



EMERGENCY PLAYBOOK PRAGUE STOCK EXCHANGE

Incident Management Guide
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1 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
FWB	Frankfurter Wertpapierbörse
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



2 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 Prague Stock Exchange 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. 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.



3 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.

3.1 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 and 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

3.2 Disaster Recovery Tests and Stress tests

Wiener Börse is preparing comprehensively for handling an emergency situation. 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 regularly executed in the Xetra® T7 Simulation Environment. The Xetra® T7 Simulation Environment is available continuously and allows PSE and all trading participants to test their trading systems in normal and abnormal conditions.

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.



4 Incident Management 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 also communication with PSE members is 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.

4.1 Incident Notification (PSE internal)

When a technical incident is detected, responsible person from PSE trading department immediately contact Vienna Technical support via:

- telephone - Technical support HotLine and
- open a „Ticket“ via special support communication channel – SupLog.
- Informe also PSE IT operation

Vienna Technical support HotLine can be used also by PSE members

4.2 Emergency Declaration and Communication

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, The Czech National Bank as a national regulator and public investors via pre-defined communication channels as follows:

- Emails and phone – IIS approved contact list
- 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 across the whole PSE market at one moment.
- PSE Spokesperson – for individual public information requests
- Twitter



4.3 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.



5 Market Re-Opening Procedure

Once the issues have been solved and the Xetra® T7 trading system is available again the market re-opens with standardized pre-trading and auction phases. It needs to be emphasized, that non-persistent orders and quotes will be deleted automatically because of a Market Halt procedure.

5.1 Re-Opening Schedule

PSE will inform all trading participants in good time (at least 15-20 minutes before re-open) about the resumption of trading and the planned re-opening schedule incl. the respective times for the various instrument states. In more or less all cases, the products will be switched to pre-trading 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 – IIS approved contact list
- PSE website in section „NEWS“

5.2 Pre-trading

The resumption of trading in Xetra® T7 takes place in the first step by switching the products into Pre-Trading. During Pre-Trading, Trading Participants can reconnect their systems, reconcile orders and trades (order book restatement) and place, modify or delete orders or quotes, etc. No trading takes place during pre-trading.

5.3 Trading

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

5.3.1 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.



5.3.2 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.

5.3.3 Continuous Auction

Trading (Pre-call phase) is usually resumed shortly after the 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.

5.4 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.

5.5 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.

Based on this, WBAG prepares a detailed incident report, which is forwarded to the NCA (FMA) and, if affected, its Partner Exchanges.



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.

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).

6 Contacts

PSE trading HotLine

Phone: +42 221 832 146

Email: trading@pse.cz

Vienna Technical Service Desk

Phone: +43 1 53165 170

Email: it_helpdesk@wienerboerse.at

7 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