



# **EFETnet Software System Requirements**

**Version 4**

**Dated 2010-12-31**

## Change Log

Revision	Date	Mark	Changes
1	2004-12-15	TZ MH	Original Schedule to EFETnet Maintenance & Support Contract
2	2007-12-15	TZ HB	Included system requirements for ePM, added deployment scenarios and sizing considerations for those scenarios.
3	2008-07-31	TZ	Included support for Sybase ASE 12.5 and 15 for EFET Box 3.2a, EFET Box 4.0 (implied with ePM), and for Ponton X/P
4	2010-12-31	TZ HB TS	<ul style="list-style-type: none"> <li>- Added support for Windows Server 2008</li> <li>- Added support for latest Internet Explorer and Firefox browsers</li> <li>- Added support for VMware vSphere™</li> <li>- Discontinued Ponton X/E support</li> <li>- Discontinued Sybase support for EFET Box 4</li> <li>- Extended network port descriptions</li> <li>- Updated sizing considerations</li> </ul>

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# 1. Scope of the Software System Requirements

This document describes the system requirements for installing, integrating, operating and updating the EFETnet Software at a User-Site.

## 1.1. Packages

The EFETnet Software, as defined in this contract, is comprised of the four packages below. Packages in this context mean software systems which can be installed and operated as stand-alone applications.

- **EFET Box+** comprising at least the EFET Box+ Common Services and either the eCM Module or the ePM Module, or both the ePM and the eCM Module:
  - **EFET Box+ Common Services** including four main integrated components applicable across the modules: graphical user interface (GUI), reporting engine, dispatcher and process engine, and user and configuration module
  - **EFET Box+ eCM Module** including three main integrated components: the bespoke eCM matching logic, customized configurations for the reporting engine, customized configurations for the dispatcher and process engine, and other bespoke configurations and code to implement the EFET eCM Standard(s)
  - **EFET Box+ ePM Module** including three main integrated components: the bespoke ePM matching logic, customized configurations for the reporting engine, customized configurations for the dispatcher and process engine, and other bespoke configurations and code to implement the EFET ePM Standard(s)
- **Ponton X/P** including two main components, the Messenger and the Listener. The Listener is typically deployed on a separate system in the DMZ, while the Messenger is deployed on a system within the secure zone, i.e. the Intranet.
- **Ponton X/D** including four main integrated components: the mapping engine, the workflow engine, the Database Adaptor, and the Flat File Adaptor.

## 1.2. Deployment Scenarios

There are different user needs and therefore deployment scenarios some of which lead to different system performance criteria and sizing considerations. The most typical scenarios are:

- User has/develops their own XML interface to the ETRM system thus does not require Ponton X/D. Therefore, User needs only the first two packages, i.e. Ponton X/P and the EFET Box+.
- User does not have their own XML interface to the ETRM system, and wants to develop such interface using Ponton X/D. Therefore, User needs the first three packages, i.e. Ponton X/P, the EFET Box+ and Ponton X/D. For this document, the assumption is that Ponton X/P is deployed on one system, while both the EFET Box+ and Ponton X/D are deployed together on another system.
- User has/develops their own implementation of the EFET-Standard matching logic and business processes either within or outside their ETRM system; thus does not require the EFET Box+.

## 2.EFET Box+ 4, Ponton X/P and Ponton X/D

### 2.1. System Performance required

Disk space	>= 1 GB	Installation only, no deal data
Memory space	>= 2 GB	Add 1 GB when EFET Box+ and Ponton X/D are deployed to the same system
Processor	>= Dual core	2 GHz or higher

### 2.2. Operating System supported

- Windows 2003 Server
- Windows 2008 Server 32-bit
- Windows 2008 R2 Server 64-bit
- Debian Lenny 5 32-bit

The software MAY run on other operating systems but is not tested by EFETnet.

#### 2.2.1. Virtualization

The software is tested to run on VMware vSphere™ 4.1 ESX servers. Other virtualizations systems have not been tested.

Due to the recommendations of the database vendors EFETnet can not recommend to install the database software on a virtual server.

