Field name	Format	Req	Comments
14	CumQty	Qty	Y	Quantity currently filled for this order
6	AvgPx	Price	Y	Volume weighted average execution price in dollars with cents eg. price of 9000 = '9000.00'
167	SecurityType	String	Y	FUT = Future, OPT = Option, SPD = Spread
200	MaturityMonthYear	MonthYear	Y	Format YYYYMM. Required if SecurityType (167) = FUT or OPT
201	PutOrCall	Int	C	0 = Put 1 = Call. Required when SecurityType (167) = OPT
202	StrikePrice	Price	C	Strike price in dollars with cents eg. price of 9000 = '9000.00'. Required when SecurityType (167) = OPT
439	ClearingFirm	String	Y	Clearing firm identifier. Max len 2
582	CustOrderCapacity	Int	Y	CTI Code, 1 = CTI1, 2 = CTI2, 3 = CTI3 4 = CTI4
581	AccountType	Int	Y	1 = Seg/Customer 2 = Reg/House
828	TradeType	Int	Y	0 = Regular Trade 1 = Block Trade
851	LastLiquidityInd	Int	N	1 = Added Liquidity 2 = Removed Liquidity , Only applicable when Order Status (39) = Partial or Filled
555	NoLegs	Int	C	Number of legs in repeating group. Required if multi leg product
=> 600	LegSymbol	String	Y	Multileg underlying instrument's Symbol (55)
=> 609	LegSecurityType	String	Y	Multileg underlying instrument's SecurityType (167)
=> 610	LegMaturityMonthYear	MonthYear	Y	Multileg underlying instrument's MaturityMonthYear (200)
=> 612	LegStrikePrice	Price	C	Multileg underlying instrument's StrikePrice (202)
=> 624	LegSide	Price	Y	Multileg underlying instrument's Side (54)
=> 637	LegLastPx	Price	C	Multileg underlying instrument's LastPx (31)

Example:

```
8=FIX.4.4 | 9=168 | 35=8 | 49=BTNL_DC | 56=fix_client | 34=1 | 50=FastTradeInc | 52=20061124-15:47:02.951 | 37=1 |
11=0 | 526=1 | 17=1 | 150=0 | 39=0 | 1=FTI | 55=BUSZ6 | 20055=231 | 54=1 | 44=19000 | 38=10 | 151=10 | 14=0
| 6=0 | 167=FUT | 541=20061221 | 439=JP | 582=2 | 581=2 | 828=0 | 10=CHECKSUM |
```

Market Operations

Market Taxonomy

This document defines the terminology used to describe markets, products, and contracts.

Core Concepts

Product

A **product** is what a contract's value derives from. Products fall into two categories:

Assets - Things with value that can be owned or measured: - Digital assets: Bitcoin, Ethereum, XRP, Solana - Commodities: Gold, Oil, Electricity - Rates: Interest rates, Hashrate - etc.

Events - Outcomes that resolve to a discrete result: - Election outcomes - Bitcoin price above \$100k on date X - Economic indicators

The term **underlying** is synonymous with product.

Contract Type

The **contract type** defines the structure and mechanics of a derivative:

Type	Description
Futures	Agreement to buy/sell at a future date
Perpetuals	Perpetually settled to spot price (no roll required)
Options	Right (not obligation) to buy/sell
Spot	Immediate settlement
Prediction	Binary or discrete outcome based on event

Series

A **series** is a contract definition with variables (like expiry or strike) not yet specified:

- Product + contract type + size
- Example: "Bitcoin US Dollar Myra Future" is a series

Contract

A **contract** is a fully defined tradeable instrument where all variables are set:

Variable	Description	Applies To
Expiry	Settlement/delivery date	Futures, Options
Strike	Exercise price	Options

Examples: - “Bitcoin US Dollar Myra Future - January 2025” is a **contract** (series + expiry) - “Bitcoin US Dollar Myra Option 100000 Call - January 2025” is a **contract** (series + strike + expiry)

Exchange vs Market

The **exchange** (Bitnomial Exchange) is the **venue** where markets are traded.

