Xetra® Release 13.0

Front End Operations Guide

Deutsche Boerse - Xetra System Documentation
Xetra Release 13.0 - Front End Operations Guide

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1 Introduction

1.1 Purpose of this Guide

The "Xetra Front End Operations Guide" provides support for the operation and maintenance of the Xetra Front End. This guide provides the instructions and the information necessary to execute the required procedures and tasks for the operation of the Xetra application. The procedures defined in this guide should be followed exactly to ensure the proper functioning of Xetra. If one of the described procedures or instructions causes an exception or event that is not covered in this guide, then please contact the Customer Technical Support, using the contact details below.

You may find the additional "GATE Front End Operations Guide" a useful reference when reading this Xetra operations document. Both guides are intended for System Administrators, but please note, that general system and network environments are not covered in either document.

!

Please also refer to the GATE Front End Operations Guide, chapter 3 "Trouble Shooting and Reporting". This document pertains to FEs which are VALUES-based.

1.2   Contact Information

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1.3   Organisation and Scope of this Guide

This document describes the normal operation of the functional Xetra Xervice. The instructions apply to both, the Oracle Solaris and Microsoft Windows platforms. To address platform specifics, comments are added where necessary. Please note that references pertain to VALUES-based FEs.

The content of this guide focuses on the Xetra Front End architecture based on GATE and provides the instructions and the information necessary to execute the required procedures and tasks that need to be carried out by operations personnel.

General references to specific sections of the document are given in most chapters. Use these references to find more detailed pieces of information on explained topics.

This guide contains the following chapters:

- **Chapter 1 - Introduction** (this chapter)

Basic pieces of information about Xetra (purpose of the document, contact information, documentation of major changes in regard to prior versions of the document etc.)

- **Chapter 2 – System Overview**

Overview of the system and information about Broadcast Streams by type: The overview provides information concerning the configuration and the software components. This chapter should be used to gain a general understanding of the system and the terms used in this guide.

- **Chapter 3 – Xetra Operations**

Overview of Xetra operations by type of operation (including the handling of reports)

- **Chapters 4 – Configuration**

Overview of actions making it necessary to configure the Xetra system

- **Chapter 5 – Appendix A: Configuration Files**

Overview of configurable Xetra files with section name, entry, description and user groups.

- **Chapter 6 – Appendix B: Glossary**

Overview of abbreviations and definitions used in the course of this document.

1.4   Notational and typographic Conventions

This guide applies to the production and simulation environments of Xetra Frankfurt and Xetra Vienna. In order to keep notation generic the following notation is introduced:

Placeholder	Meaning	Possible Values
$$$	String indicating the market. Typically appears as a suffix to XETRA_	FFM=Frankfurt FF2=Frankfurt 2 XIM=Xetra International ISE=ISE-Dublin VIE = Xetra Vienna
XX	GATE architecture environment number	90=Production 91=Simulation 93=Advanced Simulation
YY	Xetra application environment number	51=Xetra Frankfurt Production 52=Xetra Frankfurt Simulation 53=Xetra Frankfurt Advanced Simulation 55=Irish Stock Exchange Xetra Production 57=Xetra International Market Production 61=Xetra Frankfurt2 Production 62=Xetra Frankfurt2 Simulation 68=Xetra Vienna Production 69=Xetra Vienna Simulation 70=Xetra Vienna Advanced Simulation

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To put this document into context the following table lists the respective documentation related to the main components of a Front End installation.[1]

Component Group Name	Description	Related Documentation
Front End Technical Overview	This document describes the network and the software architecture of the GATE and associated functional Xervices	"Common MISS-based Front End Technical Overview"
GATE Front End Technical Xervices	Front End software components built and released by the Exchange, including the tools built to operate the system, excluding the functional Xervices, the Exchange Front End trading application and the VALUES API 3rd party software.	"GATE Front End Installation Guide", "GATE Front End Operations Guide"
Functional Xervices	Processes of the Exchange Front End systems based on GATE	"Xetra Release 13.0 Front End Installation Guide", "Xetra Release 13.0 Front End Operations Guide"
Exchange provided Front End Application etc.	Exchange Front End applications based on the functional Xervices	"Xetra R13.0 J-Trader User Manual"
VALUES API	Virtual Access Link Using Exchange Services; Application Programming Interface. Exchange Front End application and member built applications use the VALUES API to access Exchange services.	"Member Front End Development Guide"
System hardware	Member-provided system hardware WS, servers, routers, LAN/WAN networks	Vendor provided documentation, "Common Front End Sizing Guidelines", "Common Front End Network Setup"
System software	Member provided system software Operating system	Operating system manuals, "Common Front End Sizing Guidelines"

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[1] None of the documents listed within the following table are in scope of this document.

Getting Attention

This paragraph has been highlighted for special attention.

!

1.5 Modification of this Document

Chapter(s)	Change Details	Type of Change
All	Old Version New Version 12.0 13.0 120 130	Change
Several	Deletion of All Order Execution and Quote Confirmation	Change
2.3.1	Update of chapter	Add
2.3.4	Complete update of Xetra Broadcast Stream table	Change
6.	Glossary of Abbreviations (Appendix B)	Add

1.6 Preconditions

As the installation is based on GATE, the GATE Front End system software must be fully installed and configured on the MISS and WS (as described in the "GATE Front End Installation Guide") before the tools and procedures described in this guide can be effectively used.

This guide is based on the following assumptions:

- The reader is familiar with the operation of GATE.
- The Xetra Front End Software has already been installed as described in the "XETRA Front End Installation Guide".
- The USIM library files for the Exchange are present on the MISS (Xetra Front End).

2   System Overview

The Xetra Front End application 'sits on top' of the GATE architecture. The GATE architecture provides services to one or more Exchange Xervices, for a specific environment - Simulation or Production or Advanced Simulation. A GATE installation, which provides services for more than one Exchange Xervice, is referred to as a multi-market installation.

The central administration tool for the GATE architecture as well as for the Exchange Xervices is the Xmenu program. Xmenu is only available on MISSs. To configure a WS, it must be added to the MISS Server configuration file – configmbr.ini. The resulting configuration files are equally valid for the MISSs and WS. The Xetra Xervice submenu of the Xmenu allows the system administrator to perform the following tasks:

- Start and stop Xetra, including pre-processes such as file transfers,
- display status of the Xetra and Gate Xervices and processes,
- schedule several jobs,
- expand reports,
- view log files,
- configure broadcast subscriptions and exclusions and
- use the automatic Xervice restart feature.

The trading application J-Trader and all VALUES-based third party applications are referred to as Front End applications. J-Trader is a graphical Java based user interface (GUI), provided by the Exchange and installed with the Xetra software. For more information, refer to the following documents:

- "Xetra Release 13.0 Front End Installation Guide"
- Using J-Trader: "Xetra R13.0 J-Trader User Manual"

2.1   Multiple Environments

GATE and Xetra can run in multiple environments concurrently. An environment consists of a complete installation of GATE as well as of Xetra for a specific purpose (production or simulation). The files for an environment are located in the directories originating from opt\gate\baseXX.

