POLICY ON CYBER SECURITY& CYBER RESILIENCE

Member Details

Member Name : **Nikhil Commodity & Derivatives Pvt. Ltd.**

SEBI Registration No : **INZ000080136**

MCX Member ID : **28345**

NCDEX Member ID : **00384**

Registered Office : **401 PRINCESS EMPIRE,**
12 RACE COURSE RAOD,
INDORE – 452001 (M.P.)

Compliance Officer : **NIRAV DESAI**

Directors :

Sr.	Name of Director	Email Address
1	Niranjan Desai	accounts@nikhilgroup.co.in
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3	Nirav Desai	nirav@nikhilgroup.co.in

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Rapid technological developments in securities market have highlighted the need for maintaining robust cyber security and cyber resilience framework to protect the integrity of data and guard against breaches of privacy.

Since stock brokers and depository participants perform significant functions in providing services to holders of securities, it is desirable that these entities have robust cyber security and cyber resilience framework in order to provide essential facilities and perform systemically critical functions relating to securities market.

SEBI vide circular no. **SEBI/HO/MIRSD/CIR/PB/2018/147** dated December 03, 2018 on Subject: Cyber Security & Cyber Resilience framework for Stock Brokers/ Depository Participants had prescribed a framework on cyber security and cyber resilience. The framework is required to be complied by all Stock Brokers & Depository participants registered with SEBI.

The Exchange has formulated certain suggestive measures for broad guidance that are outlined in this presentation. These measures are indicative in nature and not exhaustive and adherence to the measures listed in this presentation alone would not result in complete conformance to SEBI Circular No. SEBI/HO/MIRSD/CIR/PB/2018/147 dated December 03, 2018

SEBI Cyber Security Framework for Stock Brokers

Use of Information technology by securities market has grown rapidly and is now an important part of the operational strategy of securities. The number, frequency and impact of cyber incidents/ attacks have increased manifold in the recent past, more so in the case of securities and financial sector including depositories. There is an urgent to put in place a robust cyber security/resilience framework at stock broker to ensure adequate securities of their assets on a continuous basis. It has, therefore, become essential to enhance the security of the institutions from cyber threats by improving the current defenses in addressing cyber risks.

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1. GOVERNANCE

1.1 DESIGNATED OFFICER

The firm nominates **Mr. Manish Akhand** as Designated Officer to assess, identify and reduce security and cyber Security risks, respond to incidents, establish appropriate standards and controls, and direct the establishment and implementation of processes and procedures as per the Cyber Security Policy.

1.2 CONSTITUTION OF TECHNOLOGY COMMITTEE

a) The firm constitutes a technology committee ("the committee") with following members:

Sr.	Name of Committee Members	Designation of the members
1	Nirav Desai	Compliance Officer
2	Manish Akhand	Assistant Compliance Officer
3	Akshay Khandelwal	Relation Manager

b) Such committee shall on a half yearly basis review the implementation of the Cyber Security and Cyber Resilience policy. Such review shall include but not limited upto, reviewing of current IT and Cyber Security and Cyber Resilience capabilities, setting up of goals for a target level of Cyber Resilience, and establishing plans to improve and strengthen Cyber Security and Cyber Resilience. The review shall be placed before the Board of directors for taking appropriate action(s), if required.

c) Any unusual activities or events will be communicated to the designated officer in proper timely manner.

d) Such committee shall on a half yearly basis review the implementation of the Cyber Security and Cyber Resilience policy. Such review shall include but not limited upto, reviewing of current IT and Cyber Security and Cyber Resilience capabilities, setting up of goals for a target level of Cyber Resilience, and establishing plans to improve and strengthen Cyber Security and Cyber Resilience. The review shall be placed before the Board of directors for taking appropriate action(s), if required.

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e) The technology committee in accordance with the provisions of the said circular and formed hereinafter this framework, shall ensure that this framework considers the principles prescribed by National Critical Information Infrastructure Protection Centre (NCIIPC) of National Technical Research Organization (NTRO), Government of India (titled 'Guidelines for Protection of National Critical Information Infrastructure') and subsequent revisions, if any, from time to time.

2. IDENTIFICATION, ASSESSMENT AND MANAGEMENT OF CYBER SECURITY RISK

The firm shall ensure the following steps in order to identify, assess and manage Cyber Security risk associated with processes, information, networks and systems.

2.1 IDENTIFICATION OF CRITICAL IT ASSETS AND RISKS ASSOCIATED WITH SUCH ASSETS

The committee and designated officer shall identify the critical assets based on their sensitivity and criticality for business operations, services and data management including various servers, data processing systems, and information technology (IT) related hardware and software etc. They shall also identify cyber risks, it's likely hood and impact on business and deploy controls for the same.