Markets are traded on the exchange. Markets can be grouped by:

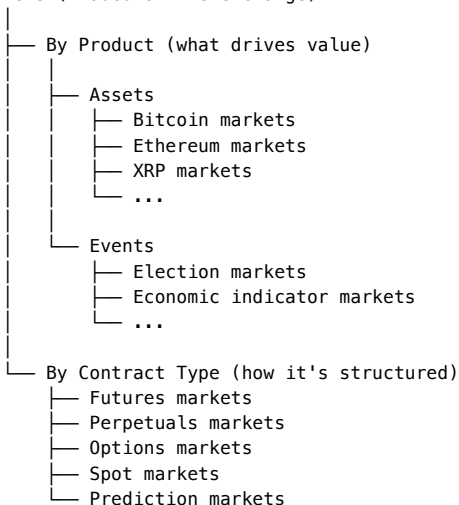
Grouping	Examples
By product	Bitcoin markets, XRP markets, Election markets
By contract type	Futures markets, Options markets, Prediction markets

Note: “Spot market” can refer to either the exchange’s spot markets or third-party reference markets for price discovery.

Taxonomy Hierarchy

Bitnomial Exchange (the venue) |└

Markets (traded on the exchange)



Product Complexes

Related contracts are grouped into **complexes** by product:

Bitcoin Complex

All Bitcoin-derived contracts across contract types: - Bitcoin Futures (various sizes) - Bitcoin Perpetuals - Bitcoin Options - Hashrate Futures

Crypto Complex

Multi-product suite of cryptocurrency contracts: - XRP Futures - Solana Futures - Ethereum Futures - Cardano Futures - etc.

Summary Table

Term	Definition	Example
Product	What a contract's value derives from (asset or event)	Bitcoin, Election outcome
Asset	A type of product (things with value)	Bitcoin, Gold, Hashrate
Event	A type of product (discrete outcomes)	"BTC > \$100k on Jan 1"
Contract Type	Structure of the derivative	Futures, Options, Perpetuals, Spot, Prediction
Series	Contract with variables not yet set	Bitcoin Myra Future
Contract	Fully defined tradeable instance	Bitcoin Myra Future Jan 2025
Market	Grouping by product or contract type	"Bitcoin markets", "Futures markets"
Complex	Suite of contracts for a product	Bitcoin Complex
Exchange	The venue where markets are traded	Bitnomial Exchange

Overview

Market operations are first and foremost governed by the [Bitnomial Rulebook](#). This section provides additional information about the market operations of the Bitnomial Exchange and Clearinghouse.

Product Notation

Symbology

Trading and clearing systems use a numerical "Product ID" to uniquely identify listed and cleared products, which is not discussed in this document. For convenience and external 3rd party use, legacy "Product Codes" are also assigned but not used by the trading and clearing systems. See [Market Taxonomy](#) for terminology definitions.

Product Code Structure

Product Codes are serialized multi-field strings composed of alphanumeric characters following standardized patterns based on contract type.

Size Codes

Contract size multipliers use [SI units](#):

Code	Name	Multiplier	Example
M	Micro	10^{-6}	
L	Milli	10^{-3}	
C	Centi	10^{-2}	BUC = 0.01 BTC
I	Deci*	10^{-1}	ETUI = 0.1 ETH
S	Standard*	10^0	
D	Deca	10^1	ETUD = 10 ETH
H	Hecto	10^2	XRUH = 100 XRP
K	Kilo	10^3	CLUK = 1,000 LINK
Y	Myra*	10^4	ADUY = 10,000 ADA
N	Penta*	10^5	DGUN = 100,000 DOGE
A	Mega*	10^6	

Code	Name	Multiplier	Example
G	Giga	10^9	
T	Tera	10^{12}	
P	Peta	10^{15}	
E	Exa	10^{18}	
Z	Zetta	10^{21}	

Non-standard:* **s (Standard) is not an SI prefix. **ι** is used for deci instead of **ɖ** to avoid confusion with deca. **ℓ** is used for milli and **Λ** for mega to avoid confusion with micro (**μ**). **γ** (Myra) is based on an obsolete SI prefix. **ℵ** (Penta) is not an SI prefix.

