JSE EQUITY DERIVATIVES AND COMMODITY DERIVATIVES MARKETS

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Subject: - **Explanatory note to the JSE's draft trade cancellation and trade price adjustment rules and directives**

1. Rationale for introducing the new rules and directives:-

The current JSE Equity Derivatives and Commodity Derivatives Market Rules do not have any provisions that deal with the treatment of genuine trade errors. In terms of current practice, where a member reports an error trade (or trades) to the JSE, the JSE performs a facilitation role whereby it will endeavour to make contact with those members who are counterparties to the alleged error trades, informing them about the alleged error and asking them whether the JSE can disclose their identify to the member who has made the error. Typically, counterparty members who acknowledge that an error has in fact occurred and who are amenable to the reversal of their trades, will agree to their identity being disclosed to the member who made the error so that arrangements can be made to reverse the error trades. On the other hand, members who are not amenable to the reversal of such trades may not agree to their identity being disclosed to the member who made the error and such errors will therefore not be reversed.

Trades may be void or may be cancelled in terms of common law if one party knows, or ought to have known that the other (i.e. the counterparty) has made a manifest error in the expression of his bid or offer. However, it is clear that without a formal error trade policy and framework in the rules, the current procedure for dealing with alleged errors has many pitfalls and has the potential to undermine the principle of trade certainty that investors and market participants require from our markets as well as the need for consistency in the treatment of genuine error trades.

The attached draft rules and directives on trade cancellations and trade price adjustments are designed to preserve the integrity of the JSE derivative markets and to strike the appropriate balance between providing trade certainty in the market and providing a mechanism for members to promptly address trades that are executed by them at erroneous prices and which may have significant adverse consequences for them or their clients. Trades that qualify as error trades as defined in these draft rules may, subject to all of the qualifying criteria having been met, be cancelled or have their price adjusted.

2. Key concepts in the new rules:-

Key elements of this draft rule are the concepts of the No Cancellation Range (or "no price adjust" range), the distinction between trade cancellations and trade price adjustments, and the futures or the options Reference Price.

2.1 No cancellation range:

In addition to various criteria such as the 20 minute cut-off time for the notification of alleged error trades to the JSE and a minimum Rand value aggregate loss, where a trade is alleged to be an error trade the trade will not be considered for treatment in terms of this rule unless the price of the alleged error trade is determined to be outside of the no cancellation range. The no cancellation range is prescribed per instrument category and per JSE market in a table in the directives and is quantified as a particular % or Rand value above or below the futures or the options reference price within which trades will not be cancelled or have their price adjusted.

The application of the no cancellation range ensures that all trades within a reasonable range of the reference price will stand in the event of an error, thus ensuring that disruptions to the market associated with the cancellation of trades or the adjustment of prices are minimised.

In addition, in circumstances where trades are cancelled or prices are adjusted there is always the potential that the market counterparties to such error trades may be prejudiced because they have either had their trades cancelled and have therefore lost time priority in the order book, which could be to their detriment when they attempt to re-transact, or they have had the prices of their trades adjusted to a more representative "reference" or "fair value" price.

In order to compensate the counterparties who are not responsible for the error trades, in determining the effective price of a trade cancellation the no cancellation range will be either added to or deducted from the price of the original error trade, depending on whether the error was made by the seller or the buyer respectively. Where the price of an error trade is being adjusted, in determining the adjusted price the no cancellation range will be either added to or deducted from the reference price or the fair value price, depending on whether the error was made by the buyer or the seller respectively.

Factoring the no cancellation range into the price of the cancellation trade or the trade price adjustment also ensures consistent treatment of trades on either side of the no cancellation threshold. In effect only the amount by which an erroneous price <u>exceeds</u> the no cancellation threshold will be cancelled or adjusted. Therefore, all trades within the no cancellation range will not be cancelled or adjusted and that portion of a qualifying error trade which is below the no cancellation range threshold will effectively also not be cancelled or adjusted.

The application of the no cancellation range to trade cancellations and trade price adjustments is illustrated in the examples in the paragraphs 4.1 and 4.2 below.

