

	HEADERS	DETAILS
1. Intimation of Incident (T-day, within 1 Hour of the Incident)	1. Letter / Report Subject -	Reporting of technical glitch
	Name of the Member --	Zerodha Broking Limited
	Member Code -	NSE: 13906; BSE: 6498, MCX: 56550
	2. Designated Officer (Reporting Officer details)	Name: Pankathi H Jain
	3. Date & Time of Incident	31-10-2023; 9:00 AM
	4. Exchanges on which Technical Glitch was encountered (NSE, BSE, MCX, NCDEX, MSEI)	NSE, BSE, MCX
	5. Intimation to clients about the Technical Glitch. (Please attach screenshots of communications to clients)	Bulletin, Tweet, Push Notification, IVR message
	6. Network Connectivity Issues / Hardware Issues / Software Issues / Human Error / Other (Please Specify (if more than one, please separate with commas))	<p>There was an issue with display of positions on our trading platform.</p> <p>The issue was Intermittent.</p> <p>The impact was on the display of positions intermittently. But ,the affected positions were displayed to clients post multiple refreshes.</p> <p>The order status was displayed on the orders page correctly for all users. The order placement, order modification and order cancellation were not impacted.</p> <p>The said issue did not affect all users, but only a set of users operating out of a particular Silo (Setup).</p> <p>A bulletin was put up on our website informing clients about the issue.</p>
7. Additional Details about the Technical Glitch, if Any.	The issue was resolved.	
	1. Date & Time of Incident & Incident duration (in Minutes)	31-10-2023; 9:00 AM; 25 minutes
	2. Incident Description	<p>There was an issue with display of positions on our trading platform.</p> <p>The issue was Intermittent.</p> <p>The impact was on the display of positions intermittently. However, the affected positions were displayed to clients post multiple refreshes.</p> <p>The order status was displayed on the orders page correctly for all users. The order placement, order modification and order cancellation were not impacted.</p> <p>The said issue did not affect all users, but only a set of users operating out of a particular Silo (Setup).</p> <p>A bulletin was put up on our website informing clients about the issue.</p> <p>A IVR message was put up for incoming calls informing clients about this issue.</p> <p>We also informed our users on Twitter about the same.</p> <p>A push notification was also sent to the affected customers. Accurate updates about position held by clients was possible to be given through the call & trade desk.</p>
	3. Immediate action taken (provide brief details)	<p>We manually switched the position stream from the impacted server to the backup server to resolve the issue. The position stream is configured autoswitch to the back up server in case of a process crash. But there was no process crash and hence we had to manually switch. Our team is in the process of carrying out an RCA of the issue.</p>
	4. Business Impact i) Number of Clients Impacted ii) Any other impact	<p>i. We are unable to quantify the number of clients impacted since the issue was only with the display of certain positions held by clients. As stated earlier, order placement, order modification and order cancelation were unaffected during the impacted period. Of the 1.7 million clients on this particular setup, we received about 2300 calls and 750 tickets across all segments</p> <p>ii. Further, there was no other impact.</p>

2. Preliminary Incident Report (T+1 day)	5. Were alternate trading channels available for clients (list all the alternate channels) i) Was there a spike in traffic on the alternate channels available to clients? If yes, provide details.	Since order placement, order modification and order cancellation were not impacted, there was no need for an alternate trading channel. Clients were able to place, modify & cancel orders from their Internet Based trading (IBT) platform without any issues whatsoever. Further, the order status was displayed on the orders page correctly for all users.
	6. Was the issue caused or encountered by a third-party vendor or service provider? i) Name of the third-party vendor or service provider and a brief description of the issue. ii) Do you have a back-up vendor for the said services	No
	7. Was the issue encountered on the Exchange-provided environment? If Yes, kindly provide details of intimation and communication sent to the Exchange.	No
	8. Did you move operations to the Disaster Recover (DR) site? If, Yes, what was the Recovery Time?	No
1. Date & Time of Incident & Recovery & Incident duration (in Minutes)	31-10-2023; 9:00 AM; 25 minutes	
2. Incident Description & chronology of events (Please provide brief details)	There was an intermittent issue with display of positions on our trading platform owing to an issue with the position stream on one of the servers between 9:00 AM till 9:25AM. However, the affected positions were displayed to clients post multiple refreshes. Further, the order status was displayed on the orders page correctly for all users. The order placement, order modification and order cancellation were not impacted.	
3. Business Impact: Please provide details on the points below: i) Number of clients impacted ii) Number of client orders impacted iii) Any P&L impact iv) Any other impact on Business	i. We are unable to quantify the number of clients impacted since the issue was only with the display of certain positions held by clients. As stated earlier, order placement, order modification and order cancellation were unaffected during the impacted period. ii. No impact on order placement, order modification and order cancellations iii. No impact on P&L. iv. No other impacts.	
4. Details of Client Complaints Received (Please provide details of claims of impacted clients) i) Number of Complaints Received ii) Number of Complaints Settled iii) Number of pending complaints iv) Total amount claimed by complainants	i. One exchange complaint as on date of filing this RCA. ii - 0 (the exchange complaint being referred above has been closed) iii - 0 (the exchange complaint being referred above has been closed) iv - The amount claimed by the complainants is about Rs. 3200.	
5. Root Cause Summary (Pl attach the detailed Report separately)	After conducting a thorough investigation, it was determined that the root cause of the incident originated from a combination of factors, including an OMS-trading app position sync performed by the operations team at 8:50 AM and a unique behavior in the Nest OMS stream. On Oct 31, 2023, there was a delay in the completion of the P&L process for clients' positions on MCX; hence, we had to do an OMS-trading app position sync at 8:50 AM for correct buy averages to reflect on the trading terminal. During the sync, the Nest OMS system sent a large batch of positions (50,000 positions in 2 milliseconds instead of the normal 4000 it sends otherwise). This resulted in overwhelming our system's in-memory database (Redis) and causing a timeout. This triggered a cascade of retry attempts (owing to a default retry limit set in its configuration file) as it was not designed to handle such a massive number of failed records. It is important to note that this behavior in the Nest system was unforeseen and had not caused any issues in the past, despite multiple resyncs over the years.	
6. If the issue was caused or encountered by a third-party vendor or service provider, Please provide the below details: i) What services are being provided by the third-party vendor or service provider? ii) Time taken (in Minutes) by third-party vendor or service provider to resolve the issue.	NA	
7. Has a similar issue been encountered prior to the submission of this RCA Report?	A similar issue hasn't been encountered prior to the submission of this RCA, since Dec 2021 when we started reporting the glitches.	

3. RCA of Technical Glitch Incident (T + 14 days)	8. Details of long-term preventive action (please provide all action points for long-term preventive action with the date from which they will be implemented) (please use additional sheets if necessary)	<p>1. We have fine-tuned the default timeout and retry configuration in the position stream to ensure that large batches of positions are processed efficiently, without failure. This adjustment provides a more robust and reliable operation.</p> <p>2. We have added another patch that will not allow the position stream pipeline to get more than a certain number of items to be saved in one shot so that the unpredictable pileup that we saw on Oct 31, 2023, is prevented.</p> <p>3. We are actively monitoring the behavior of the Nest OMS system and conducting regular checks to identify any potential anomalies or changes that could impact our system's performance. This proactive approach allows us to address any issues promptly and avoid unexpected disruptions.</p>
	9. Provide a detailed Architecture Diagram of the System.	Attached