Month Codes

Code	Month
F	January
G	February
H	March
J	April
K	May
M	June
N	July
Q	August
U	September
V	October
X	November
Z	December

Futures Contracts

Pattern

[Base] [Quote] [Size] [Month] [Year]

Components

Field	Description	Example
Base Currency Code	The underlying asset	B for Bitcoin, E for Ethereum
Quotation Currency Code	The settlement currency	U for US Dollar
Contract Size Code	The multiplier (see Size Codes)	S , I , C , etc.
Month Code	Expiration month (see Month Codes)	F-Z
Year Code	Two-digit year	25 for 2025

Examples

Symbol	Description
BU CM25	Bitcoin Centi (0.01 BTC) USD March 2025
ET UDM25	Ethereum Deca (10 ETH) USD March 2025
XR UHM25	XRP Hecto (100 XRP) USD March 2025

Symbol	Description
ADUYM25	Cardano Myra (10,000 ADA) USD March 2025
CLUKM25	Chainlink Kilo (1,000 LINK) USD March 2025

Perpetual Futures

Perpetual futures follow the same naming convention as futures but use a far future expiry date (ex: December 2050).

Pattern

P[Base] [Quote] [Size] Z50

Examples

Symbol	Description
PBTCUC	Bitcoin Centi (0.01 BTC) USD Perpetual

The z50 suffix indicates December 2050, representing the perpetual nature of the contract.

Options on Futures

Options on futures use the underlying future's symbol with an option specification appended.

Pattern

[Underlying Future]0[Month] [Year] [C/P] [Strike]

Where: - **Underlying Future** - The futures contract symbol (e.g., BUCF26) - **O** - Indicates this is an option - **Month/Year** - Option expiration date - **C/P** - Call or Put - **Strike** - Strike price in whole dollars (no decimal point)

Examples

Symbol	Description
BUCOF26C100000	BTC Centi Jan 2026 Call, \$100,000 strike
BUCOF26P95000	BTC Centi Jan 2026 Put, \$95,000 strike

Calendar Spreads

Calendar spreads combine two futures contracts with different expiration dates.

Pattern

[Front Month Contract] - [Back Month Contract]

Field	Description	Example
-------	-------------	---------

Components

Field	Description	Example
Front Month Contract	Sell near-term futures	BUCM25 (March 2025)
-	Separator	
Back Month Contract	Buy later-term futures	BUCU25 (September 2025)

Structure

Each calendar spread has a leg ratio of -1:+1. When buying a calendar spread: - The **front month is sold** (-1) - The **back month is bought** (+1)

This means buying the spread is a roll from the long perspective. Leg 1 (front month) is always used as the anchor for pricing purposes. When a calendar spread match occurs, the Leg 2 price is calculated by adding the match price to the last known price of Leg 1.

Examples

Symbol	Description
BUCM25-BUCU25	Sell BTC Centi March 2025, Buy September 2025
BUCM26-BUCM27	Sell BTC Centi March 2026, Buy March 2027

Spot

Spot products use a simplified notation without size codes or expiry dates.

Pattern

[Base] [Quote]

Examples

Symbol	Description
BTCUSD	Bitcoin/US Dollar spot

Minimum Price Fluctuation (Tick Size)

Products are quoted in ticks to normalize the prices traders see. A tick is the minimum amount a price can move at once.

Examples

Symbol	Contract Size	Tick Size	Tick Value
BUC	0.01 BTC	\$1/BTC	\$0.01

CQG Name

CQG maintains uniquely identifiable symbol names across all exchanges, such as the PBTCUCZ50 contract.

Settlements

Implied Spot Pricing

The Exchange computes futures curve single day basis using the standard linear form:

$$\mathbf{Bd} = \mathbf{Pbf} / \mathbf{Tbf}$$

Where: - **Bd** = Basis value for a single day - **Pbf** = Price of spread between back-front month contracts - **Tbf** = Time in days between back-front month contracts

From the single day basis value, a spot price can be implied from a pricing contract again using the standard linear form:

$$\mathbf{Si} = \mathbf{Pp} - (\mathbf{Bd} \times \mathbf{Tf})$$

Where: - **Si** = Implied spot price - **Pp** = Price of pricing contract - **Tf** = Time to front month expiration in days

Note: The Exchange has discretion to select the most liquid and representative fair value Front and Back month contracts. These legs may not necessarily be consecutive contract months. The Exchange computes each contract month's price according to the contract's Settlement Price rules.

Digital Asset Perpetual Pricing

Perpetual Futures Contracts are priced using a combination of the Index Price and the Funding Rate. The Funding Rate is calculated every eight (8) hours and is used to adjust the Perpetual Futures Contract Variation Margin. Perpetual Futures Contracts are perpetually settled to the Index Price at the end of each funding interval and the adjustment is applied to the next Variation Margin. If the funding rate is positive, longs pay shorts; if negative, shorts pay longs.