The IT team shall maintain upto date inventory of its hardware and systems and the personnel to whom these have been issued, software and information assets (internal and external), details of its network resources, connections to its network and data flows.

2.2 PROTECTION OF ASSETS BY DEPLOYING SUITABLE CONTROLS, TOOLS AND MEASURES

In order to protect the cyber safety, the firm shall ensure the measures which include, however not limited upto:

a) Access controls
b) Physical Security
c) Network Security Management
d) Data security

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e) Hardening of Hardware and Software
f) Application Security in Customer Facing Applications
g) Certification of off the shelf products
h) Patch management
i) Disposal of data, systems and storage devices
j) Vulnerability Assessment and Penetration Testing (VAPT)

The firm shall take all such steps to protect assets of the firm by deploying suitable controls, tools and measures in conformity with the provisions of SEBI circular SEBI/HO/MIRSD/CIR/PB/2018/147 dated December 3, 2018 and any amendment or substitution thereof. However, the committee and designated officer of the firm shall additionally deploy such measures in this respect, as may be warranted from time to time.

2.3 DETECTION OF INCIDENTS, ANOMALIES AND ATTACKS THROUGH APPROPRIATE MONITORING TOOLS/PROCESSES

Necessary steps as may be required to monitor and for early detection of unauthorized or malicious activities, unauthorized changes, unauthorized access and unauthorized copying or transmission of data / information held in contractual or fiduciary capacity, by internal and external parties shall be maintained, appreciated and taken care on.

The security logs of systems, applications and network devices exposed to the internet shall also be, from to time, monitored for anomalies, if any.

The firm shall ensure high resilience, high availability and timely detection of attacks on systems and networks exposed to the internet, and implement suitable mechanisms to monitor capacity utilization of its critical systems and networks that are exposed to the internet.

2.4 RESPONDING BACK BY TAKING IMMEDIATE STEPS AFTER IDENTIFICATION OF THE INCIDENT, ANOMALY OR ATTACK

The alerts generated from monitoring and detection of systems in order to determine activities that are to be performed to prevent expansion of such incident of cyber attack or breach, mitigate its effect and eradicate the incident.

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In case of affection of systems by incidents of cyber attacks or breaches, the firm shall ensure timely restoration of the same in order to provide uninterrupted services. The committee and designated officer shall ensure to have the same Recovery Time Objective (RTO) and Recovery Point Objective (RPO) as per regulatory requirements.

With a view to providing quick responses to such cyber attacks, the committee shall formulate are sponse plan defining responsibilities and actions to be performed by its employees and support /outsourced staff in the event of cyber attacks or breach of Cyber Security mechanism. Such plan and any modification therein shall be circulated amongst all the employees and support / outsourced staff from time to time.

2.5 RECOVERY FROM INCIDENT(S) THROUGH INCIDENT MANAGEMENT AND OTHER APPROPRIATE RECOVERY MECHANISMS

The firm shall take into account the outcomes of any incident of loss or destruction of data or systems and accordingly shall take precautionary measures to strengthen the security mechanism and improve recovery planning and processes.

Periodic checks to test the adequacy and effectiveness of the aforementioned response and recovery plan shall be done.

3. COMMUNICATION OF UNUSUAL ACTIVITIES AND EVENTS

IT team of the Firm under guidance of the committee shall monitor unusual activities and events and shall facilitate communication of the same to designated officer for necessary actions, as may be required.

4. RESPONSIBILITIES OF EMPLOYEES, MEMBERS AND PARTICIPANTS

In addition to the followings, the employees, members and participants shall be responsible for the duties and obligations as may be entrusted and communicated by the Firm / committee /designated officer from time to time.

To prevent the cyber attacks, the employees, members and participants shall assist the Firm to mitigate cyber attacks by adhering the followings:

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a) To attend the cyber safety and trainings programs as conducted by the Firm from time to time.

b) To endure installation, usage and regular update of antivirus and antispyware software on computer used by them.

c) Use a firewall for your Internet connection.

d) Download and install software updates for your operating systems and applications as they become available.

e) Make backup copies of important business data and information.

f) Control physical access to your computers and network components.

g) Keep your Wi-Fi network secured and hidden.

h) To adhere limited employee access to data and information and limited authority to install software.

i) Regularly change passwords.

j) Do not use or attach unauthorised devices.

k) Do not try to open restricted domains.

l) Avoid saving your personal information on computer or any financial data on any unauthentic website.

m) To get your computer regularly scanned with anti-virus software.

n) Do not release sensitive data of the organization.