2.2   Xetra-related Files

This section addresses Xetra related files exclusively. The technical Xervices use different files – they are documented in the "GATE Front End Operations Guide".

ROB Files

There are two files related to each Recoverable Broadcast (see chapter 2.3). The *ROBLog File* contains all Recoverable Broadcast data. The *ROBStatus File* contains information on the sequence of the Recoverable Broadcasts. Both files are Xetra-internal and should not be accessed by any application.

Configuration Data Files

Some configuration data files, which store settings for the Xetra and Xetra-retransmission Xervice, may be modified by the user:

- **Configuration Files**

  The **XETRAmbr.ini, mmstreams.dat, mmlogin.dat and exclListdat** files store member specific in-formation. For the configuration details of these files, refer to chapter 5.

- **Subscription File** (one for each of $$$)

  The MISS subscribes to broadcast streams available at the Back End. The subscription file on a MISS, **sublist.dat**, lists the streams which are to be subscribed. This is described in chapter 5.2. Additional configuration files are available, e.g. mmlogin.dat, mmstreams.dat and exclList.dat. These are described in chapter 5.3 till 5.5).

! Please refer to chapter 2.3 Broadcast Overview and Subscription List in this guide.

Reference Data File and the Member Reference Data Files

The Xetra Back End uploads the Reference Data File "xetraref.dat" and the Member Reference Data Files automatically via FTP to the MISS during batch processing at the end of a trading day to ensure the consistency of the Reference Data File on the MISS and on the Xetra Back End. The reference data file can also be downloaded within the Xetra member section. The Reference Data File contains functional information as well as technical information. The Member Reference Data Files contain member specific information.

Reference Data Files for each day are archived on the MISS using the directory structure

XETRA_$$$\data\archive\YYYYMMDD

Where XETRA_$$$ refers to the Exchange (e.g. XETRA_FFM) and YYYYMMDD refers to the date. The reference data files of all members subscribed to this MISS are stored in the same archive direc-tory on that day.

There are three files per member: rdiZZZZZ.dat, rdgZZZZZ.dat and rdtZZZZZ.dat where ZZZZZ is the member ID.[2]

Report Files

Report Files contain information related to the prior trading day. The Xetra Back End creates the Re-port Files during the batch process at the end of a trading day. Subsequently they are uploaded to the MISS that is defined as report node.

2.3   Broadcast Overview and Subscription List

Xetra provides information to the Xetra Front End systems located at member sites. An important part of this information is broadcast. Broadcast data is distributed via different streams (chapter 2.3.4). Streams must be subscribed to on the MISS in order to receive them. Two independent categories may be used to classify the broadcast streams (see chapter 2.3.1 and 2.3.3).

---

[2] Deutsche Boerse publishes a file which is updated on a daily basis including all tradable instruments on Xetra on its website www.deutsche-boerse.com → Quick Links → Tradable Instruments . The file is available also in the Xetra member section under the following path: https://member.deutsche-boerse.com→ Xetra → Instruments. Additionally, an instrument reference data file is provided via Xetra Backend on the Common Report Engine for download.

2.3.1   Private and public Broadcasts

For Xetra two different broadcast types are used, private and public.

Definition of Broadcast Types	
Broadcast Type	Definition
Private recoverable or unreliable	Private broadcast is a distribution of information that is considered member specific. Private broadcast streams are either recoverable or unreliable (see 2.3.3).
Public	Public broadcast is data which is available to all members and contains data like all trade prices, netted inside market information, news and ticker information.

2.3.2   Public Broadcast Stream Split

The inside Market broadcast stream is split into several substreams, for details please see chapter 5.7. Upon startup the first MISS in a MISS group will receive all public and private broadcast streams. When the second (or any further) MISS in a MISS group starts, all or some public broadcast streams are switched over to the second (or further) MISSs in a MISS group. The distribution of the public streams will be dynamically balanced between several MISSs.

The split of the Public Inside Market Stream only affects the broadcast stream between the Back End and MISS.

The failover capability between several MISSs and the process of subscribing streams using a subscription list file on the MISS will not change from the perspective of the MISS operator. By default a MISS subscribes to all public broadcast sub-streams, i.e. the load of all broadcast streams has to be processed. The operator can exclude public broadcast sub-streams, in which (s)he is not interested. As an exception, broadcast sub-stream X0 (zero) is not excludable.

Furthermore a tool called xetraIMKTBcastGroups resides on the MISS to provide the operator with the information about actual settings taken from the reference file xetraref.dat, i.e. which instrument group is published by which broadcast group. For more details please see 5.3.

2.3.3   Recoverable or unreliable Broadcast

Broadcast streams can also be classified in terms of the reliability of the stream.

If a stream is recoverable, the broadcast server can capture all generated messages while being actively connected to the Xetra Back End. It can also retrieve, on request (recover), all messages generated on the same business day, even those messages/broadcasts generated while being disconnected from the Xetra Back End. Therefore, this broadcast type is called Recoverable Broadcast (ROB).

Recoverable Broadcasts (ROB) are stored in special log files located in the "ROB" directory on the MISS.

The date of these files is checked automatically during the MISS startup procedure. This is to avoid the usage of ROB files from the previous day by the Xetra Application Xervices. These files are moved to the XETRA_$$$\data\ROBArchive directory when the Xetra Application Xervices are started for the first time on a business day and during the end-of-day job.

Recoverable means that each broadcast message contains a unique sequence number allowing applications to track received messages, to detect missed messages, and to re-request missed messages from the Xetra back-end system using a special application request. Each of the recoverable streams has its own sequence numbering.

If it is not possible to retrieve any lost messages, the stream is classified as unreliable.

2.3.4 Available Xetra Broadcast Streams

The different Xetra broadcast streams and their service quality are summarised in the table below.

Broadcast Stream Service Quality			
Stream	Public / Private	Unreliable	Recoverable
CCP Trade Confirmation	Private		X
DS/LM Quote Request (for Designated Sponsors and Liquidity Managers)	Private		X
Issuer Specific Information	Private		X
Matching Event	Private		X
Order Confirmation	Private		X
OTC Order Confirmation	Private		X
Private Member Messages	Private		X
Specialist Specific Information	Private		X
Trade Confirmation	Private		X
All Trade Prices	Public	X	
Public Data	Public	X	
State Change Information	Public	X	
Ticker	Public	X	

Broadcast streams can be subscribed once per MISS-group of a member. Additionally, dedicated clearing members and back office service providers may also subscribe recoverable trade confirmation stream for each member for whom they clear respectively process trades.

3 Xetra Operations

The member operational staff performs activities to control Xetra during normal and anomalous opera-tion. This includes startup, shutdown and exception handling. Exception handling is not specifically covered in this guide. Refer to the "GATE Front End Operations Guide". The following chapters pro-vide detailed process descriptions of the activities.

3.1 XETRA Submenu Structure

By default the Xetra Xervice is operated using the Xetra sub-menu of the Xmenu.