2.2 **Trade cancellations versus trade price adjustments:**

In giving consideration to each error trade the Director: Surveillance will assess the circumstances of each error and if he is of the opinion that a trade cancellation will have potential adverse consequences for the counterparty to the error trade, instruct the member or members to adjust the price of the error trade rather than cancelling it. Typically, this may occur where an error trade has triggered spread trades or trades executed simultaneously in an underlying cash market.

Examples of trade cancellations and trade price adjustments, and the circumstances in which they would be applied, are set out in paragraph 4 below and Appendix 1.

2.3 **Fair value price:**

Provision has also been made for the Director: Surveillance to make a determination, in exceptional circumstances, that the futures or the options reference price at the time that the error occurred is not representative of the fair value for that instrument and will deem another price, being a fair value price, as being more appropriate for the determination as to whether the alleged error trade qualifies to be cancelled or price adjusted. Examples of this include where a trade error occurs in an illiquid instrument, where no trades have occurred in the relevant instrument on the particular day prior to the error and where material overnight movements in overseas markets and in the ZAR/US$ exchange rate indicate that the JSE overnight mark to market price for the relevant instrument is clearly no longer reflective of fair value.

2.4 **Nature of errors:**

Another important element of this rule is that it is only intended to address genuine order input errors made by a member or a client and not errors in judgement or errors made in considering or interpreting relevant information in determining the price at which member or client intends to trade. A member or client cannot enter an order and trade at a price, and with the benefit of hindsight, after the trade has been executed, attempt to invoke the provisions of these rules and have a trade cancelled or a price adjusted because they realise that they had simply been wrong or careless in arriving at their intended trade price level and by going ahead and executing a trade at that price level.

Examples of errors which would and would not qualify for treatment in terms of these rules are set out in paragraph 4.3 below.

3. Process followed in cancelling trades or adjusting trade prices:-

The timely resolution of alleged error trades is critical for the successful implementation of this rule. The Director: Surveillance shall, after due consideration of all of the relevant factors, decide to either accept or decline the request for a trade cancellation or price adjustment and

will contact the member who has initiated the request to inform the member of his decision. The decision of the JSE shall be final.

4. Examples of trade cancellations and trade price adjustments:-

As you will appreciate these draft rules are focused primarily on and are applicable to markets and instruments which are order driven and which operate through a central order book. We have provided some examples below to try and illustrate how these proposed rules and directives will work in practice and to demonstrate how the no cancellation range and the futures and the options reference price are to be used in giving effect to trade cancellations and trade price adjustments:-

4.1 Examples of error trade cancellations and an error trade price adjustment:-

(a) Example of the cancellation of an error trade in futures

(Refer draft rule 7.181.8.1 & directive No. 4)

Trader A receives an order from a client to buy 30 Single Stock Futures “SSFQ July” Contracts at a futures price of R100. Instead of entering the bid at the intended price of R100 (which is also the current futures ruling price), he incorrectly enters the order at a price of R130. This matches immediately with the best offer order of Trader B at R130. Trader A ensures that his error is reported to the JSE and that a trade cancellation is requested within the 20 minute time frame as prescribed in the rule.

With a no cancellation range of 5% (refer to table in the draft Directive) and a reference price of R100, the JSE determines that the trade meets the criteria for being outside of the no cancellation range (i.e. the no cancellation range for a reference price of R100 is between R95 & R105).

In addition, the JSE will confirm that the difference in consideration between the actual trade value and the value had such trade been executed at the futures reference price is in excess of the minimum quantum as prescribed per the rules of R50 000 (i.e. 30 contracts of 100 shares each multiplied by the price differential between the error trade price and the futures reference price of R30 (i.e. R130 less R100) equates to a loss caused by the error of R90 000).

After considering all relevant factors and ensuring that the error meets all of the criteria as prescribed in the rule, the JSE will issue an instruction:-

(a.1) to both Trader A and Trader B to report an equal and opposite cancellation trade to the trading system using the Report Only Trade functionality;

(a.2) to Trader A to assign the original error trade back to Trader B at a price of R125 (i.e. R130 less the no cancellation range of R5); and

(a.3) to Trader B to re-assign this trade (accepted by Trader B per (a.2) above) back to Trader A, but at the price of the original error trade (i.e. R130).

The financial impact of this cancellation trade for the two traders will be as follows:-

Trader A trades in error and buys 30 contracts @ R130 (i.e. the error trade). On instruction from the JSE Trader A and Trader B report an equal and opposite cancellation trade to the trading system.

