



EFETnet Software System Requirements

Version 6

Dated 2015-01-01

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"> - Added support for Windows Server 2008 - Added support for latest Internet Explorer and Firefox browsers - Added support for VMware vSphere™ - Discontinued Ponton X/E support - Discontinued Sybase support for EFET Box 4 - Extended network port descriptions - Updated sizing considerations
5	2013-12-31	TS	Removed EFETbox+, general adjustments
6	2015-01-01	TS	Update of Operating Systems, Database and browser versions MySQL support removed Added section for fCM Hybrid Module

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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 three packages below. Packages in this context mean software systems which can be installed and operated as stand-alone applications.

- **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.
- **fCM Hybrid Module** is used as a gateway between the clients ETRM system and the EFETnet CMS. All trades that are not forwarded to the CMS for electronic matching can be send out via fax to the counterparty.

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 one package, Ponton X/P.
- 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 two packages, Ponton X/P and Ponton X/D. For this document, the assumption is that Ponton X/P is deployed on one system, while Ponton X/D is deployed on another system.

2. Ponton X/P and Ponton X/D

2.1. System Performance required

Each server, one for Ponton X/P and one for Ponton X/D, will require

Disk space	>= 1 GB	Installation only, no deal data
Memory	>= 4 GB	
Processor	>= Dual core	2 GHz or higher

2.2. Operating System supported

- Windows Server 2008 R2 64-bit
- Windows Server 2012 R2
- Debian Wheezy 7 64-bit

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

2.2.1. Virtualization

The software is tested to run on VMware vSphere™ 5.5 ESX servers. Other virtualizations systems have not been tested.

Installing the database system on a virtual server depends on the database supplier. Please refer to your database supplier's documentation.

2.3. Databases supported

We strongly recommend running the application and the database on different server.

Database / Version	JDBC Driver
Oracle 11g	Oracle Thin Driver for 11g
Oracle 12c	Oracle Thin Driver for 12c
Microsoft SQL Server 2008	JTDS Driver version 1.25 or higher
Microsoft SQL Server 2012	JTDS Driver version 1.25 or higher

2.4. Web Browsers supported

- Internet Explorer 10 and 11
- Firefox 31 ESR

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

2.5. High Volume Ponton X/P setup

There are special scenarios possible where Ponton X/P is used in a high volume environment. A single installation of Ponton X/P is able to process up to 50000 messages per peak hour when connected to a well performing database.

If there is a need for higher volumes Ponton X/P has to be installed in cluster mode with separate instances on separate servers and load balancing between the instances.

2.6. Network Ports and External Services of Ponton X/P

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

Port	Protocol	Remark
25	smtp	Used by 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 X/P (time server for exact audit logs)
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 (call-back)
8887	http	Used by X/P
50081	http	Offered by the X/P Listener (remote administration)

