



SIX Swiss Exchange

Emergency and Outage Principles – A High Level Summary of Procedures on SIX Swiss Exchange

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1 Introduction

At SIX Swiss Exchange, operational stability is at the core of our daily business. We deploy a significant amount of effort to ensure that trading technology is robust and has full contingency capability. There are a significant number of contingency mechanisms embedded within the core technology that aim at minimizing the risk of an outage or serious production issues. All of which aim to ensure continuity of exchange operations.

We acknowledge the considerable number of industry discussions and publications about outage protocols in summer and fall 2021. This document summarizes key emergency procedures of SIX Swiss Exchange and provides links to existing public documents. This document is split in 2 distinct sections. The first one talks about our system availability, back-up, data center architecture and governance framework. The latter covers the topics raised in the industry papers and in particular focuses on emergency communications, order and trade cancellations and market re-open.

2 SIX Swiss Exchange Platform and Risk Management

2.1 System Availability

Technical outages of stock exchanges are rare occurrences but can happen on any market. We have put in place a set of emergency procedures in case of an event. They are regularly tested and have been continuously updated to meet current market standards and regulatory obligations.

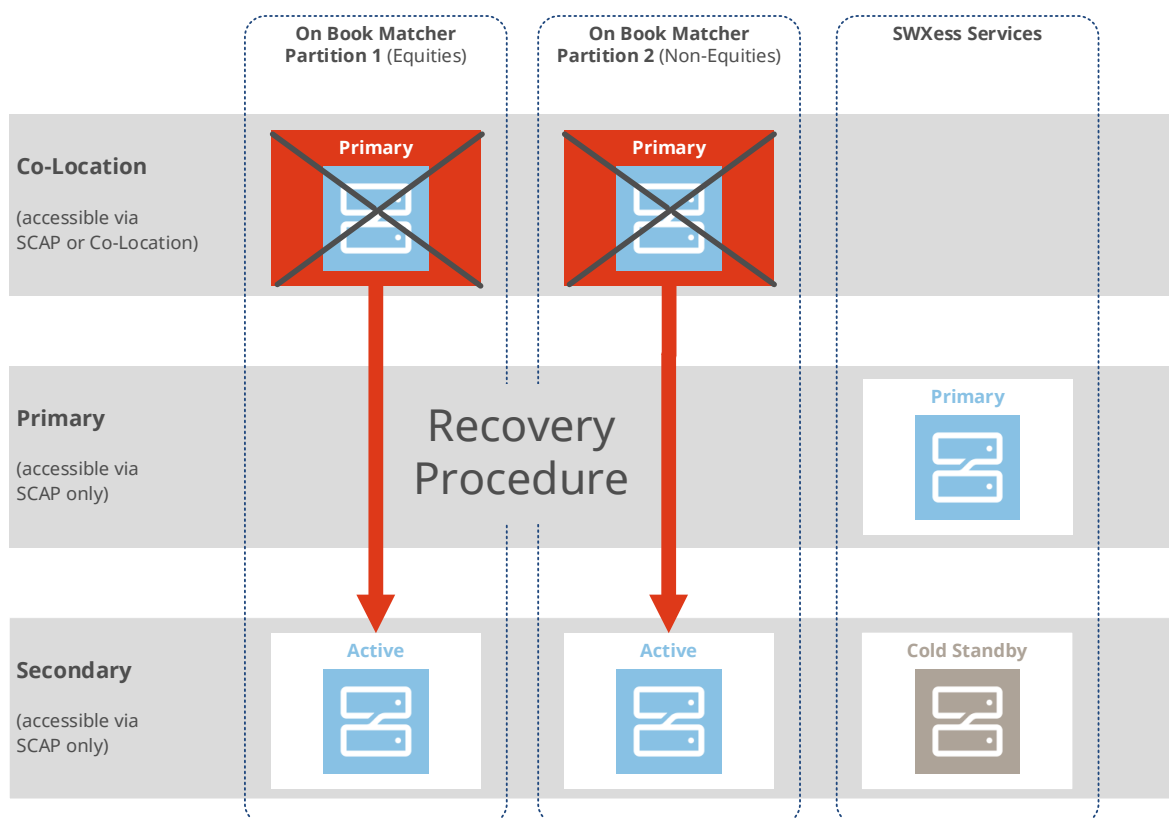
In order to ensure the continuous operation of the systems, the data centers of SIX Swiss Exchange are equipped with independent and redundant power supplies as standard. In the event of a long-lasting power cut, operations are switched to the backup data center. We use business continuity management (BCM) to ensure our services remain available or can be rapidly restored. We have developed business continuity plans for all the relevant business processes and test them regularly.