Trader A also assigns the 30 contracts purchased through the original error to Trader B @ R125. Trader B, after accepting the 30 contracts from Trader A, assigns (sells) these back to Trader A @ R130.

Despite the cancellation of the trade, Trader A's firm incurs a loss or cost of R15000 (i.e. 30 contracts of 100 shares each multiplied by the price differential in giving effect to the cancellation of R5). Trader B makes a gain of R15000 (i.e. 30 contracts of 100 shares each multiplied by the price differential of R5).

Trader B could lose time priority when resubmitting his sell order of 30 contracts to the trading system and may have to accept a lower offer price than his original offer price of R130 in order to give effect to his client's order. The gain of R15000 on the cancellation will compensate for potentially having to retransact at a worse price.

(b) Example of the price adjustment of an error trade in futures

(Refer draft rule 7.181.10.1 & directive No. 5)

Trader A receives a buying order from a client to buy 30 Single Stock Futures "SSFQ July" Contracts at a futures price of R100. Instead of entering the bid at R100 (which is also the current futures ruling market price), he incorrectly enters the bid at a price of R130. Trader B's automated market making algorithm immediately submits a sell order which matches with the bid and results in a trade at R130. Within the 20 minute time frame Trader A ensures that the error is reported to the JSE and that a trade cancellation is requested.

With a no cancellation range of 5% (refer to table in the draft Directive) and a reference price of R100, the JSE determines that the trade meets the criteria for being outside of the R5 no cancellation range (i.e. the cancellation range for a reference price of R100 is between R95 & R105).

In addition, the JSE also confirms that the difference in consideration between the actual trade value and the value had such trade been executed at the reference price is in excess of the minimum quantum as prescribed per the rules of R50 000 (i.e. 30 contracts of 100 shares each multiplied by the price differential between the error trade price and the reference price of R30 (i.e. R130 less R100) equates to a loss caused by the error of R90 000).

However, when the error is discussed with the counterparty (i.e. Trader B), he informs the JSE that he is in fact a market maker in that SSQ July contract and that when the error trade occurred he had simultaneously purchased the hedge in the underlying cash equity market. For this reason Trader B indicates that there would be adverse consequences for him if the erroneous SSF trade was cancelled as he would be left with an unhedged cash position.

After considering all relevant factors and ensuring that the error meets all of the criteria as prescribed in the rule, the JSE issues an instruction to both Trader A and Trader B to adjust the price of the futures error trade rather than cancel it and to without delay -

- report an equal and opposite cancellation trade to the trading system using the Report Only Trade functionality; and

- re-book the original error trade by reporting a trade to the trading system at an adjusted price as determined by the Director: Surveillance in terms of rule 7.181.10. In other words, because the error was made by the purchaser, the price of the adjusted trade would be the futures reference price plus an amount equal to the no cancellation range (i.e. R100 plus R5 = R105).

The financial impact of this trade price adjustment for the two traders will be as follows:-

Trader A who committed the error would be required to accept a purchase of 30 contracts @ R105, which would imply a theoretical mark to market loss for his firm of R15000 (i.e. should he theoretically close out this trade at the reference price).

Trader B would accept a sale of 30 contracts @ R105, which would imply a theoretical mark to market profit on that leg of R15000 (i.e. should he theoretically close out this trade at the reference price).

(c) Example of the cancellation of an error trade in options:

(Refer draft rule 7.181.8.1; draft definition of "option reference price" & directive No. 4)

Trader A makes an error by entering a buying order in the central order book to buy 30 July R1960 White Maize Call Option Contracts at an incorrect price. Instead of entering the order at his intended price level which is the current market volatility of 23% (which equates to a premium of R6485 at that time in the day that the error occurred), he

places a buying order at a volatility of 35% (which equates to a premium of R9705). Trader B, who is seeking to close out his long position in the July R1960 WMAZ Call Option sees this bid price and enters a sell order to match with the bid from Trader A at R9705 (volatility 35%). Within the 20 minute time frame Trader A ensures that the alleged error is reported to the JSE and that a trade cancellation is requested.