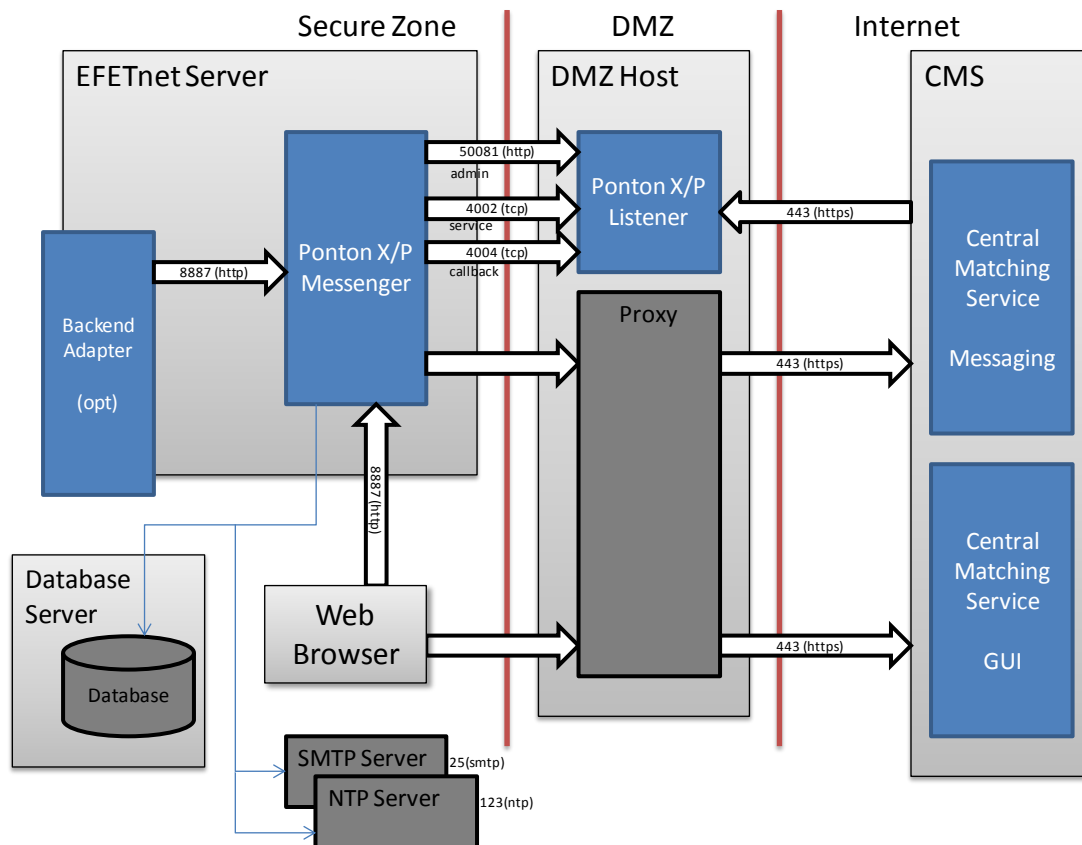


Figure – typical network setup of Ponton X/P

2.7. Sizing Considerations for Ponton X/P

The following describes quantities for file system and database space needed. The figures apply for 10000 transmissions with debug log active, using an xml payload file of 2500 bytes. All archiving options were activated. **As stated in 2.8, all sizing recommendations are indicative only.**

Archive	Payload dependent	100 MB
	Fixed overhead	150 MB
Log files (debug)		150 MB
Database		120 MB
Total Size		520 MB

2.8. Additional Sizing Considerations for Ponton X/D

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 of Ponton X/D:

3 kB per CNF

1 kB per BoxResult (ErrorBoxResults require more than average)

In an average situation this means 10 kB per deal.

So a realistic approach is to size the database for ca. 100.000 deals, requiring **1 GB** size.

For performance reasons X/D recommends some housekeeping:

Removing old data from staging tables; we assume here that consumed BoxResult also get removed either immediately or eventually.

Ponton 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 Ponton X/D has been developed.

For log files we suggest a file system size of 50 GB.

3.fCM Hybrid Module

3.1. System Performance required

It is not recommended to install fCM Hybrid Module on the same server as Ponton X/D or Ponton X/P.

Disk space	>= 1 GB	Installation only, no deal data
Memory space	>= 8 GB	
Processor	>= Dual core	2 GHz or higher

Chapters 2.2, 2.3 and 2.4 also apply for the fCM Hybrid Module system. When using the fCM Hybrid Module on Linux make sure that the font server is setup correctly so that fax PDFs are shown correctly.

3.2. Additional Sizing Considerations for the fCM Hybrid Module

The following describes quantities for file system and database space needed. **As stated in 2.8, all sizing recommendations are indicative only.**

Assumptions:

2000 brokered eCM deals per week

600 brokered fCM deals per week

- each xml deal needs 12k of disk
- each xml BoxResult needs 4k of disk
- each PDF outbound fax has 100k on disk
- each PDF inbound fax has 150k on disk and a thumbnail preview (visible in Barcode matcher) of 15 k on disk

Using the figures from the assumptions above the disk space required is 0.5 GB per week.

As the fCM Hybrid Module is also using the database to store information there is the requirement for 80 MB of space within the database per week for the number of deals mentioned above.