2.2 Back-up (System Resilience) / Data Center Architecture

The component processes of the SWXess trading platform of SIX Swiss Exchange are all highly available. Our trading platform is distributed over three data centers with hot and cold standby functionality. Servers in each data center have either active/active (hot) or active/standby redundancy. The actions necessary in case of an issue depend on a component's availability design.

The processing will either continue to run with the remaining instances or will restart automatically within minutes.

A Standby Disaster Recovery procedure is initiated should there be a complete failure of a primary operational data center of SIX Swiss Exchange.



2.3 The 3 Lines of Defense Principle

The 3 lines of defense model is embedded into the governance framework of SIX Swiss Exchange and it applies to the trading platform operations:

First Line of Defense

The first line of defense is found in the Business Units and Operations. In this level, employees of SIX identify risks, threats, and vulnerabilities. Their mission is to ensure the business is informed and that counter-measures are appropriately set in place.

Second Line of Defense

The second line of defense maintains and determines the organization's Risk Management Framework. Core responsibilities include oversight of the first line of defense with the monitoring and control of critical topics. The teams also handle the reporting of financial and non-financial risks, risk analyses, and the central insurance portfolio.

Third Line of Defense

The third line of defense comprises of the Board of Directors and both internal and external auditors. They are responsible for independently monitoring and controlling the risk appetite established by SIX. The third line of defense monitors the internal organizational risk management framework.

3 Emergency and Outage Protocols

3.1 Emergency Communications

As a regulated exchange, we are obliged to have robust mechanisms in place to communicate with both our members and the wider community for a variety of reasons such as disclosures, market suspensions and outages. Our members are obligated to keep the contact details we hold about them up-to-date which ensures we have a complete list of actors who should be contacted across multiple relevant and impacted business areas. The mechanisms include Official Notices, Newsboard, Exchange Messages and Press Releases and are publicly available on our website. These mechanisms have proved to be robust and effective.

Written and publicly available Emergency Communication includes the following information:

- Subject
- Message ID
- Broadcast time
- Priority
- Markets
- Products
- Problem description
- If available: expected resolution time
- Next update time
- If solved: market reopen time

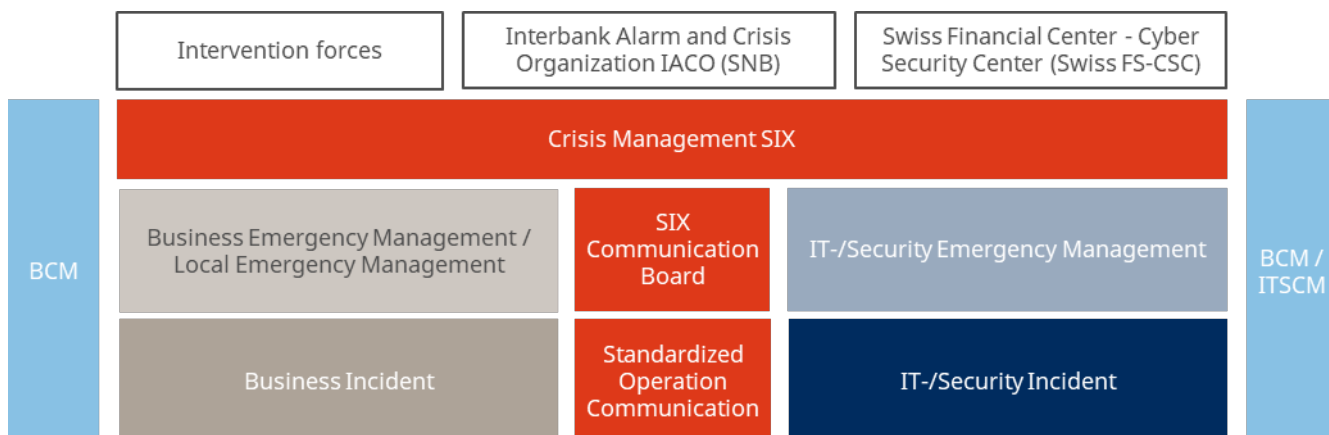
Our internal business continuity team manages events such as outages and these individuals are dedicated and designated as part of our normal BCM planning activities so they are fully aware of the requirements and processes in such events.

Our member-facing teams have dedicated contact details publicly available and will face off to members in the event of outages and other day-to-day issues that arise.

Calls with members would be facilitated by our relationship management teams to ensure they remain informed and can be part of the dialog as we move through an event. The messages we would publish/discuss would be centrally coordinated by our BCM team.