With a no cancellation volatility range of 4% (refer to table in the draft Directive) and an option reference price (overnight JSE mark to market volatility level) of 23%, the JSE determines that the trade meets the criteria for being outside of the 4% no cancellation range (i.e. 4% above and below the reference volatility of 23%. In other words, the trade falls outside of the 19% to 27% option volatility no cancellation range).

In addition, the JSE also confirms that the difference in consideration between the actual trade value (option premium actually paid of R9705) and the premium value had such trade been executed at the option reference price (i.e. volatility of 23% and a premium of R6485), is in excess of the minimum quantum loss as prescribed per the draft rules of R50 000. In other words, 30 option contracts multiplied by the price differential between R9705 and R6485 equates to an unrealised loss of R96 600.

After considering all relevant factors and ensuring that the error meets all of the criteria as prescribed in the rule, the JSE issues an instruction:-

(c.1) to both Trader A and Trader B to report an equal and opposite cancellation trade to the trading system using the Report Only Trade functionality;

(c.2) to Trader A to assign the original error trade back to Trader B at a volatility of 31% (i.e. 35% less the no cancellation range of 4%) which equates to an option premium of R8632; and

(c.3) to Trader B to re-assign this trade (accepted by Trader B per (c.2) above) back to Trader A, but at the volatility of the original error trade (i.e. 35%), which equates to an option premium of R9705.

The financial impact of this cancellation trade for the two traders will be as follows:-

Trader A enters the buying order in error and buys 30 WMAZ R1960 call option contracts @ R9705 at an implied volatility of 35% (i.e. the error trade). On instruction from the JSE, Trader A and Trader B report an equal and opposite cancellation trade to the trading system.

Trader A also assigns the 30 option contracts purchased through the original error to Trader B @ R8632. Trader B after accepting the 30 option contracts from Trader A, assigns (sells) these back to Trader A @ R9705.

Despite the cancellation of the trade, Trader A's firm incurs a loss or cost of R32190 (i.e. 30 option contracts multiplied by the price differential between R9705 and R8632 of R1073), whilst Trader B makes a gain of R32190.

Trade B could lose time priority when resubmitting his sell order of 30 contracts to the trading system and may have to accept a lower price than his original offer at a 35% volatility. The gain of R32190 on the cancellation will compensate for potentially having to retransact at a worse price.

4.2 Example of where an error trade triggers consequential trades in terms of draft rule 7.181.15:-

Per **Appendix "A"** we have attached a case study of a trade error which occurs where a member enters a spread order at an incorrect price and where a sequence of consequential trades is triggered by another member in the market and where the prices of such consequential trades are influenced directly or indirectly by the error trade price.

In the attached example, member ABC makes an error in the March / June 2014 WMAZ spread by entering a spread buy order at R150 instead of R50. This error results in an incorrect bid being entered in the June 2014 WMAZ contract @ R2360. This incorrect bid price in turn influences other spread orders which have been entered by EFG and RVY and results in inflated bid orders being entered in the September and the December 2014 WMAZ contracts at R2380 and R2460 on behalf of EFG and RVY respectively.

When member KLM enters an order to sell 10 contracts in the DEC WMAZ Future at R2460, a sequence of trades is triggered across a number of expiry months in the WMAZ futures contracts (March 2014, June 2014, September 2014 & December 2014).

Whilst the error trade leg, which qualifies as an error trade in terms of the proposed rules, occurs in the June 2014 WMAZ contract, the sequence of erroneous orders also triggers consequential trades that occur well above the reference price in the respective contracts (i.e. September and December 2014 expiries).

The trade in the September 2014 contract at R2380 is R50 above the reference price of R2330 and this leg amounts to a loss for member EFG of R40 000 (i.e. R50 loss per ton multiplied by the 8 contracts traded). The trade in the December 2014 contract at R2460 is R85 above the reference price of R2375 and this leg amounts to a loss for member RVY of R68 000 (i.e. R85 loss per ton multiplied by the 8 contracts traded).

In this specific example the JSE would treat each leg as follows:-

1. The March 2014 trade leg (i.e. the initial leg upon which the other prices in the sequence of trades are based) is only marginally above the reference price for that contract and this trade would stand as it does not qualify for cancellation or adjustment. 2

2. The June 2014 leg is the leg matched by the member who made the spread order entry error (i.e. member ABC) and which resulted in the error trade at a price of R2360. The trade would be price adjusted as provided for in these draft rules as follows:-

   a. the Director: Surveillance would issue an instruction for members ABC and EFG to, without delay, report an equal and opposite cancellation trade to the trading system using the Report Only Trade functionality; and

   b. re-book the original error trade by reporting a trade to the trading system at an adjusted price which shall be calculated as being the reference price (or fair value, whichever is applicable) plus the no cancellation range of R60 (i.e. R2260 plus R60 = R2320).