### 2.3. Databases supported

Database / Version	JDBC Driver
Oracle 10g	Oracle Thin Driver for 10g
Oracle 11g	Oracle Thin Driver for 11g
Microsoft SQL Server 2005	JTDS Driver version 1.2
Microsoft SQL Server 2008	JTDS Driver version 1.2
MySQL 5 (with InnoDB Engine)	MySQL Connector/J version 5

Note: the EFET Box+ is delivered with an embedded database which may be used **for testing / evaluation purposes only**.

### 2.4. Web Browsers supported

- Internet Explorer 7 and 8
- Firefox 3

Other browsers MAY work but are currently not tested by EFETnet.

## 2.5. Network Ports and External Services

N.B. all ports can be changed by configuration, default values shown in the following:

Port	Protocol	Remark
25	smtp	Used by EFET Box+ and X/P (optional reporting sent via SMTP-capable mail server)
80	http	Offered by the X/P Listener for incoming external communication
123	ntp	Used by EFET Box+ and X/P (time server for exact audit logs)
137	netbios	Used by EFET Box+ and X/P (in single sign-on mode)
389	ldap	Used by EFET Box+ and X/P (in single sign-on mode)
443	https	Offered by the X/P Listener for incoming external communication (optional)
4002	tcp	Offered by the X/P Listener (service communication)
4004	tcp	Offered by the X/P Listener (callback)
8443	https	Used by EFET Box+ (optional connection to Ponton X/P)
8880	http	Offered by EFET Box+ (web traffic from back-end)
8887	http	Used by EFET Box+ (connection to Ponton X/P)
8888	http	Offered by EFET Box+ (web browser user interface)
50081	http	Offered by the X/P Listener (remote administration)