4 Emergency and Crisis Management

The Emergency and Crisis Management team consists of the following parties:



Questions and Answers

Question	Answer
What is the frequency of emergency communication?	<p>The communication process is defined and will adapt to the severity of the incident, its criticality at the point of occurrence and the phase in which the market is currently operating, which is assessed by the BCM team.</p> <p>We will always issue a near immediate notification to the market through our normal message channels once we become aware on an incident.</p> <p>This message would indicate the facts as we know then at that point and indicate when we would issue a follow up notification.</p> <p>Each subsequent notification would indicate the status and any actions necessary by participants and the expected timing of any further notifications.</p> <p>This gives participants clarity on what is happening and certainty when they will receive subsequent updates.</p> <p>Once we have certainty of the situation and clarity when the market will re-open, we will inform participants of the expected timing in advance. This would then be followed by a subsequent confirmation notification. This means that participants would have clarity on timing and sufficient advance notification in which to prepare.</p>
Does SIX Swiss Exchange provide information about the seriousness of an outage or issue?	Yes, our notifications will indicate the severity of the issue and the likely response time to remediate once this is clear.
Does SIX Swiss Exchange provide information to participants about the expected time until outage or issue is resolved?	Yes, see above.
Does SIX Swiss Exchange run an open conference call line?	No, the current measures and communication channels (both written and verbal) have proved to be robust and sufficient.

4.1 Order and Trade Cancellation

Depending on the nature of the outage and the likely duration we would take the appropriate actions to protect the authenticity of the order book and mitigate the risk of uncertainty for members. We have robust protocols in place to

enable members to cancel open orders and in certain circumstances to purge the order book ourselves. Any action in this area would be taken in consultation with our BCM team and members would be fully informed.

In the event that the incident resulted in executions which were not orderly we have measures within the exchange Rule Book; Directive 4: [Market Control Paragraph 6](#) to declare them void. If there were execution messages which had not yet been notified to members we would take the appropriate measures to inform them as soon as the data was available and robust.

Questions and Answers

Question	Answer
In case of an outage, are all orders cancelled and are participants informed?	In case of a serious incident or an outage, no messages are generated on STI/OTI/QTI because either the engine is down (no message possible) or the consistent state is not guaranteed and so some users might get different messages, which we avoid.
Do rules apply equally to all the trading interfaces: STI, OTI and QTI?	As soon as the system is available, all users on all interfaces get an accurate snapshot of the new state of the market. More detailed information on trading interfaces can be found in Directive 2: Technical Connectivity
What happens to orders submitted during an outage?	During an outage no order entry is permitted until the system is available and all users have a consistent snapshot. The system always starts in order maintenance mode - not matching mode.
Following an outage, would the exchange review any trades prior to the emergency event and consider their cancellation?	<p>Yes, there is no difference to our procedure or our judgement if a trade is wrong either during normal trading conditions or during an outage. Our mistrade regime is valid at any time. Trades outside the normal price control mechanisms will always be bust.</p> <p>The determination of the benchmark- and band levels for the fair price always lies at the discretion of Market Control, under the conditions within our Rules & Regulations, which aim to safeguard market integrity, investor protection and equal treatment. This includes exceptional situations.</p> <p>More details can be found in public documents: Directive 4: Market Control Directive 3: Trading, under Paragraph 13</p>
How does the exchange proceed when during an incident a subset of trading participants are unable to access the market?	If a number of participants are unable to access the exchange, which would challenge market integrity due to a loss of liquidity or order book depth, we would evaluate on a case by case basis. This could result in the need to halt the market until the conditions are back to normal and a review of any trade executions performed in that period violate the price control mechanisms.

4.2 Market Re-open

Depending on the severity, nature and duration of the incident we would keep members informed of the likely resumption timelines and would always give members a reasonable time window in which to prepare for the resumption of trading. As explained above, our notifications would always indicate expected timings and expected resumption times in advance. If the market remained closed for an extended period, then the last available reference price would remain the valid reference price for the securities impacted.

Questions and Answers

Question	Answer
Following an outage, would the exchange reopen at a round increment?	Depending on the nature and severity of the incident, we would seek to restore the market in an orderly and controlled manner, whilst aiming to minimize the outage duration unnecessarily. There is no strict rule on timing and we would aim to be flexible whilst giving the market sufficient notification prior to reopening.

Question	Answer
Following an outage, would the exchange consult with market participants on whether to re-open and at what time?	The exchange would be in contact with market participants and assess their readiness. The decision if and when to reopen will however always rest solely with the exchange.
In case the market cannot reopen for the day, what constitutes the reference price? Is it always the last traded price?	The current last trade price is used as the reference and if the market remained closed for an extended period the last available reference price would remain the valid reference price for the securities impacted. For detailed regime and differences between market making and non-market making segments please see: Directive 03: Trading , paragraph 14

4.3 Further Information



- [Security is our business](#)
 - [Sustainability Report](#)
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