3. The June 2014 error trade above would be price adjusted rather than cancelled due to the adverse and disruptive impact on the consequential trades of cancelling it.

4. The consequential trades in both the September and December 2014 WMAZ contracts involved members or their clients who had made no error whatsoever but who had become party to the spread trade sequence initiated by member KLM and caused by the error of member ABC. With regards to the trades in both the September and December 2014 WMAZ contracts, the JSE would issue an instruction to each of the members involved in those trades to cancel the trades by reporting equal and opposite cancellation trades to the trading system.

4.3 Examples which illustrate what constitutes an error trade and what does not:-

(a) Examples of mistakes or mishaps which do not qualify as error trades in terms of this rule

Example (a.1)

1. A non-discretionary client intends to gain exposure to a particular equity security through single stock futures. Over the course of the past few weeks he had been aware that the average mark to market closing price for the relevant futures contract had been in the region of R100-00 per share.

2. After doing some brief research over the weekend he enters an order (through his DMA facility) into the futures central order book as soon as the market opens on Monday morning, at his calculated futures price per share of R100-00.

3. Unfortunately the client had failed to read and take cognisance of various stock exchange news service ("SENS") announcements which had been published by the JSE and the underlying listed company over the course of the past month and which had given effect to a 2 for 1 share split, effective from that Monday morning.

4. This resulted in him purchasing futures at a value materially higher than the R50 (2 for 1) price level he should have entered his order at.

5. Given that at the time of entering the order he clearly and unambiguously intended to place the order at a price of R100-00, this "mistake", whether due to carelessness or ignorance, would not qualify as an error trade in terms of these rules. In other words, a member or client cannot, with the benefit of hindsight, attempt to invoke the provisions of these rules and have a trade cancelled or price adjusted because they realise that they were simply wrong or careless in determining the price at which they intentionally traded.

Example (a.2)

1. A young client who has recently qualified as a financial advisor intends to gain exposure to a particular equity security on behalf of her underlying discretionary clients through single stock futures. Being relatively inexperienced in the industry she has made incorrect growth and dividend assumptions as well as incorrect calculations when attempting to use and apply the Dividend Discount Model for the purposes of valuing the underlying share price.

2. This results in her placing orders with a dealer at a JSE member firm and purchasing the futures on the futures central order book at a value materially higher than the current reference price level for that security. It is only after she has entered her order and traded that she becomes aware that she has in fact got her share price valuation model totally wrong and that she should have placed her order at a much lower price.

3. Given that at the time of entering the order she clearly and unambiguously intended to place the order at the materially inflated or wrong price, this "mistake", whether due to carelessness or ignorance, would not qualify as an error trade in terms of these rules. Again, a member or client cannot, with the benefit of hindsight, attempt to invoke the provisions of these rules and have a trade cancelled or price adjusted because they realise that they were simply wrong or careless in determining the price at which they intentionally traded.

Example (a.3)

1. A member firm purchases an automated algorithmic trading (“algo”) system from a quantitative trading software supplier and with the assistance of a skilled programmer and IT consultant, it develops its own in house automated algorithmic trading system. In terms of the design, the system receives and uses real time data from a data service provider and also interrogates its own in-house static database before orders are entered by the algo into the market (i.e. the trading system central order book).

2. Unfortunately the member had failed to maintain its subscriptions with the relevant data service providers and this oversight resulted in old and outdated reference data (relating to the securities being traded as well as the ZAR/US$ exchange rate) being used by the program.

3. Only after the first trades had been executed by the algo at prices well above the fair market levels for that particular instrument did the trader realise that there was a problem with the algo and that the software was entering orders and trading at “incorrect” prices. He switched off the algo functionality immediately and phoned the JSE market controller in an attempt to get the trades cancelled.