Further the Firm shall ensure that:

- No person by virtue of rank or position shall have any intrinsic right to access confidential data, applications, system resources or facilities.

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- Any access to the systems, applications, networks, databases, etc., shall be for a defined purpose and for a defined period. The Firm shall grant access to IT systems, applications, databases and networks on a need to use basis and based on the principle of least privilege. Such access shall be for the period when the access is required and should be authorized using strong authentication mechanisms.

- An access policy which addresses strong password controls for users access to systems,
  Applications, networks and databases shall be implemented.

- All critical systems accessible over the internet should have two factor security (such as VPNs, Firewall controls etc.), as far as possible.

- The Firm shall ensure that records of user access to critical systems, wherever possible, are uniquely identified and logged for audit and review purposes and such logs would be maintained and stored in a secure location for a time period not less than two (2) years.

- The Firm shall be required to deploy controls and security measures to supervise staff with elevated system access entitlements (such as admin or privileged users) to Firm's critical systems. Such controls and measures shall inter-alia include restricting the number of privileged users, if any, periodic review of privileged users' activities, disallow privileged users from accessing systems logs in which their activities are being captured, strong controls over remote access by privileged users, etc.

- Employees and outsourced staff such as employees of vendors or service providers, who may be given authorized access to the critical systems, networks and other computer resources, shall be subject to stringent supervision, monitoring and access restrictions.

- An Internet access policy to monitor and regulate the use of internet and internet based services such as social media sites, cloud-based internet storage sites, etc. within the Firm's critical IT infrastructure shall be formulated.

- User Management shall address deactivation of access of privileges of users who are leaving the organization or whose access privileges have been withdrawn.

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- Physical access to the critical systems shall be restricted to minimum and only to authorized officials. Physical access of outsourced staff / visitors shall be properly supervised by ensuring at the minimum that outsourced staff / visitors are accompanied at all times by authorized employees.

- Physical access to the critical systems shall be revoked immediately if the same is no longer required.

- The Firm will ensure that the perimeter of the critical equipments room, if any, shall be physically secured and monitored by employing physical, human and procedural controls such as the use of security guards, CCTVs, card access systems, mantraps, bollards, etc. where appropriate.

- The Firm shall establish baseline standards to facilitate consistent application of security configurations to operating systems, databases, network devices and enterprise mobile devices within their IT environment. The LAN and wireless networks shall be secured within the premises with proper access controls.

- For algorithmic trading facilities, adequate measures shall be taken to isolate and secure the perimeter and connectivity to the servers running algorithmic trading applications, if any.

- The Firm shall install network security devices, such as firewalls, proxy servers, intrusion detection and prevention systems (IDS) to protect their IT infrastructure which is exposed to the internet, from security exposures originating from internal and external sources.

- Adequate controls shall be deployed to address virus / malware / ransomware attacks. These controls may include host / network / application based IDS systems, customized kernels for Linux, anti-virus and anti-malware software etc.

- Critical data shall be identified and encrypted in motion and at rest by using strong encryption methods. Illustrative measures in this regard are given in Annexure A and B.

- The Firm shall implement measures to prevent unauthorized access or copying or transmission of data / information held in contractual or fiduciary capacity. It

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shall ensure that confidentiality of information is not compromised during the process of exchanging and transferring information with external parties.

- This security policy also covers use of devices such as mobile phones, faxes, photo-copiers, scanners, etc., within their critical IT infrastructure, that can be used for capturing and transmission of sensitive data. For instance, defining access policies for personnel, and network connectivity for such devices etc.

- The Firm shall allow only authorized data storage devices within their IT infrastructure through appropriate validation processes.

- The Firm shall only deploy hardened hardware / software, including replacing default passwords with strong passwords and disabling or removing services identified as unnecessary for the functioning of the system.

- Open ports on networks and systems which are not in use or that can be potentially used for exploitation of data shall be blocked and measures taken to secure them.

- Application security for Customer facing applications offered over the Internet such as IBTs(Internet Based Trading applications), portals containing sensitive or private information and Back office applications (repository of financial and personal information offered by Brokers to Customers) are paramount as they carry significant attack surfaces by virtue of being available publicly over the Internet for mass use. Required measures for ensuring security in such applications shall be ensured.

- The Firm shall ensure that off the shelf products, if any, being used for core business functionality (such as Back office applications) should bear Indian Common criteria certification of Evaluation Assurance Level 4. The Common criteria certification in India is being provided by(STQC) Standardisation Testing and Quality Certification (Ministry of Electronics and Information Technology). Custom developed / in-house software and components need not obtain the certification, but have to undergo intensive regression testing, configuration testing etc. The scope of tests shall include business logic and security controls.