The Index Price is the spot price **implied by the futures curve**, or as otherwise specified in the product specifications.

Funding Rate Calculation

The Funding Rate is calculated every eight (8) hours. The Clearinghouse adjusts the Perpetual Futures Contract Variation Margin by the sum of the Funding Rates that occurred since the last Variation Margin cycle. When markets are closed, the Premium Index is carried forward from the last available period.

Funding Rate Intervals

- **Interval 1:** 7pm CT - 3am CT
- **Interval 2:** 3am CT - 11am CT
- **Interval 3:** 11am CT - 7pm CT

$$\text{Funding Rate Formula } \mathbf{FR} = \mathbf{avg(P)} + \mathbf{clamp(IR - avg(P), -0.05\%, 0.05\%)}$$

Where: - **FR** = Funding Rate (applied to positions) - **IR** = Interest Rate = 0.01% (fixed rate) - **avg(P)** = Index Weighted Average Premium Index over the funding interval - **clamp(x, min, max)** = Constrains x to be between min and max values

$$\text{Index Weighted Average Premium Index Calculation } \mathbf{avg(P)} = (1/N) \times \sum_{i=1}^n i \times \mathbf{Pi}$$

Where: - **n** = 1920 (number of 15-second sample periods per 8-hour funding interval) - **N** = 1,844,160 ($\sum_{i=1}^n i$, used for index weighting) - **Pi** = Premium Index at sample period i

Premium Index Formula $P = [\max(0, CI_{bid} - S) - \max(0, S - CI_{ask})] / S$

Where: - S = Index Price - CI_{bid} = Contract Impact Price for bid side - CI_{ask} = Contract Impact Price for ask side

Contract Impact Price Calculation $CI_{side} = [\sum_{bi=1}^b (q_i \times p_i)] / [\sum_{bi=1}^b q_i]$

Where: - $side$ = either “bid” or “ask” - b = total book levels - q_i = Quantity at price level i - p_i = Price at level i

Settlement Price Calculation

$SP = \text{median}(S, S + ma(S), ma(C))$

Where: - SP = Settlement Price - S = Index Price - $ma(S)$ = Index Price plus the 2.5-minute SMA - $ma(C)$ = 2.5-minute VWAP or TWAP

Simple Moving Average (SMA) $ma(S) = (1/v) \times \sum_{vi=1}^v [(p_{bid,i} + p_{ask,i}) / 2 - S_i]$

Where: - v = 10 (Number of samples in the 2.5-minute window) - $p_{bid,i}$ = Best bid price at sample i - $p_{ask,i}$ = Best ask price at sample i - S_i = Index Price at sample i

Hashrate Pricing

The Settlement Price for Hashrate US Dollar Petahash Futures follows the [Luxor Hashrate Methodology](#), which converts Bitcoin-denominated hashrate to USD through a multi-step process.

Step 1: Bitcoin Hashrate Price Calculation $HP_{btc} = (SR_{btc} + \text{avg}(TXF_{btc})) / HR$

Where: - HP_{btc} = Hashrate Price in Bitcoin (BTC per PH/s per day) - SR_{btc} = Block Subsidy Rate, in bitcoin - TXF_{btc} = Transaction Fees, in bitcoin, for previous 144 blocks - $\text{avg}(TXF_{btc})$ = Average transaction fees over the calculation period - HR = Network Hashrate, PH/s (Petahash per second)

Step 2: Bitcoin Spot Price Calculation The BTC/USD Spot Price (S_{btc}) is computed using the Exchange’s **Implied Spot Pricing** methodology, which derives a spot price from the futures curve by calculating the basis between front and back month contracts.

Step 3: USD Denominated Hashrate Price $HP_{usd} = HP_{btc} \times S_{btc}$

$HP_{usd} = [(SR_{btc} + \text{avg}(TXF_{btc})) / HR] \times [FP - (BFP / BFt) \times FFt]$

Where: - HP_{usd} = Hashrate Price in USD per petahash per second per day

Step 4: Final Settlement Price The futures Final Settlement Price is the average of all Hashrate prices for the duration of the contract month. This constitutes continuous delivery over the contract month:

$HP_{fs} = (1/n) \times \sum_{ni=1}^n HP_{usd,i}$

Where: - HP_{fs} = Final Settlement Price - n = 4320 (number of hashrate price calculations per month: one every 10 minutes for 30 days) - $HP_{usd,i}$ = USD hashrate price at calculation period i