4. On further investigation he confirmed that the algo, although functioning precisely as it had been programmed to do, had been using old or outdated reference data in a live environment. A member or client cannot, with the benefit of hindsight, attempt to invoke the provisions of these rules and have a trade cancelled or price adjusted because they realise that they had relied on incorrect data in determining the price at which their algo would submit orders to the trading system.

Example (a.4)

1. The proprietary desk of a member firm uses an automated algorithmic trading (“algo”) system which the firm purchased from a quantitative trading software supplier. In terms of the program logic, the system analyses live traded price trends on a number of selected liquid contracts and where the predefined program criteria have been met it automatically generates and submits “at market” orders in predetermined quantities for the relevant contracts. The strategy is to trade and realise profits from intra-day price movements and not to hold long term positions.

2. Given the consistent profits being generated with the strategy, the member firm decides to increase the population of eligible contracts for the algo to trade and includes some less liquid contracts.

3. Unfortunately the member failed to take into account the wide spreads that may occur in the less liquid contracts and when “at market” orders were entered for

certain of these contracts they generated trades at prices substantially away from the reference price.

4. It was only after the first trades had been executed by the algo in these less liquid contracts that the trader realised that there was a problem and he switched off the algo functionality immediately and phoned the JSE market controller in an attempt to get the trades cancelled.

5. On further investigation he confirmed that although the algo had been functioning precisely as it had been programmed to do, the firm had failed to take into account the higher volatility and sometimes significantly wider spreads that prevail in the less liquid contracts. Their algo had not been designed to operate effectively in these types of contracts and they had not anticipated the impact that the algo would have on traded prices.

6. A member or client cannot, with the benefit of hindsight, attempt to invoke the provisions of these rules and have a trade cancelled or price adjusted because they realise that they had applied incorrect logic in determining the price at which their algo would submit orders to the trading system and they had not anticipated the impact that the algo would have on the market.

(b) Examples of circumstances which qualify as error trades in terms of this rule

Example (b.1)

1. A client places an order with a dealer at a member firm to purchase a specific number of contracts in a single stock future contract at a specific price level of say R10-00, which is the current reference price for that particular instrument. The dealer receives and understands the order, but when entering the order price level into the trading system (via his PC keyboard) he mistakenly added an extra zero to the price. He had no intention to ever enter the order at R100-00. This error resulted in trades occurring well above the R10-00 market price level for that contract.

2. The nature of this error is that the order price level submitted to the trading system is clearly different to that which both the client and dealer intended to submit. Provided the trade qualifies in terms of the price and size criteria as specified in the draft rules, it will qualify as an error trade.

Example (b.2)

1. A member firm purchases an automated algorithmic trading ("algo") system from a quantitative trading software supplier and with the assistance of a skilled programmer and IT consultant, it develops its own in house automated algorithmic trading strategy. The software has numerous variable parameters

which need to be set by the programmer. In terms of the strategy, an in-house data base is interrogated on a real time basis before the system enters orders into the market (i.e. the trading system central order book) at parameterised time intervals and at prices and volumes as calculated in terms of the program logic.

2. Despite the algo having had no glitches when it was tested extensively by the member, on the day that the system is switched on "live" for the first time, one of the parameterised variables is incorrectly set by the programmer (due to fat finger trouble) when entering the various program parameters and this results in a program malfunction whereby orders are entered into the live market at prices well above the current market price levels for a particular instrument.

3. Only after the first trades had been executed by the algo at prices well above the fair market levels for that particular instrument did the trader realise that there was a problem with the algo and that the software was entering orders at prices which the firm had never intended to trade at. He switched off the algo functionality immediately and phoned the JSE market controller in an attempt to get the trades cancelled.

4. The nature of this error is that the order price levels submitted to the trading system by the algo are clearly different to that which member and dealer intended to submit. Provided the trades qualify in terms of the price and aggregate size / quantum criteria as specified in the draft rules, they will qualify as error trades.

(c) Member's responsibility to provide the JSE with all relevant information

As can be seen from the above examples, the circumstances giving rise to trade errors and consequential trades can be complex and there are a multitude of factors which the JSE will need to take into account when considering a request from a member to cancel or adjust the price of a trade.

When submitting a request to the JSE in terms of this rule, or where the JSE has requested the member to provide additional information in relation to such a request, the onus is on the member to ensure that the information that is provided to the JSE is complete and accurate and is provided promptly.

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