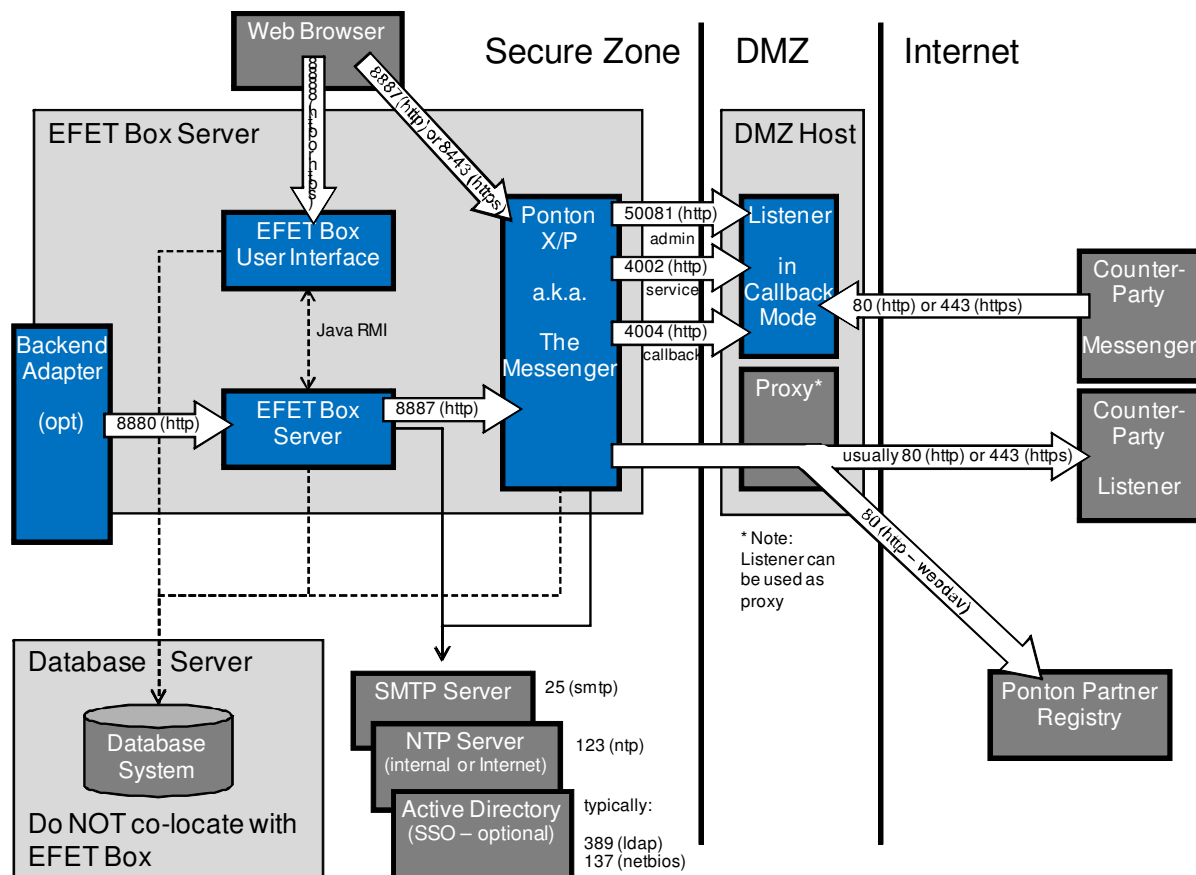


Figure – typical network setup of an EFET Box+ (including Ponton X/P)

## 2.6. Sizing Considerations for the EFET Box+ 4 (eCM Module)

The following describes typical amounts of file system and database space claimed when performing electronic confirmation matching with the eCM module. **As stated in 2.9, all sizing recommendations are indicative only.**

Completed Trades (trilateral trader/broker match)		1000
Database Size (including standard indices)		100 MB
... of which EFET Box+	35 MB	.....
... of which Ponton X/P	65 MB	.....
File System Size		20 MB
<b>Total</b>		120 MB

This is a median. Single trades may be larger, depending on the delivery time intervals stated in the XML file. E.g. a trade with an interval of a year and a time interval for every hour is 8760 intervals resulting in an XML file of size 2.38 MB. A typical Trade with 10 – 20 intervals is 5 – 10 KB.

## 2.7. Sizing Considerations for the EFET Box+ 4 (ePM Module)

The following describes quantities for file system and database space claimed when using the ePM Module. **As stated in 2.9, all sizing recommendations are indicative only.**

### **File System Size (per position run)**

The average file system size claimed during an ePM run (includes stored messages and logging) largely depends on the size of the exchanged position documents (PDDs).

PDD size (KB)	File system (KB)
60	220
300	410
500	460
3000	3000
15000	9100

### **Database Size (per position run)**

The average database space claimed per position run is independent of PDD size approx. 30 kB.

### **Typical Size Per Day**

In user acceptance tests conducted in Q4/2007 by pilot users defined the following quantities as expected daily averages for scheduled position runs:

- 16 counterparties with 10 runs each = 160 position runs / day
- Expected distribution of document sizes (depending mostly on regarded delivery time window and commodities):
  - 15% (= 24 of 160) positions of 60 kB
  - 30% (= 48 of 160) positions of 500 kB
  - 40% (= 64 of 160) positions of 3 MB

- 15% (= 24 of 160) positions of 15 MB

Resulting database space required per day: 160 x 30 kB = 4800 kB

Resulting file system space required per day: 437760 kB (430 MB)

## 2.8. Sizing Considerations for Ponton X/P

The following describes quantities for file system and database space needed. The figures apply for 1000 transmissions with debug log active, using an xml payload file of 2500 bytes. All archiving options were activated. **As stated in 2.9, all sizing recommendations are indicative only.**

Archive	Payload dependent	5 MB
	Fixed overhead	10 MB
Log files (debug)		10 MB
Database (HSQL)		5 MB
<b>Total Size</b>		<b>30 MB</b>

## 2.9. Additional Sizing Considerations for Ponton X/D

If Ponton X/D is deployed on the same system as the EFET Box+, special care has to be taken with respect to sizing. The disk usage may vary widely depending on the kind of backend integration (flat files vs. JDBC access to interface tables, Entity-Relationship-Model of interface tables, table and field sizes/limits). Typical sizing increases due to the deployment of Ponton X/D on the same system as the EFET Box+ are:

- Add 50% to database size
- Add 20% to file system size

**EFETnet advises that any sizing recommendations made in this document are indicative only, and should be verified BEFORE making purchase decisions for the PRODUCTION system.** This sizing verification should be done by testing typical trading scenarios in a test environment, after the integration between the ETRM system and the EFET Box+ using Ponton X/D has been developed.