EMERGENCY PLAYBOOK
Prague Stock Exchange

Incident Management Guide
September 2023

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Document information

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Change log

The following overview summarizes all significant changes and documents the development history of this document.

Version	Date	Description
1.1	1.September 2023	Revision, FESE, ESMA recommendations, New Corporate Design
1.0	31. May 2022	Creation of the document

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List of Abbreviations

The table below shows all the abbreviations and definitions used in this document.

ADH	Alliance Data Highway
ASP	Application Service Provider
DBAG	Deutsche Börse Group
GUI	Graphical User Interface
IIS	Internal Information System
ISV	Independent Software Vendor
MDI	Market Data Interface
MiFID II	Markets in Financial Instruments Directive (2004/39/EC)
NCA	National Competent Authority
PSE	Prague Stock Exchange
RDA	Reference data Alliance
WBAG	Wiener Börse AG

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1   Preamble

The document provides an overview of how Prague Stock Exchange deals with a technical malfunction of the Xetra® T7 trading system that requires a "Market Halt" (Trading Stop). It also describes how PSE will communicate in such cases and how trading is resumed.

The trading system Xetra® T7 of PSE is operated by the system provider WBAG/DBAG, who rely on stable and resilient systems and aims to minimize disruptions and uncertainties.

MiFID II, and in particular Articles 47 and 48, set out the framework defining the requirements for trading venues to ensure the resilience of systems and orderly trading. The Prague Stock Exchange complies with these requirements through the service levels contractually agreed with WBAG and thus ensures a high availability of the trading system Xetra® T7.

In the event of a technical incident, PSE has implemented processes and communication guidelines with all parties involved to minimize the impact of an incident and to resolve the problem quickly. Transparent and timely communication towards the trading participants is a key point in this process.

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2   System Provider and Incident Prevention

The Xetra® T7 system is based on state-of-the-art technology and a robust and resilient architecture that is continuously improved. It is a main goal for a provider to avoid any system issues and to ensure the highest possible system availability.

The Xetra® T7 is a trading system, which is provided and supported by WBAG.

2.1   System Provider WBAG

The Xetra® T7 trading system of PSE is operated and provided by WBAG on the same platform as the T7® trading system for DBAG, also for EUREX and FWB. WBAG provides for PSE remote connection to the Xetra® T7 trading system (primary and back up connection), index calculation, ADH Market Data Distribution to Data Vendors as well as RDA (Reference Data Alliance) and ALAMO.WIN as a main surveillance system of PSE.

The core features of the trading system resilience were designed to ensure data integrity as well as maximum availability and to reduce the likelihood of technical incidents considerably by

- Redundency of Core Elements
- Physical Separation in two separated Data Center Rooms
- Separate Disaster Recovery System

2.2   Disaster Recovery Tests and Stress tests

Wiener Börse is preparing comprehensively for handling an emergency situations. On the one hand, disaster recovery tests (DR tests) involving the Xetra® T7 Production Environment are carried out at least once per year, and on the other hand, focus days where different scenarios are tested are regularely executed in the Xetra® T7 Simulation Environment. The Xetra® T7 Simulation Enironment is available continuously and allows PSE and all trading participants to test their trading systems in normal and abnormal conditions.

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PSE takes part in the regular "Disaster Recovery" tests organized by WBAG. During these tests is tested system connectivity in production and simulation environment. These tests are organized for PSE and also for PSE members/trading participants.

In case of Stress tests is tested capacity of the trading system, when members of PSE send high number of orders to the trading system. Stress tests are organised by PSE. Stress tests parameters are given by MIFID II Article 48 - Systems resilience, circuit breakers and electronic trading and subsequently and also by RTS 7.

2.3   Focus Days

During ongoing Xetra® T7Simulation several "Focus Days" (e.g. Market Data Failure, Processing Delays, Gateway and Matching Engine Failover, Market HALT) are offered in SIMU environment. Within the scope of the Focus Days, tests the reaction of the Trading System related downstream systems as well as behaviour of WBAGs FIX interface and related Trading GUI. Details about timing and actions during Focus Days are communicated to Trading Members, ISVs and Technical Connectivity Customers via a "Focus Day Document" and via the "Xetra® T7 Simulation Calendar".

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3 Incident Management Process and Communication

When a technical incident is detected, predefined procedures are activated to enable problem resolution. An immediate communication process with WBAG is started and communication with PSE members is also triggered. As soon as the problem has been identified, and resolved and the systems are available for trading again, all relevant parties are informed by PSE.

If a "Market Halt" has been initiated due to the technical incident, a „new" schedule of trading hours for the resumption of trading will also be published.

3.1 Incident Notification (PSE internal)

When a technical incident is detected, Exchange Trading Day Manager (responsible person from PSE trading department) immediatelly contact Vienna Technical support via:
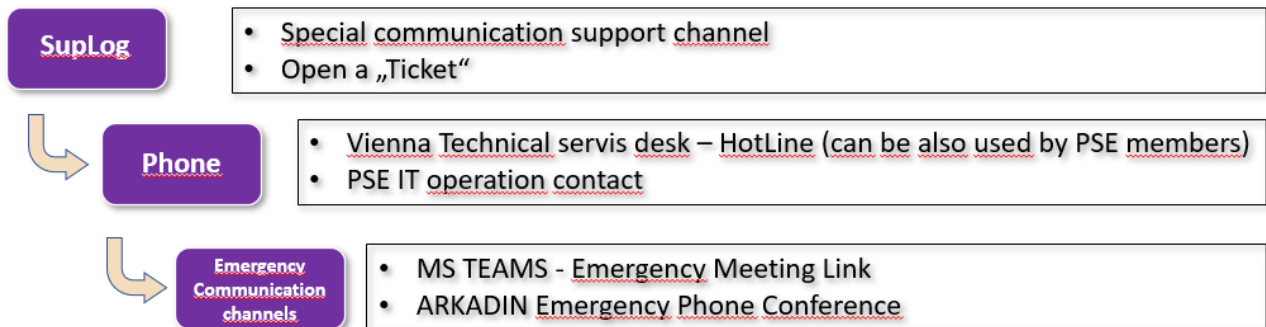
Vienna Technical support HotLine and PSE IT department can be also used by PSE members.