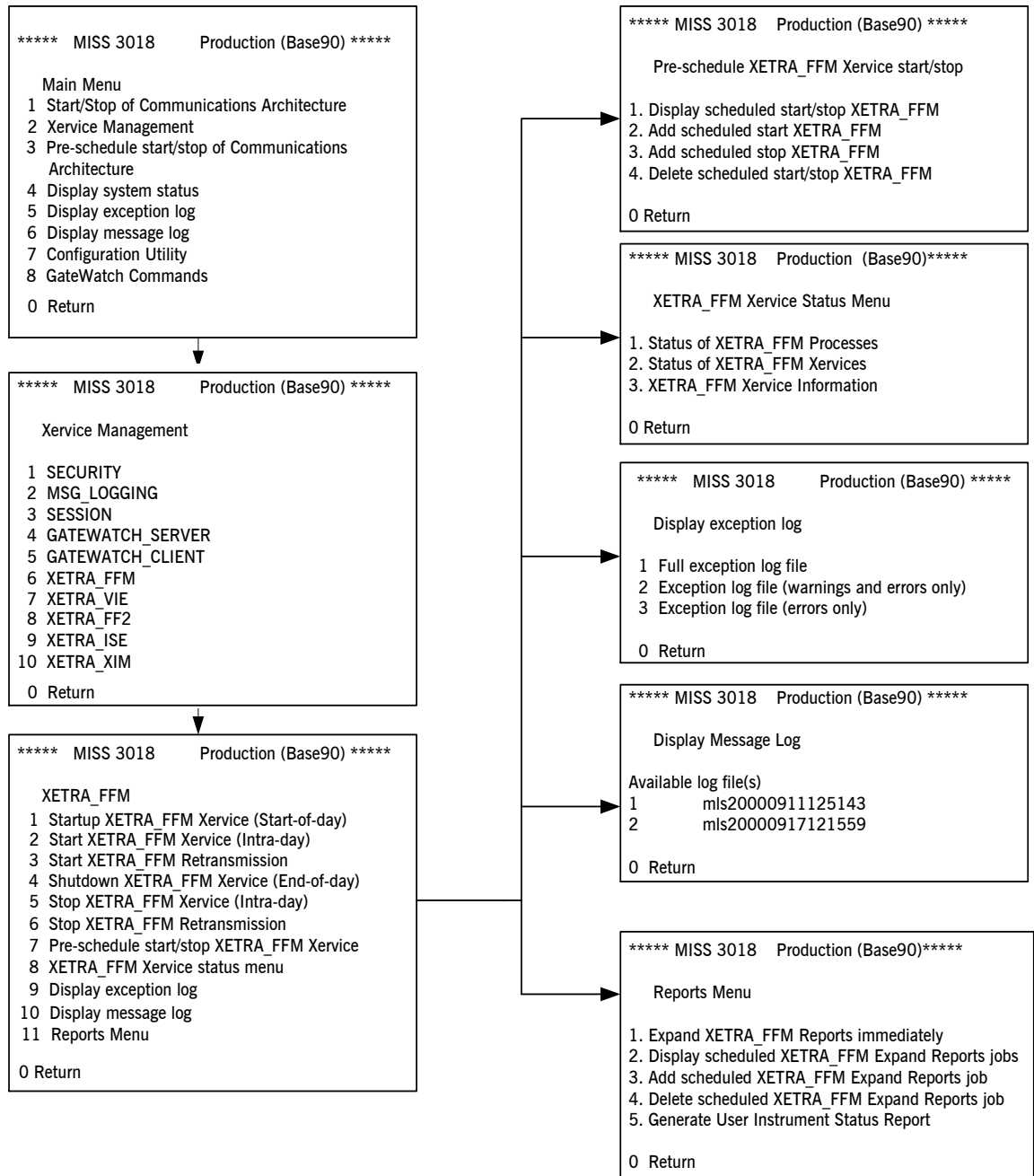The entry point on the MISS is the main menu of GATE (Xmenu). It is accessed via command line cd\opt\gate\baseXX\bin; Xmenu.pl or by double clicking on the XmenuR35 Icon

XmenuR35

The Xervice management section is the entry point to manage the products running on GATE. The Xetra operations sub-menu (XETRA) provides Xervice specific operations for startup, shutdown, moni-toring and maintaining Xetra.

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The following example installed with the latest available software, shows the access path to the Xetra sub-menu and selected submenus thereof.

```
*****   MISS 3018        Production (Base90) *****

   Main Menu
1  Start/Stop of Communications Architecture
2  Xervice Management
3  Pre-schedule start/stop of Communications
   Architecture
4  Display system status
5  Display exception log
6  Display message log
7  Configuration Utility
8  GateWatch Commands

0  Return
```

```
*****   MISS 3018        Production (Base90) *****

   Xervice Management

1  SECURITY
2  MSG_LOGGING
3  SESSION
4  GATEWATCH_SERVER
5  GATEWATCH_CLIENT
6  XETRA_FFM
7  XETRA_VIE
8  XETRA_FF2
9  XETRA_ISE
10 XETRA_XIM

0  Return
```

```
*****   MISS 3018        Production (Base90) *****

   XETRA_FFM
1  Startup XETRA_FFM Xervice (Start-of-day)
2  Start XETRA_FFM Xervice (Intra-day)
3  Start XETRA_FFM Retransmission
4  Shutdown XETRA_FFM Xervice (End-of-day)
5  Stop XETRA_FFM Xervice (Intra-day)
6  Stop XETRA_FFM Retransmission
7  Pre-schedule start/stop XETRA_FFM Xervice
8  XETRA_FFM Xervice status menu
9  Display exception log
10 Display message log
11 Reports Menu

0 Return
```

```
***** MISS 3018    Production (Base90) *****

   Pre-schedule XETRA_FFM Xervice start/stop

1. Display scheduled start/stop XETRA_FFM
2. Add scheduled start XETRA_FFM
3. Add scheduled stop XETRA_FFM
4. Delete scheduled start/stop XETRA_FFM

0 Return
```

```
***** MISS 3018    Production  (Base90)*****

   XETRA_FFM Xervice Status Menu

1. Status of XETRA_FFM Processes
2. Status of XETRA_FFM Xervices
3. XETRA_FFM Xervice Information

0 Return
```

```
 *****   MISS 3018          Production (Base90) *****

   Display exception log

1  Full exception log file
2  Exception log file (warnings and errors only)
3  Exception log file (errors only)

0  Return
```

```
***** MISS 3018    Production (Base90) *****

   Display Message Log

Available log file(s)
1        mls20000911125143
2        mls20000917121559

0  Return
```

```
***** MISS 3018    Production (Base90)*****

   Reports Menu

1. Expand XETRA_FFM Reports immediately
2. Display scheduled XETRA_FFM Expand Reports jobs
3. Add scheduled XETRA_FFM Expand Reports job
4. Delete scheduled XETRA_FFM Expand Reports job
5. Generate User Instrument Status Report

0  Return
```

3.1.1   Xetra Xervice Management

This section presents the various options available in Xmenu to control the operations of Xetra. The following sections put these elementary operations into larger context.