- The Firm establish and ensure that the patch management procedures include the identification, categorization and prioritization of patches and updates. An

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implementation time frame for each category of patches should be established to apply them in a timely manner.

- The Firm shall perform rigorous testing of security patches and updates, where possible, before deployment into the production environment so as to ensure that the application of patches do not impact other systems.

- Suitable policy for disposal of storage media and systems shall be framed as may be required. The critical data / Information on such devices and systems shall be removed by using methods such as crypto shredding / degauss / Physical destruction as applicable.

- The Firm shall formulate a data-disposal and data-retention policy to identify the value and lifetime of various parcels of data.

- The Firm shall regularly conduct vulnerability assessment to detect security vulnerabilities in their IT environments exposed to the internet, as and when required.

- The Firm with systems publicly available over the internet shall also carry out penetration tests, at least once a year, in order to conduct an in-depth evaluation of the security posture of the system through simulations of actual attacks on its systems and networks that are exposed to the internet. In addition, the Firm shall perform vulnerability scanning and conduct penetration testing prior to the commissioning of a new system that is accessible over the internet.

- In case of vulnerabilities discovered in off the shelf products (used for core business) or applications provided by exchange empanelled vendors, the Firm shall report them to the vendors and the exchanges in a timely manner.

- Remedial actions, if required, shall be immediately taken to address gaps that are identified during vulnerability assessment and penetration testing.

- Responsibilities and actions to be performed by Firm's employees and support / outsourced staff in the event of cyber attacks or breach of Cyber Security mechanism shall be defined.

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- Any incident of loss or destruction of data or systems shall be thoroughly analyzed and lessons learned from such incidents shall be incorporated to strengthen the security mechanism and improve recovery planning and processes.

- Suitable periodic checks to test the adequacy and effectiveness of the aforementioned response and recovery plan shall be done.

5. SUBMISSION OF QUARTERLY REPORTS

Quarterly reports containing information on cyber attacks and threats experienced, if any, by the Firm and measures taken to mitigate vulnerabilities, threats and attacks including information on bugs / vulnerabilities / threats that may be useful for other Stock Brokers / Depository Participants shall be submitted to Stock Exchanges / Depositories, as per statutory requirements /guidelines.

6. TRAINING & EDUCATION

The committee and designated officer shall conduct training and educational sessions for employees to make them aware on building Cyber Security and basic system hygiene awareness, to enhance knowledge of IT / Cyber Security Policy and standards among the employees incorporating upto date Cyber Security threat alerts, including to outsourced staff, vendors, if any, and shall take all such steps as may be deemed appropriate by them in this respect.

7. SYSTEM MANAGED BY VENDORS

Whenever the systems (IBT, Back office and other Customer facing applications, IT infrastructure, etc.) of the Firm are managed by vendors and the Firm may not be able to implement some of the aforementioned guidelines directly, the Firm shall, from time to time, instruct the vendors to adhere to the applicable guidelines in the Cyber Security and Cyber Resilience policy and obtain the necessary self certifications from them to ensure compliance with the policy guidelines.

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8. SYSTEM MANAGED BY MIIS

Wherever the applications are offered to customers over the internet by MIIs (Market Infrastructure Institutions), for eg.: NSE's NOW, BSE's BEST etc., the responsibility of ensuring Cyber Resilience on those applications reside with the MIIs and not with the Firm. In such case, the Firm is exempted from applying the aforementioned guidelines to such systems offered by MIIs such as NOW, BEST, etc.

9. PERIODIC AUDIT

The Firm shall arrange to have its systems audited on an annual basis by a CERT-IN empanelled auditor or an independent CISA / CISM /DISA qualified auditor to check compliance with the above area sand shall submit the report to Stock Exchanges / Depositories along with the comments of the Board/ committee / any committee thereof within three months of the end of the financial year.

Enclosures:
Annexure A: Illustrative Measures for Data Security on Customer Facing Applications
Annexure B: Illustrative Measures for Data Transport Security
Annexure C: Illustrative Measures for Application Authentication Security

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Annexure A

Illustrative Measures for Data Security on Customer Facing Applications

1. Analyse the different kinds of sensitive data shown to the Customer on the frontend application to ensure that only what is deemed absolutely necessary is transmitted and displayed.