Example Calculation For the Bitcoin US Dollar Hashrate for 2023-06-30:

$HP_{usd} = \$77.81 = [(6.25 + 0.21745818) / (1.01883 \times 1016)] \times [\$30,805 - (\$525/91) \times 89]$

Where: - SR_{btc} = 6.25 BTC (block subsidy) - $\text{avg}(TXF_{btc})$ = 0.21745818 BTC (average transaction fees) - HR = 1.01883×1016 H/s (network hashrate) - FP = \$30,805 (front month price) - BFP = \$525 (back-front spread) - BFt = 91 days (days between contracts) - FFt = 89 days (days to front expiration)

Market Hours

Bitnomial Exchange operates 24 hours a day, 7 days a week.

Maintenance Hours

A scheduled weekly maintenance window occurs every Friday from 17:00 to 18:00 CT. During this time the production systems and <https://bitnomial.com> may not be available.

Spot Complex Markets have an additional maintenance window from 7:00 UTC to 7:15 UTC every other Thursday.

Holiday Hours

The exchange remains open for trading on all holidays. Funding payments for perpetual products are generated on all days regardless of holiday status.

- **Trading Open - No Settlement:** Trading continues as normal, but banking operations and settlement periods do not occur.

2026 Holiday Calendar

Date	Holiday	Memo
Monday, January 19	Martin Luther King Day	Trading Open - No Settlement
Monday, February 16	President's Day	Trading Open - No Settlement
Friday, April 3	Good Friday	Trading Open - No Settlement
Monday, May 25	Memorial Day	Trading Open - No Settlement
Friday, June 19	Juneteenth	Trading Open - No Settlement
Friday, July 3	Independence Day (Observed)	Trading Open - No Settlement
Monday, September 7	Labor Day	Trading Open - No Settlement
Thursday, November 26	Thanksgiving Day	Trading Open - No Settlement
Friday, December 25	Christmas Day	Trading Open - No Settlement

2027 Holiday Calendar

Date	Holiday	Memo
Friday, January 1	New Year's Day	Trading Open - No Settlement
Monday, January 18	Martin Luther King Day	Trading Open - No Settlement
Monday, February 15	President's Day	Trading Open - No Settlement
Friday, March 26	Good Friday	Trading Open - No Settlement
Monday, May 31	Memorial Day	Trading Open - No Settlement
Friday, June 18	Juneteenth (Observed)	Trading Open - No Settlement
Monday, July 5	Independence Day (Observed)	Trading Open - No Settlement
Monday, September 6	Labor Day	Trading Open - No Settlement
Thursday, November 25	Thanksgiving Day	Trading Open - No Settlement
Friday, December 24	Christmas Day (Observed)	Trading Open - No Settlement

Order Entry Risk Management

- **Position Limits Per Contract, Per Account:** Risk managers can set pre-trade risk controls on a per contract, per account basis to prevent accounts from exceeding net long or net short position limits. Prevents new orders from being placed that, if matched, would exceed set position limits. Position limit

settings are reflected immediately after configuration. If position limits are set to zero, only liquidating orders can be sent to the exchange. Participating FCMs are able to submit start of day position files to the exchange for accurate positions per contract, per account.

- **Cancel-on-Disconnect:** If a connection is dropped, the respective open orders are canceled and missed fills may be discovered via drop copy and Position REST API (not yet available in the Test environment). If a participant connects to the Exchange through a CQG connection the same functionality is in effect.
- **A-B Connectivity:** Order entry gateways and pricefeeds are provisioned and permissioned in primary A and backup B pairs. This protects against software or hardware connectivity failures and ensures there's always a view of the market and a way to trade out of positions. Unfilled orders are not shared between these connections because of cancel-on-disconnect.
- **DR Backup:** A full production exchange instance is provisioned and on standby in case of a data center or matching engine failure.
- **Self Match Prevention (SMP):** By default, every account has self-match prevention enabled. In the event that a participant's aggressing order would match with a resting order from the same account the passive order will be cancelled. The Exchange does not allow participants to disable this functionality. To enable SMP between other accounts, please email help@exchange.bitnomial.com.
- **Message Throttling:** A connection is only allowed to send 500 messages in any given 3 second period. Any messages sent that exceed the rate given by this threshold will be rejected with a `Messaging rate exceeded` reason, except for cancel messages. Cancel messages count towards the message limit but will not be rejected.
- **Maximum Order Quantity:** Each product on the Exchange has a maximum allowable order quantity. Please see the individual [product specifications](#)

Dynamic Price Bands

The Dynamic Price Bands are used to prevent a single aggressive order from trading through too many price levels in a trade. If an order is submitted that would create a match event violating the Dynamic Price Bands, the order is rejected by the matching engine.