The following start / stop state transition diagram gives an overview regarding the availability of the different start / stop procedures.

```
  ┌──────────────┐                            ┌──────────────┐
  │  Start GATE  │                            │  Stop GATE   │
  └──────┬───────┘                            └──────▲───────┘
         │                                           │
         ▼                                           │
  ┌──────────────┐                            ┌──────────────┐
  │ Startup Xetra│───────────────────────────▶│Shutdown Xetra│
  │ (Start of day)│                           │ (End of day) │
  └──────┬───────┘                            └──────▲───────┘
         │                                           │
         ▼                                           │
    ┌──────────┐        ┌──────────┐                 │
    │Stop Xetra│───────▶│Start Xetra│────────────────┘
    │(Intraday)│◀───────│(Intraday) │
    └──────────┘        └──────────┘
```

3.1.1.1 Startup XETRA_$$$ Xervice (Start-of-Day)
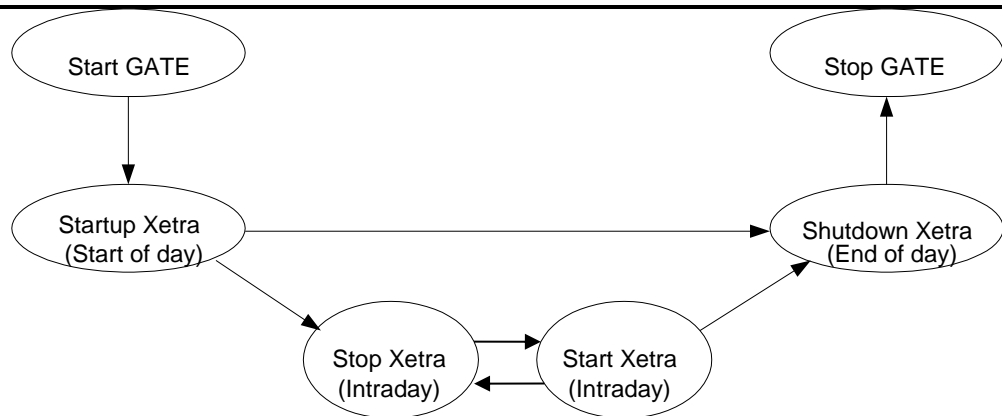
"Startup XETRA_$$$" is the initial start for the trading day. It first looks for the Reference Data Files and moves them to the XETRA_$$$\data\active subdirectory. There they are decompressed and checked for validity. Existing ROB log files or the ROB status file of the previous business day will be moved to the XETRA_$$$\data\ROBArchive directory.

If the Reference Data Files are not valid the "Start-of-day"-procedure is cancelled. After analysis of the exception log the operator may retry a "Start-of-day".

If there aren't any reference data files or not all reference data files available in the file transfer subdirectory, the File Client (FCLT) requests a re-transfer from the Back End. The compressed reference data files will be transferred to the file transfer directory on the MISS and then moved to the XETRA_$$$\data\active subdirectory.

Xetra BESS establishes a connection with the Back End so that Xetra J-Trader or other VALUES-API based applications can start.

The Xetra Retransmission Xervice can be started and stopped independent of the Xetra Xervice.

3.1.1.2 Start XETRA_$$$ Xervice (Intra-Day)

"Start XETRA_$$$" is used for an Intra-day Start and should only be performed after a previous successful Stop XETRA_$$$ Xervice (Intra-day). The Intra-day start includes no tasks regarding reference data, ROB or FCLT. "Start XETRA_$$$" starts the Functional Xervice to establish a connection to the Back End via Xetra BESS.

3.1.1.3 Shutdown XETRA_$$$ Xervice (End-of-Day)

"Shutdown XETRA_$$$" executes the End-of-day script. Then the ROB log files and ROB status files and the Reference Data Files will be archived. After Shutdown XETRA (End-of-day) Start XETRA (Intra-day) is no longer possible until "Startup XETRA_$$$" (Start-of-day) has been executed.

3.1.1.4 Stop XETRA_$$$ Xervice (Intra-Day)

Stop of XETRA_$$$ is used for the intra-day stop. It does not execute the End-of-day script like in "Shutdown Xetra_$$$" but disconnects the specific BESS Xetra (denoted by $$$) from the Back End and shuts down the BESS processes.

3.1.1.5 Pre-schedule Start/Stop XETRA_$$$ Xervice

To facilitate automation, this submenu shown on page 12 (Xetra submenu) offers options to schedule the automatic start and stop of Xetra.

In order to use this feature, on Oracle Solaris machines it is necessary to start cron, the operating system's scheduling service. On Windows 2003/XP/2008/7 a special service called PBHGateXX, which can be installed together with GATE 3.5 is needed.

3.1.1.6 XETRA_$$$ Xervice Status Menu

This submenu shows the status of the processes or Xervices of a specific Xetra. "XETRA_$$$ Xervice status menu" corresponds to "Display System Status Menu" and is the Xetra-specific part.

! For further information please refer to the corresponding part in the "GATE Front End Operations Guide".

3.1.1.7 Display Exception Log

This submenu shows the exception log, first filtered for the Exchange-specific Xetra operations and then filtered by severity aspects:

1. All events for Xetra operation including successfully started processes with severity 0, 1, 2, 3.
2. All events for Xetra operation which produce warning and errors, starting with severity 1, 2, 3.
3. Xetra operation which generate errors with severity 2, 3.

Note: A severity of 3 triggers the execution of an alert script (bin/alert.ksh on Oracle Solaris, bin/alert/alert.bat on MS Windows).

! For further information please refer to chapter 3 Trouble Shooting and Reporting in the "GATE Front End Operations Guide".

3.1.1.8 Display Message Log

This menu displays the Exchange and Xetra specific message logs. The option presents the available message log files in a list which can be selected for viewing using the index number out of the list.

3.1.1.9 Reports Menu

This menu offers the possibility to expand the reports immediately or to schedule this task. It also allows generating the user Instrument Status Reports on the Front End.

3.2   MISS Operations

The Xmenu functionality described in the previous section supports the Xetra daily activity cycle.

There are three methods to start or stop the Xervice Xetra:

- Xetra may be started or stopped manually using the relevant options (see 3.1.1.1 to 3.1.1.4)
- It may be started or stopped at pre-determined times using the services of the scheduler (see 3.1.1.5)
- It may be started whenever GATE is started. This is achieved by setting in the XETRAmbr.ini file the AutoStart flag of [XETRA_$$$.Properties] to "1".It is stopped automatically whenever GATE is stopped.

All Xervices are started in the background. Depending on the platform, computer performance and network traffic, the startup procedure on the MISS may take some time. The availability of a Xervice is checked by using the "Display system status" sub-menu.