2. Wherever possible, mask portions of sensitive data. For instance, rather than displaying the full phone number or a bank account number, display only a portion of it, enough for the Customer to identify, but useless to an unscrupulous party who may obtain covertly obtain it from the Customer's screen. For instance, if a bank account number is "123 456 789", consider displaying something akin to "XXX XXX 789" instead of the whole number. This also has the added benefit of not having to transmit the full piece of data over various networks.

3. Analyse data and databases holistically and draw out meaningful and "silos" (physical or virtual) into which different kinds of data can be isolated and cordoned off. For instance, a database with personal financial information need not be a part of the system or network that houses the public facing websites of the Stock Broker. They should ideally be in discrete silos or DMZs.

4. Implement strict data access controls amongst personnel, irrespective of their responsibilities, technical or otherwise. It is infeasible for certain personnel such as System Administrators and developers to not have privileged access to databases. For such cases, take strict measures to limit the number of personnel with direct access, and monitor, log, and audit their activities. Take measures to ensure that the confidentiality of data is not compromised under any of these scenarios.

5. Use industry standard, strong encryption algorithms (eg: RSA, AES etc.) wherever encryption is implemented. It is important to identify data that warrants encryption as encrypting all data is infeasible and may open up additional attack vectors. In addition, it is critical to identify the right personnel to be in charge of, and the right methodologies for storing the encryption keys, as any compromise to either will render the encryption useless.

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6. Ensure that all critical and sensitive data is adequately backed up, and that the backup locations are adequately secured. For instance, on servers on isolated networks that has no public access end points, or on premise servers or disk drives that are off limits to unauthorized personnel. Without upto date backups, a meaningful recovery from a disaster or cyber-attack scenario becomes increasingly difficult.

Annexure B

Illustrative Measures for Data Transport Security

1. When an Application transmitting sensitive data communicates over the Internet with the Stock Brokers' systems, it should be over a secure, encrypted channel to prevent Man In The Middle (MITM) attacks, for instance, an IBT or a Back office communicating from a Customer's web browser or Desktop with the Stock Brokers' systems over the internet, or intra or inter organizational communications. Strong transport encryption mechanisms such as TLS (Transport Layer Security, also referred to as SSL) should be used.

2. For Applications carrying sensitive data that are served as web pages over the internet, a valid, properly configured TLS (SSL) certificate on the web server is mandatory, making the transport channel HTTP(S).

3. Avoid the use of insecure protocols such as FTP (File Transfer Protocol) that can be easily compromised with MITM attacks. Instead, adopt secure protocols such as FTP(S), SSH and VPN tunnels, RDP (with TLS) etc.

Annexure C

Illustrative Measures for Application Authentication Security

1. Any Application offered by Stock Brokers to Customers containing sensitive, private, or critical data such as IBTs, SWSTs, Back office etc. referred to as "Application" hereafter) over the Internet should be password protected. A reasonable minimum length (and no arbitrary maximum length cap or character class requirements) should be enforced. While it is difficult to quantify password "complexity", longer passphrases have more entropy and offer better security in general. Stock Brokers should attempt to educate Customers of these best practices.

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2. Passwords, security PINs etc. should never be stored in plain text and should be one way hashed using strong cryptographic hash functions (e.g.: bcrypt, PBKDF2) before being committed to storage. It is important to use one way cryptographic hashes to ensure that stored password hashes are never transformed into the original plaintext values under any circumstances.

3. For added security, a multi factor (e.g.: two factor) authentication scheme may be used (hardware or software cryptographic tokens, VPNs, biometric devices, PKI etc.). In case of IBT sand SWSTs, a minimum of two factors in the authentication flow are mandatory.

4. In case of Applications installed on mobile devices (such as smart phones and tablets), acryptographically secure biometric two factor authentication mechanism may be used.

5. After a reasonable number of failed login attempts into Applications, the Customer's account can be set to a "locked" state where further logins are not possible until a password and authentication reset is performed via an out-of-band channel validation, for instance, a cryptographically secure unique link that is sent to the Customer's registered email, a random OTP (One Time Password) that is sent as an SMS to the Customer's registered mobile number, or manually by the Broker after verification of the Customer's identity etc.

6. Avoid forcing Customers to change passwords at frequent intervals which may result in successive, similar, and enumerated passwords. Instead, focus on strong multi factor authentication for security and educate Customers to choose strong passphrases. Customers may be reminded within reasonable intervals to update their password and multi factor credentials, and to ensure that their out of band authentication reset information (such as email and phone number) are upto date.

7. Both successful and failed login attempts against a Customer's account may be logged for a reasonable period of time. After successive login failures, it is recommended that measures such as CAPTCHAs or rate limiting be used in Applications to thwart manual and automated brute force and enumeration attacks against logins.

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