Price Band Variation

Price Bands are a per-product price range for aggressive orders based on the latest top-of-book price. If there are no orders on the book then the price bands do not apply. Once there are orders on the book the initial Price Bands are based on the latest top-of-book price +/- the Price Band Variation which is set by the Bitnomial Market Operations & Risk Team. The Price Band Variation range is continuously re-calculated from top-of-book.

Price Limits

Price Limits are a per product price range based on a percentage of the previous day settlement price. If a trade occurs at the Price Limit for a side, the matching engine triggers a timer. If the timer elapses and no trades occur inside of the Price Limit, the Price Limits are re-calculated and reset. The resultant Price Limits are outside the original Price Limits to allow for additional price movement. The Exchange Market Operations & Risk Team may adjust the daily Price Limits at its sole discretion based on market conditions.

Customer Roles

The Customer Portal may be utilized to manage risk, accounts, connections, orders, risk settings, and settlement.

For each of the tables below, the following rules apply: - A ' indicates that a member of a participant entity with that role is authorized to perform that action. - A 'CF' indicates that a member of a clearing firm with that role is authorized to perform that action. A member of a clearing firm with a particular role is authorized to perform any action marked " on itself as well.

Accounts and Participant Connections

The following describes the capabilities of each role as it pertains to accounts and connections. Note that 'Request Connection' in this context means adding a connection for the participant designated on the account, i.e. the logged in user.

Role	Add Account	Request Connection	Add Connection	Approve Connection	Disable Connection	Enable Connection
Administrator		*	CF		*	
BackOfficeManager	CF	*	CF	CF	*	*
Trader		*	CF		*	

Risk Management

The following describes the capabilities of each role as it pertains to risk management.

Role	Adjust Risk Settings	Cancel Cleared-Account Orders	Cancel In-Org Orders	Cancel Own Orders
BackOfficeManager	CF	CF	*	
Trader				*

Settlement

The following describes the capabilities of each role as it pertains to settlement.

Role	Request Delivery Approval	Approve Account For Delivery	Update Take Delivery Address
BackOfficeManager	*	CF	
SettlementManager			*

Block Trades

How to Participate in Block Trades

To participate in block trades, Participants must meet the following requirements:

- Registered business entity on bitnomial.com
- Is an Eligible Contract Participant (ECP), as defined in the Commodities Exchange Act.

After an account is approved for block trading, any Authorized Users that have the **Trader** role are assigned a Block Trader ID. A Block Trader ID can also be generated on the Block Trades tab. Block Trader IDs are shareable **UUIDs** used when reporting block trades.

Block Trade Workflow

The Bitnomial Block Trade Workflow relies on the concept of a 'Leader' and a 'Follower'. The 'Leader' is responsible for the initial reporting of the block trade. The 'Follower' is responsible for confirming accuracy and confirming the block trade once reported by the 'Leader'.

The following steps outline the required workflow to report block trades:

1. Participants negotiate and execute block trade off-exchange.
2. Participants determine the 'Leader' and the 'Follower' and share Block Trader IDs.

3. The 'Leader' signs into bitnomial.com and navigates to 'Orders' and then 'Block Trades' sub-tab.
4. The 'Leader' clicks 'New Block Trade' and enters relevant block trade information, including the counter-parties' Block Trader ID. Once entered, the block trade is pending.
5. The 'Follower' signs into bitnomial.com and navigates to 'Orders' and then 'Block Trades' sub-tab.
6. The 'Follower' reviews the pending block trade for accuracy and sets the appropriate account. If any information is incorrect, either the 'Leader' or the 'Follower' can reject the pending block trade. If the block trade is rejected, the 'Leader' needs to create a new block trade with the correct information.
7. The 'Follower' confirms the trade. The trade is now Confirmed.
8. Once acknowledged by the reporting system, the trade is Accepted.