The operator on the MISS may start the event reader from a command line window or via the Xmenu using a separate terminal window to monitor the local log file of the MISS. The event reader displays log entries of the exception log file on the screen.
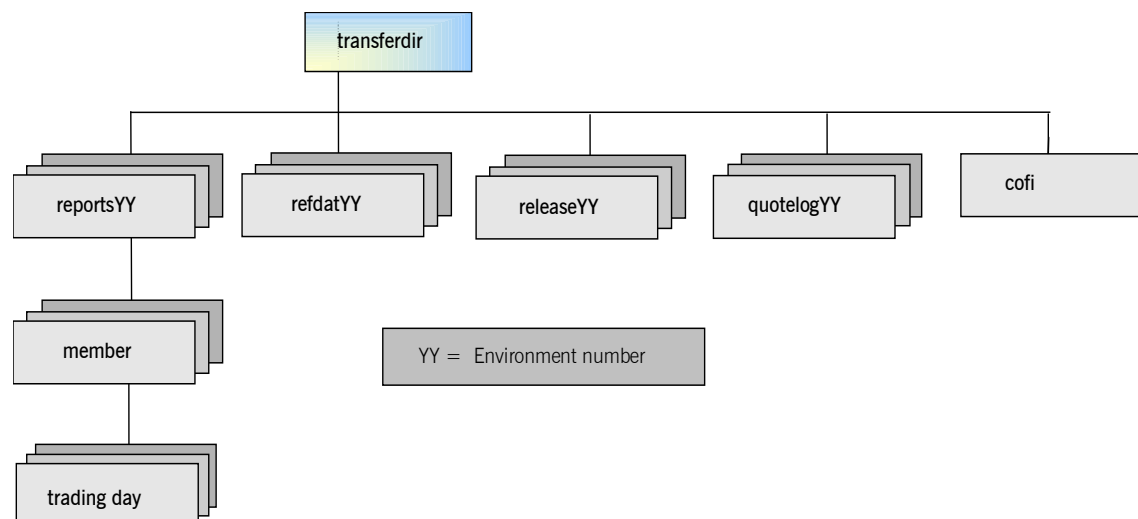
After the business day, when the Back End is in batch mode, the report files are generated and sent from the Back End to the MISS.

For exception handling, refer to the "GATE Front End Operations Guide".

3.3   Report Handling

During Back End batch processing reports are generated on the host and transferred to the MISSs designated by the member. A member may designate exactly one MISS to receive the unformatted reports and a (possibly different) MISS to receive the formatted reports. The MISS does not initiate any file transfer to obtain reports.

The Communication Server transfers all files to subdirectories of the file transfer directory (specified in the configuration file). The target directory for the transfer is the base of the directory hierarchy of reportsYY, member name and trading day (YY is the environment number and trading day is a 12-digit combination of current and effective business date).

The reports are delivered to the MISS as compressed files and in Back End format. In the submenu "Reports Menu" there is an option to expand the reports. First, a script decompresses the reports and then a reformatting module reformats them so that they can be printed in the proper format.
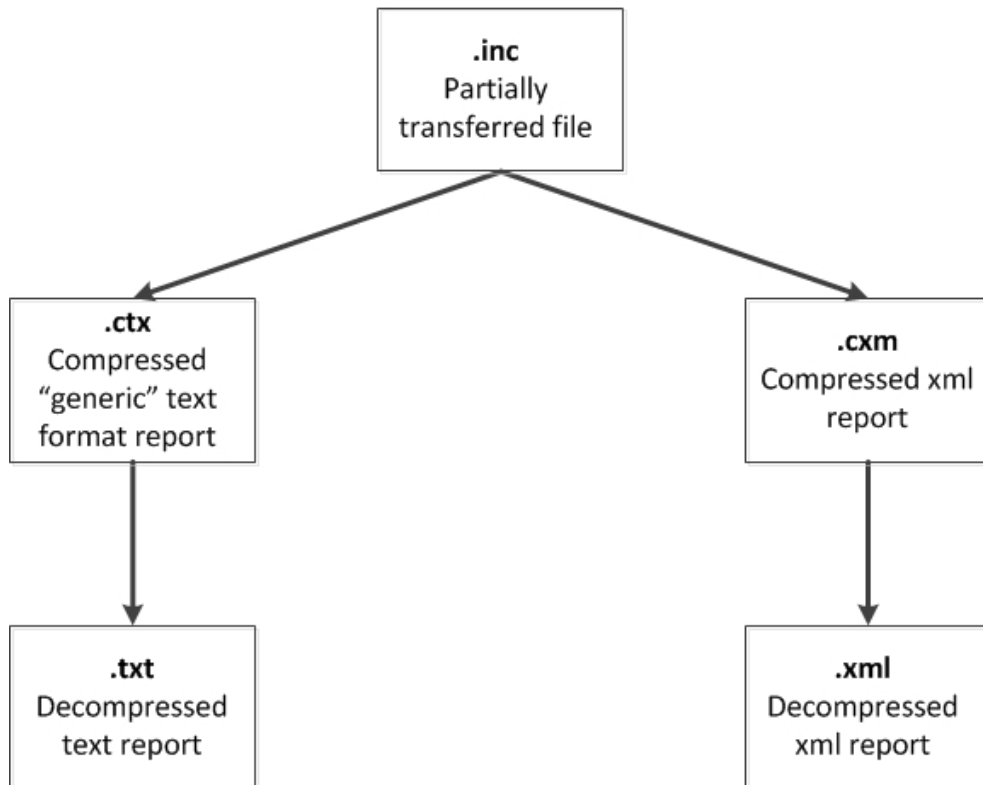
Report reformatting can be scheduled by calling the scheduling tool in the submenu "Reports Menu" or the reports can be processed immediately by either calling the **XETRAExpandReports.pl** script or selecting the menu item "Expand Reports immediately", which also calls this script. If scheduling is desired, the operator has to make sure the operating system's scheduling service is running.

XETRAExpandReports.pl reads the environment variable and the member entry from the configuration file configsys.ini. Using the Exchange environment number, the reports are transferred to the subdirectory transferdir\reportsYY\member-ID.

These are the five possible states of a report:

Inputfile.inc   This file is transferred incompletely or it is corrupt.

Outputfile.txt   Decompressed report in Front End format (filename RPT*.txt and RAW*.txt)

Outputfile.xml   Decompressed report in XML-format

Outputfile.ctx   Compressed generic text format report

Outputfile.cxm   Compressed xml report

There are two stages to report processing as indicated in the following diagram (Compressed File Transfer):

After reformatting on the MISS, the further handling of the reports is left to the member, i.e. the member can read them, back them up, etc.

There is no automatic retransmission of the reports if their transfer has failed. The operator can reorder the reports via the "Report Selection" window of the Xetra J-Trader Front End application.

!

Please refer to "Report selection" in the Xetra J-Trader User Manual.

Backing up, purging and archiving reports on the Front End is under the responsibility of the member.

3.4 Workstation Operations

On a WS there is no Xmenu to handle operations. The operator on a WS has three icons and/or three menu entries.

- There is an icon and a menu item to start GATE.
- A second icon and a menu item is used to launch the trading application Xetra J-Trader. Xetra J-Trader will be terminated by selecting the "Exit" item in the pull down menu "Window" of the "Xetra J-Trader" menu.
- Finally, there is a third icon and a menu item to shut down GATE.

4 Configuration

4.1 Configuration Management

After a new installation is set up, the customer needs to start the Configuration Utility, as described in the "Xetra Front End Installation Guide". This is not necessary when updating an existing installation.