All contacts are listed in article 6.

3.2 Emergency Declaration and Communication. Status update

As soon as an overview on affected parts of the Xetra T7 system has been gained a respective "Emergency Situation" may be declared by WBAG depending on the severity of the incident immediate communication processes are triggered to inform affected PSE members and their ASPs, ISVs, Data Vendors, NCA (The Czech National Bank) and public investors via pre-defined communication channels as follows:

- Emails and phone – Internal Information System (IIS) approved pre-defined recipients contact list will be used
- PSE website in section „NEWS"
- News Board – a part of trading system. Only in case of technical possibility to use it. The information is spread to the whole PSE market immediately.
- PSE Spokesperson – for individual public information requests
- Social media platform X (former Twitter)

Status updates are sent out periodically to all market participants at least every 30 minutes (even if the issue is not yet solved).

3.3 Incident Resolution Confirmation

When is the situation related to outage solved, PSE receives confirmation from WBAG about the possibility to re-start trading procedures and its timing.

The incident communication with WBAG takes place via individual communication channels – SupLog, email, phone.

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4   Market Re-Opening Procedure

Once the issue has been solved and the Xetra® T7 trading system is available again the market re-opens with standardized pre-trading phase with minimum lenght of 10min. and auction phases. It needs to be emphasized, that non-persistent orders and quotes will be deleted automatically by the trading system, because of a Market Halt procedure is trrigered. In cases where the integrity of orders has been compromised PSE offers an order book purge to all PSEmembers on their request.

Exchange Trading Day Manager is fully responsible for the whole process of re-opening procedures.

4.1   Re-Opening Schedule

PSE will inform all trading participants at least 15 minutes before re-opening about the resumption of trading and the planned re-opening schedule including the respective times for the various instrument states. In more or less all cases, the products will be switched to pre-trading phase first.

The decision about the re-opening schedule is made by CEO or deputy CEO of PSE.

The communication will take place via:

- Emails and phone – Internal Information system (IIS) - approved contact list
- PSE website in section „NEWS"

4.2   Pre-trading

The resumption of trading in Xetra® T7 takes place in the first step by switching the products into Pre-Trading Phase with minimum lenght of 10 minutes. During Pre-Trading Phase, trading participants can reconnect their systems, reconcile orders and trades (order book restatement) and place, modify or

delete orders or quotes, etc. If necessary, PSE members can request for the order book purge. No trading takes place during pre-trading.

4.3 Trading

At the end of the pre-trading phase, the product state switches to the trading and commences with an initial auction.

4.3.1 Continuous Trading with Auctions

When trading is resumed, an auction usually lasts 5-10 minutes. As soon as the auction is over, the products are switched to continuous trading.

4.3.2 Auction

If trading can be resumed in time before the scheduled times of the auction, then trading will take place according to the normal schedule. In all other cases, PSE will announce the exact time schedules. In special cases, PSE may also decide to cancel trading without refund on the day of the technical problem.

4.3.3 Continuous Auction

Trading (Pre-call phase) is usually resumed shortly after start of Pre-trading phase of this trading model. In special cases, PSE may also decide to cancel trading (the resumption of trading) without refund on the day of the technical problem.

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4.4   Monitoring of Fair and Orderly Trading Conditions

It is the task of a trading venue to ensure fair and orderly trading conditions. PSE carefully monitors the market status and activities in the market. This means that PSE regularly monitors the number of connected trading participants and their respective market share, the general as well as incoming calls of the trading participants (e.g. reporting of anomalies). These are all factors for assessing market quality and proper trading conditions.

If PSE identifies adverse situations (e.g.incorrect market data distribution during ongoing trading) that could lead to unfair and improper trading conditions, PSE will interrupt trading (Market Halt). Trading will only be resumed when fair and orderly trading conditions have been restored.

As a rule, trades are deemed to have been concluded when the legally binding trade confirmation has been sent by the Xetra® T7 system and is available there after the technical problems have been resolved and pre-trading has been achieved.

4.5   Post Incident Analysis and Communication

After the Incident is resolved, the root cause and the impact of the incident is analyzed. The involved system suppliers are asked for statements with the results of their own incident analyzes.

Vienna Stock Exchange as a trading system provider for PSE has to provide PSE with a form "Incident report" (detailed description of outage, responsible persons, way of solution, etc.) Afterwards, this document is sent to the National Authority (The Czech National Bank). Communication takes place always via emails (confirmed contact list).

Moreover, the incident report is subsequently the basis for:

- improvements in the affected systems,
- improvements in the monitoring and
- improvements the incident handling process itself.

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5   Contacts

PSE trading HotLine

Phone: +420 221 832 146

Email: trading@pse.cz

PSE Spokesman

Phone: +420 221 832 820

Vienna Technical Service Desk

Phone: +43 1 53165 170

Email: it_helpdesk@wienerboerse.at

6   Related Documents

All mentioned documents can be downloaded on the Webpage of PSE.

Public area:

- Rules & Regulations of the Prague Stock Exchange
- Schedule of trading hours

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