If the block trade has an Accepted status, reporting is complete. If Participants experience issues reporting block trades, they should contact help@exchange.bitnomial.com.

See [Block Trade Statuses](#) for more information about the possible states of a block trade.

Block Trade Rules

Rules regarding block trades are found in our [Bitnomial Exchange Rulebook](#) under Rule 505.

Block Trade Statuses

- **Pending:** The leader has submitted the trade and is waiting for the follower to confirm.
- **Canceled:** Either party does not agree with the trade as initially reported by the leader.
- **Confirmed:** Confirmation that the Participants have agreed to this trade, but awaiting acknowledgement from the platform.
- **Rejected:** The platform rejected the submission of the block trade. Participants may resubmit trades in the Rejected state.
- **Accepted:** The trade has been accepted by the platform.

Digital Asset Delivery

The Bitnomial Settlement Facility web application should be used when market participants either

1. have a long position, in order to receive bitcoin; or
2. have a short position, in order to deliver bitcoin.

Bitcoin preliminaries

There are a few concepts and terms that relate specifically to bitcoin which users need to understand in order to fully grasp the delivery process. See [here](#) for some introductory material.

- *Addresses* are short alphanumeric strings which are used by bitcoin wallets to route funds to the intended recipient(s) when forming transactions. When Alice transfers bitcoin to Bob, she first gets an address from Bob then instructs her wallet to send some bitcoin to this address. Bob uses his wallet to generate an address. When he checks on his bitcoins, they are distributed among his addresses.
- *UTXOs* (unspent transaction outputs) are the native form of bitcoin in the network. The available bitcoin is distributed among the current UTXOs. There is no standard denomination for a UTXO; it can hold any amount of bitcoin. Each UTXO has an associated address. So it is common to talk about bitcoin being stored *at* some address. When users follow best practices, their UTXOs will be associated with distinct addresses. There is a helpful analogy between UTXOs and coins, where in bitcoin a coin can have any face value.
- *Transactions* represent the transfer of value in the bitcoin network. Every value transfer is associated with a transaction. A transaction spends a collection of UTXOs, and creates a new set. The sum of the newly created UTXO values must be less than or equal to the sum of those being spent, with the difference making up the transaction fee. Transactions include cryptographic data for each UTXO being spent which proves that the owner of the UTXO agrees to the structure of the transaction.

- *Blocks* are batches of transactions. The bitcoin network produces one block every ten minutes on average. However, the time between blocks varies, according to a well known statistical distribution. Bitcoin blocks typically contain between 1000 and 3000 transactions. The blocks are ordered into a sequence, and it makes sense to think about the height of a block. This is the offset of the block from the beginning of the sequence.
- The transaction lifecycle starts with the bitcoin network nodes broadcasting the transaction to each other. After some period of time, the transaction is included in a block. The number of *confirmations* of a transaction is the number of blocks produced by the network since the block where the transaction appeared. The finality of a transaction is proportional to the number of confirmations it has.
- A *block explorer* is a visualization tool that makes it easy for users to navigate the blocks and transactions included in the bitcoin blockchain. One popular choice is blockstream.info.

Making delivery

Participants who are short bitcoin will need to *make delivery*. Their organization must arrange for a transfer of bitcoin to the settlement facility wallet, to facilitate transfer to one or more long participants. The process for making delivery has two steps.

1. The participant must register a return address. This bitcoin address will be used to return bitcoin in the case that the participant delivers more bitcoin than they owe.
2. As soon as the participant submits a return address, the settlement facility displays a delivery address. The participant should enter this address into their wallet and transfer the appropriate amount of bitcoin.

The settlement facility dashboard displays the deliveries made, including the deliver-to addresses and associated return addresses. Bitnomial considers transactions to be sufficiently final after six confirmations, so transactions with fewer than six confirmations will be displayed as “pending”. As a convenience, the settlement facility links to each delivery transaction in a block explorer.

During the course of the delivery process, until final settlement, the delivered bitcoin is held securely by the settlement facility system. After final settlement, all bitcoin is distributed to the long bitcoin participants and to short participants who over-delivered, as appropriate.

Taking delivery

Participants who are long bitcoin will need to *take delivery*. Their organization must operate a wallet (or work with a third party wallet/custody provider). The participant should obtain a new address where they can store bitcoin and submit it to the settlement facility website. At final settlement, the settlement facility transfers bitcoin to the address submitted earlier in the delivery process.