If the system needs to be reconfigured this is usually done by calling configMenu.pl. However, it is also possible to directly edit the relevant configuration files.

Important: Members shall not modify any of the configsys.ini, GATEsys.ini and XETRAsys.ini files. They are protected with a checksum and the architecture will not start if changes are applied. Information concerning the file configmbr.ini, which is accessible for change, can be found in "Gate Front End Operations Guide".

Editable Xetra files are the "XETRAmbr.ini", the "sublist.dat", the "mmlogin.dat", the "mmstreams.dat" and the "exclList.dat". To edit these files any text editor can be used.

Changing the configuration is typically done in a cycle of

- Stopping the Xervice intraday.
- Backing up the current configuration files.
- Editing selected configuration files.
- Distributing the configuration files to the other MISSs and WS of the MISS group.
- Starting the Xervice intraday.
- Testing the changes.

Note: Changes in the operating system (Oracle Solaris/Windows) of the MISS must be communicated to the Exchange to be able to connect to Xetra. Only change the WAN IP addresses when asked to do so by the Exchange.

4.2 Userpath Name Limitations

In some cases problems have been reported with path variables containing spaces. This could be the case in the profile paths specified by the environment variables %HOMEDRIVE% and %HOMEPATH% (Windows) and $HOME (Oracle Solaris).

The values contained in the path variables %SETTINGSPATH% and %EXPORTPATH% (Windows) and $settingspath and $exportpath (Oracle Solaris) must only contain digits, upper- or lowercase letters and underscore.

When specifying these environment path variables DO NOT leave spaces between the file names e.g. "Program Files" should be "ProgramFiles".

5 Appendix A – Configuration Files

In addition to the GATE configuration files Xetra is configured by Xetra Xervice configuration files.

! Entries in the System Configuration File are pre-set by the Exchange and are not allowed to be changed. Items in the Member Configuration Files should only be modified if adaptations to the member environment are required.

5.1 Enhanced Multicast Configuration

To restrict private broadcast distribution on the technical Multicast distribution level, the broadcast split-filter functionality can be utilised. By means of this split-filter, separate multicast addresses can be assigned to each member's private broadcast streams.

The following private VALUES stream types can be configured for the broadcast split-filter:

VALUES Name	VALUES ID
Private Recoverable	0
Private Specialist	10
Private Issuer	11
Private Member Messages.	13
Private Unreliable Order Confirmation	14

For each stream-type to be filtered, a separate section has to be created in the XETRAmbr.ini.

Example: The following section creates a split-filter for the stream type 11 (private issuer) for the members ABCFR and DEFFR by assigning member-specific stream data to separate multicast groups with the index 11 and 12.

```
[XETRA.11.SplitFilter]
1, ABCFR, 11
2, DEFFR, 12
```

The indices 11 and 12 must be properly assigned to Multicast addresses in the configmbr.ini section; e.g.:

```
[MulticastGroups]
; multicast address, index
[...]
239.1.1.11, 11
239.1.1.12, 12
[...]
```

For more details how to configure multicast addresses please read the respective chapter in the "Gate Front End Installation Guide" and the "Gate Front End Operations Guide".

5.2 Configuartion File XETRAmbr.ini

The file XETRAmbr.ini contains several sections each with a number of entries.

The Table below describes all entries of the XETRAmbr.ini file. Each Exchange to be supported on the MISS must be featured here.

!

Please refer to chapter 1.4 for the 3-letter Exchange codes that have to be substituted for the "$$$" wildcards used in this table as well as for the GATE environment numbers denoted YY here.

Entries of the XETRAmbr.ini File		
Section Name	Entries	Description
[MISC]	Version=130	XETRA Version entry
[XETRA_$$$.Properties]	Installation=1	1 if the respective Xervice is installed 0 otherwise
	AutoStart=0	1 if this Xervice is to be started automatically with the basic architecture
	FtpRootDir=transferdir	Path to the FTP directory
	ROBArchiveDirecto-ry=XETRA_$$$data\ROBArchive	Location for stored ROB files
	ROBArchiveDays=4	Number of days to keep historical ROB files
	Unzip\XETRA\bin\unzip	Path to the unzip file
[XETRA_$$$.Misses]	MISS_HOSTNAME,	Fill with list of those MISS LAN hostnames, that should be used for this Xervice Xetra
[XETRA_$$$.WanHost-Names]	MISS_HOSTNAME, LOGICAL_DEVICE_ID,	The logical device id to be used here is not the one assigned by the Exchange but GATE's logical device (i.e., the logical device id needs to be unique within a GATE environment)
[XETRA_$$$.Member]	XETRA_MEMBER	List of all Xetra members for this MISS and Exchange

Entries of the XETRAmbr.ini File		
Section Name	**Entries**	**Description**
[XETRA_$$$.Stream-Groups]	0,1 2,1 3,1 4,1 5,1 6,1 7,1 8,1 9,1 10,1 11,1 12,1 13,1 14,1	Multicast index, to be configured for IP multicast (stream type, multicast index)
[XETRA_$$$.BcastAuthorization]	SubscriptionAuthorization=0	0=no broadcast validation, 1=broadcast validation
	MultiMember-LoginFile=XETRA_$$$\data\mmlogin.dat	Input file for retransmission; mandatory if SubscriptionAuthorization=1
	MultiMemberStream-File=XETRA_$$$\data\mmstreams.dat	Input file for broadcast subscription and retransmission requests; mandatory if SubscriptionAuthorization=1
[XETRA_APPLICATION_MANAGER_$$$]	IpcListenport=1@@50	Port to be used by the application manager
	DataServerListenport=1@@53	Port used by broadcast retransmitter
[XETRA_WAN_TRANSPORT_MANAGER_$$$]	IpcListenport=1@@51	Port to be used by WAN transport manager
	BroadcastServerListenport=1@@52	Port used by broadcast server
[XETRA_INST_SEARCH_ENGINE_$$$]	IpcListenport=1@@56	Port used by the Instrument Search Engine

Entries of the XETRAmbr.ini File		
Section Name	Entries	Description
[XETRA_RETRANSMIS-SION_$$$.Properties]	Installation=1	1 if the respective Re-transmission Xervice is installed 0 otherwise
	AutoStart=0	1 if this Xervice is to be started automatically with the basic architecture
[XETRA_RETRANSMIS-SION_$$$.Misses]	MISS_HOSTNAME,	Fill with list of those MISS LAN hostnames, that should be used for this Retransmission Xervice (usually identical to [XETRA_$$$.Misses])
[XETRA_RETRANSMIS-SION_$$$.Stream-Groups]		Assignment of Stream groups to Multicast Index
[XETRA_BROADCA-ST_RETRANSMIT-TER_$$$]	BrtBessPort=1@@57	Port used by BESS-to-BESS Communication
[XETRA_DATA_SERVER_$$$]	BrtBessPort=1@@11	Port used by the data serv-er
[XETRA_BROADCA-ST_SERVER_$$$]	MissGroupId=k	Change to a value that is unique for this member. This value must be identi-cal for all MISSes within a MISS group.
	MemberId=ABCFR	XETRA member ID author-ized to connect to XETRA_$$$ backend (5 uppercase characters)
	BcsrvBessToBessPort=1@@58	Port used by the broadcast server
	IpcListenport=1@@60	Port used by Xetra for in-coming application re-quests
	IMKTExclusion-List=XETRA_$$$\data\exclList.dat	For details please refer to chapter 5.5

5.3 Configuration File Sublist.dat

A member can subscribe to the following broadcast streams:

Subscription Types and Marks		
Broadcast Stream	Type	Mark
Trade Confirmation	Private	A
Order Confirmation	Private	B
Designated Sponsor Quote Request	Private	E
OTC Order Confirmation	Private	F
CCP Trade Confirmation	Private	G
Specialist Specific Information	Private	H
Issuer Specific Information	Private	I
Private Member Messages	Private	L
Matching Event	Private	M
All Order Confirmation	Private	O
Quote Confirmation	Private	R
All Trade Prices	Public	W
Public Broadcast	Public	X

On a Multi Member MISS, the Public Broadcast only has to be subscribed for one member.

The letters in the column "mark" represent the code that has to be inserted in the sublist.dat file. With the sublist.dat file members subscribe to the broadcast streams they wish to receive. The sublist.dat file is Exchange-specific and therefore located in the XETRA_$$$\data subdirectory. It is an ASCII table that can be edited with any text editor. All letters have to be written in upper case. A typical sublist.dat looks like this: (where ABCFR is an example for a member ABCFR using the Frankfurt Exchange)

ABCFRA
ABCFRB
ABCFRE
ABCFRF
ABCFRG
ABCFRH
ABCFRI
ABCFRL

ABCFRM
ABCFRO
ABCFRR
XXXXXW
XXXXXX

The sublist.dat file is initialized during the installation process of the Technical Xervices (see "Xetra Release 13.0 Front End Installation Guide" for detailed information on the installation process). However, this file has to be maintained by the Xetra Operator in case of changes to the broadcasts a member subscribes to. The changes are applied by adding or deleting entries of the sublist.dat file using a text editor or by using the Configuration Utility.

5.4 Stream Types

Xetra Stream Types	VALUES ID
PRIVATE_RECOVERABLE_STREAM	0
PUBLIC_UNRELIABLE_MARKET_STREAM	2
PUBLIC_UNRELIABLE_TICKER_STREAM	3
PUBLIC_UNRELIABLE_QUOTE_REQUEST_STREAM	4
PUBLIC_UNRELIABLE_STATE_STREAM	5
PUBLIC_UNRELIABLE_NEWS_STREAM	6
STARTUP_GAPS_STREAM	7
KEEP_ALIVE_STREAM	8
PUBLIC_ALL_TRADE_PRICES_STREAM	9
PRIVATE_SPECIALIST_STREAM	10
PRIVATE_ISSUER_STREAM	11
PRIVATE_UNRELIABLE_QUOTE_CONF_STREAM	12
PRIVATE_MEMBER_MESSAGES	13

5.5 Configuration File Mmlogin.dat

The mmlogin.dat file is used by the retransmission process to validate incoming login requests to the retransmission Xervice. The records in this file assign local machine accounts to members.

The record layout is:

MEMBER:TRD001,TRD002,TRD003

Example:

ABCFR:TRD001,TRD002,TRD003

i.e. only login requests from traders belonging to ABCFR, that use the local machine accounts TRD001, TRD002 or TRD003 are accepted.

!

Important!
Entries to mmlogin.dat must only be made, if Broadcast Validation is enabled. If Broadcast Validation is disabled, the contents of this file do not play a role.

5.6 Configuration File Mmstreams.dat

The mmstreams.dat file is used by the broadcast server, the data server and the retransmission process to validate VALUES subscriptions to private broadcast streams. Per default, each member (all traders of a member) can subscribe his own private streams. If he should receive private broadcast from other members, the respective entries have to be inserted into the mmstreams.dat. The record layout of mmstreams.dat is:

RequestorOwner: List of back-end-streams

Example:

ABCFRDEFFR:A,B

E.g., member ABCFR is allowed to subscribe to stream A and B (trade confirmation, b-order execution) of DEFFR.

!

Important!
Entries to mmstreams.dat must only be made, if Broadcast Validation is enabled. If Broadcast Validation is disabled, the content of this file will be ignored.

The associated Back End stream codes are shown in chapter 5.2 in this guide.

5.7 Configuration File Excllist.dat

For improved load balancing of inside market broadcast the broadcast split concept was introduced with Xetra 8.0. The streams are split into smaller broadcast sub-stream groups. Each broadcast sub-stream group relates to a specific group of XETRA instrument groups. The exclusion file exclList.dat allows specific broadcast sub-streams to be excluded from the subscriptions of inside market broadcast specified in the sublist.dat. This will further increase the overall performance and minimise network congestion.

Please note: Sub-stream group 0 ("zero") is the only group which is not excludable.

!

Broadcast sub-stream groups are defined by Market Supervision and are subject to change after due announcement. Broadcast sub-stream groups are identified by a one-letter code, the "short group

name". The current broadcast sub-stream group definitions are encoded in the xetraref.dat file of the XETRA MISS.

By default the exclusion list is empty, i.e. by default no broadcast stream group is excluded and netted inside market data are transferred. The exclusion list is configured via the Configuration utility or a text editor. A valid xetraref.dat is a prerequisite if you use the Configuration utility.

!

Please note: the content of the stream groups may change. The "xetraIMKTBcastGroups" tool is available to retrieve the actual content.

Currently, the following broadcast substream groups are defined for Frankfurt (FFM) only:

Broadcast Substream Groups		
Substream Group	Exchange	Instrument Group / Information Content
D	ETR	TT02 TT01
G	ETR	PBA1 PBA0
H	ETR	DAX1
I	ETR	FONA FON0 FDL0 FON1 ETC1 ETN0 FDLA FON2 FLS0 FSF0
J	ETR	GER0 SDX1 MDX1 TDX1 GER1 STX6
K	ETR	UKI0 ESP0 STX1 SWI0 LUX0 AST0 SKA0 ITA0 FRA0
L	ETR	NAM0 USS1 NAM1
M	ETR	ASI0 SAM0 NEWX AUS0 AFR0 WAR1
N	EUB	IGOV AGEN JUMB ICOV ECOV EGOV CORP FAGN FCOV BOND AGUS BILL ILBE
Q	BSE	BSB0 BSE0 BSR0 BSF0 BSC0
V	MAL	MSB0 MSE0 MSB1 MSB2
1 ("one")	-	EXTE

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The following broadcast substream group is not excludable:

Substream Group FFM		
Substream Group	Exchange	Instrument Group / Information Content
0 ("zero")	-	Market Supervision Information, exceptional market interrupts

The following broadcast substream group is defined for Xetra Dublin (DUB)

Substream Group DUB		
Substream Group	Exchange	Instrument Group / Information Content
P	DUB	ISED ISE1 ISEG ISEB

The following broadcast substream group is defined for Xetra International Market (XIM)

Substream Group XIM		
Substream Group	Exchange	Instrument Group / Information Content
E	XIM	0AT0 4GB0 0BEL 9NO0 3CH0 0IE0 7DK0 0ESP 0PT0 0FIN 0FRA 0NLD 0ITA 6SE0
1 ("one")		EXTE

Currently, the following broadcast substream groups are defined for Frankfurt 2 (FF2) only

Substream Group FF2	
Substream Group	Instrument Group
A	BO08 BO01 BA01 BO18 BO11 BO03 BO05 BO06 BO16 BO19 BO15 BO09 BO13 BO12 BO14
	BO02 BO10 BO07 BO04 BO17 BO20
B	DS19 DS18 DS07 DS05 DS13 DS04 DS03 DS01 DS08 DS17 DS02 DS11 DS12 DS20 DS06
	DS10 DS09 DS14 DS15 DS16 DS21
C	WA04 WA08 WA20 WA13 WA18 WA01 WA17 WA07 WA14 WA16 WA12 WA26 WA22 WA02 WA10 WA09 WA19 WA06 WA05 WA03 WA11 WA15 WA21 WA30 WA25 WA24 WA31 WA29 WA23 WA28 WA27
D	ZR01 XB01 MS00 MS04 KL01 GC01 MS07 XF01 KL07 RC01 KO01 KL08 KL04 KO09 MS01
	KL05 KO07 KO11 RC04 MS02 KO05 RC02 IX01 RC03 MS05 KO10 MS03 KO04 RC06 KO08
	KL02 MS06 KL06 RC05 KO06 KL03 KO02 EL01 EL02 KO03 RV01 OP01 GC02 EL03 ZR02
	XB03 XF02
F	FD00
G	EQ00 EQ01
H	BD01 BD00 BD02 BD03
J	WR00

Currently, the following broadcast substream groups are defined for Vienna (VIE) only:

Table: Substream Group VIE	
Substream Group	Instrument Group
B	B11A B05S CBA B12A BOST B09A B03A B04A B01S B03S B17S B17A B21A CBS B11S
	B15A B13A B19A B07A GSTR GOVB B07S GTB B01A B13S B09S B05A B15S B23A
H	OLF OLD AOD ATX CTP CTD MIDC MIDA COL AOF
I	CCE1 WA03 CCE2 WA12 WA11 WA04 WA05 WA08
J	WA06 CEB1 CEB3 CEB2 WA01 WA02
K	CINV CPCT CBON CBNS COTH CDIS CDSC CDIZ
L	CEAO CEAP ETF FOAO WA07
M	LEE4 LESC LB01 LOPC LT01 LEE2 LEE1 LEEC LESA LEE3 LEE5 LEPC LOFC
1 ("one")	EXTE

By default a MISS subscribes to all sub stream groups, i.e. the load of all sub streams has to be processed. The operator can exclude sub-streams, in which (s)he is not interested.

Since the distribution of the subscribed broadcast sub-streams is dynamically balanced between the MISSs of a MISS group, all MISSs of the group have to use the same subscription and exclusion list.

The broadcast exclusion list (exclList.dat) consists of one exclusion entry per line, each line being a concatenation of stream (XXXXX) and sub-stream group name.

Examples:

XXXXXXH → exclude DAX1 (sub-stream group H) for this MISS address for all members on this MISS group.

XXXXXXQ → exclude BSE (sub-stream group Q) for this MISS address for all members on this MISS group.

The "xetraIMKTBcastGroups" tool is available to retrieve the broadcast stream group definitions from the reference data file "xetraref.dat". The standard conditions apply: the working directory has to be \opt\gate\baseXX\bin, the environment variable SYS_CONFIFG_FILE has to be set to cfg\configsys.ini to invoke the tool as XETRA\bin\xetraIMKTBcastGroups $$$.

MISS administrators will have to specify for each inside market sub-stream as defined by broadcast split if the respective MISS-group will subscribe to the inside market stream.

Within the Configuration utility you can modify the subscription of the sub-stream group.

Modification of Subscriptions	
Substream Group	Instrument Group
Y	Exclude these instruments from subscription
N	Remove these instruments from the exclusion list

5.8 Blocking Mechanism for the Reference Data File

A blocking mechanism for the reference data file (ref.dat and member split file) can be set up. For each MISS the member can decide whether he will receive the reference data file or not. Since the Xetra architecture (BESS) will not start without reference data files, members need then to copy the files via in-house solution from one MISS to the others.

The MISS directory transferdir\refdatXX is checked for entries "BLOCK_ALL" or "BLOCK_REF".
If BLOCK_ALL is found, neither refdat nor splitfiles are sent.
If BLOCK_REF is found, only splitfiles are sent.

5.9 User Types and User Groups

Four types of users have to be distinguished for the purpose of Xetra Front End system administration:

- System Administrator.
- GATE Administrator (by installation default: gateadm, Group gategrp). See the "GATE Front End Operations Guide".
- Xetra trader account (by installation default: XetraTrd, Group: gatetrd).
- Xetra File Transfer Account: The Xetra file transfer account owns the files located in the xetra file transfer directory structure. The file transfer account has write access to the appropriate subdirectories of its home directory, which is the above mentioned transfer directory. Names and groups have to be as follows:

Environment Numbers				
Exchange	Environment	Environment No.	OS File Transfer Account Name	OS Group Name
FFM	Production	51	xnet51	xetraft
FFM	Simulation	52	xnet52	xetraft
FFM	Advanced Simulation	53	xnet53	xetraft
ISE	Production	55	xnet55	xiseft
XIM	Production	57	xnet57	xximft
FF2	Production	61	xnet61	xetra2ft
FF2	Simulation	62	xnet62	xwbagft
VIE	Production	68	xnet68	
VIE	Simulation	69	xnet69	

! Note that on Oracle Solaris all accounts and groups (except the file transfer accounts) are created during the installation procedure, if not already existing. The file transfer accounts (xnetYY) and groups (xetraft, xwbagft, xetra2ft) are only required on a MISS – they are created by the XetraPrepareExchange tool following an initial installation.

On Windows all accounts and groups have to be created manually using the User Manager\Active Directory Users and Computers (see "Xetra Release 13.0 Front End Installation Guide").

5.10 User Profile Handling

The user profile is stored in an xml file containing all local settings (profiles, save settings, window configuration, instrument watch, etc.) The file name is derived from the system login (e.g. GATEADM.P.XETRA120.JTr.cfg). By default the file is located in the user's home directory (Oracle Solaris) respective users profile directory (Windows). However, by setting an environment variable "settings path" this location can be defined differently.

6   **Appendix B – Glossary**

Term	Explanation
API	Application Programming Interface
BESS	Back End Specific Subsystem
FE	Front End System
Functional Xervice	Processes of the Exchange Front End systems based on GATE
GATE	Generic Access To Exchanges
GUI	Graphical User Interface
MISS	A MISS (Member Integration System Server) is a computer system which is connected to the Exchange applications. The MISS is responsible for the presentation of market information and capturing of the user requests for the Exchange application.
No.	Number
WS	Workstation