PYMMA

OpenESB Enterprise Edition

Version 3.x - Installation guide

PYMMA

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Abstract:

This document provides a short guide to install the OpenESB Enterprise EditionV3.x

Status:

This Document is in a final state.

ABOUT PYMMA CONSULTING

Pymma Services is a technical architect bureau founded in 1999 and headquartered in London, United Kingdom. It provides expertise in service integration systems design and implementation. As leader of the OpenESB project, Pymma is recognised as one of the main actors in the integration landscape. To reply to its customers' requirement, Pymma develops OpenESB Enterprise Edition which implements Enterprise features such as a Horizontal Scalability, Monitoring, IoT, Big Data Access and takes advantage of professional technical support.

Pymma is a European company based in London with regional offices in France, Belgium and Canada. (contact@pymma.com or visit our website at www.pymma.com)

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1 Introduction

OpenESB Enterprise Edition developed by Pymma is the based on the OpenESB community Edition. OpenESB Enterprise Edition (OE EE) offers the lightest and the most efficient integration tools on the market. Powerful, prompt, scalable with a very low memory footprint, OE EE is ready for virtualisation and cloud deployment.

1.1 OpenESB's history

Sun Microsystems developed initially developed OpenESB by in the late 00's. OpenESB' first versions ran in the Glassfish Application Server. At that time, OpenESB was an open source subset of a Sun's product named Java CAPS. In 2010, Oracle bought Sun Microsystems and stopped its investment on OpenESB which compete with Oracle SOA Suite. For this reason, many of OpenESB documentations rely on Java CAPS under the Oracle trademark. At the same time, a community has been created to support, maintain and improve the pro

Efficient and reliable, this JEE architecture was not accurate anymore with the new agile and scalable architectures based on the cloud and the virtualisation.

In the mid 10's architecture and development were not focused on JEE. Cloud and virtualisation required more flexibility to be efficient in the new environments. The OpenESB community and the main sponsors decided to stop the development of the OpenESB Glassfish Edition.

In 2015, the OpenESB community extracted OpenESB from the application server and issued the OpenESB Edition. OpenESB Standalone Edition (also named Community Edition) offers a light and efficient integration tools. Powerful, prompt, scalable with a very low memory footprint, OE SE is ready for virtualisation and cloud deployment.

In 2016, Pymma issued OpenESB Enterprise Edition (EE) to offer to the enterprise projects, additional features and professional support.

This documentation is dedicated to the OpenESB Enterprise Edition.

1.2 Compatibility with OpenESB Community Edition

OpenESB Enterprise Edition is compatible with the OpenESB Community Edition 3.x. The applications running on OpenESB Version 2.x must be tested before running on production with OpenESB Enterprise Edition.

1.3 OpenESB V3.0 Enterprise Edition content

OE EE has three main parts.

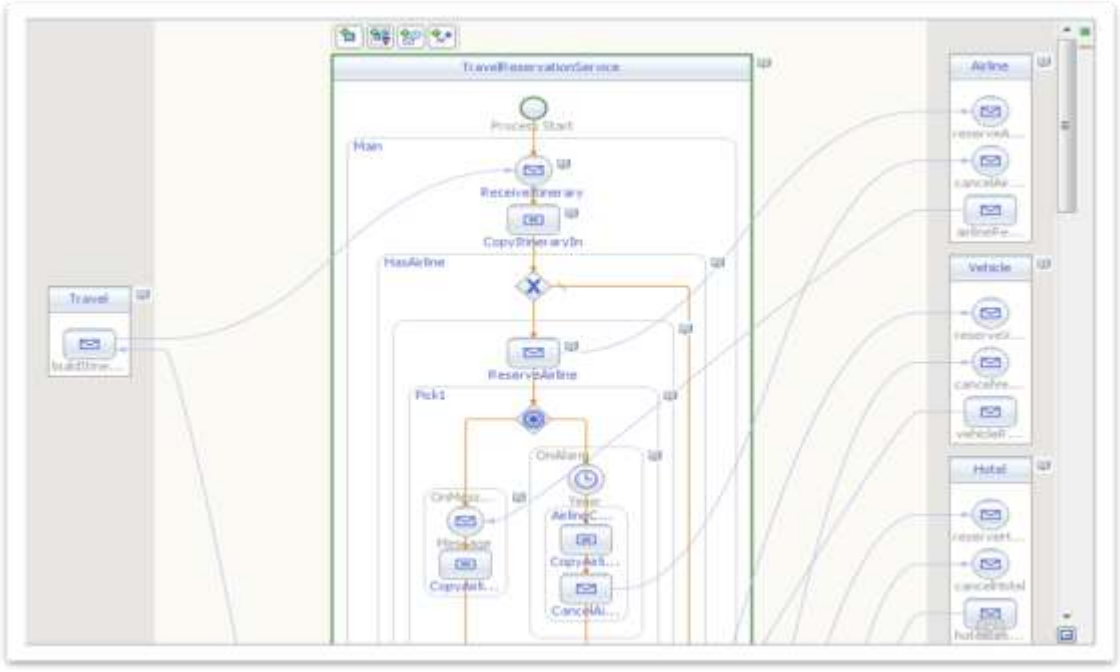
- OpenESB studio
- OpenESB instance & Web Admin Console
- OpenESB components

Additional enterprise component such as Listeners, Publisher or cache driver must be added regarding the application requirement.

1.3.1 OpenESB Studio

OpenESB EE studio V3.x is an Integrated Development Environment based on NetBeans that contains NetBeans regular Java and Java Enterprise tools used to develop application Java projects, as well as many plugins dedicated to OpenESB, designed to develop service-oriented integration projects. The plugins deal with:

- XML document
- Schema XML documents
- WSDL document
- BPEL document
- Composite application
- Intelligent Event processes
- Many other components.



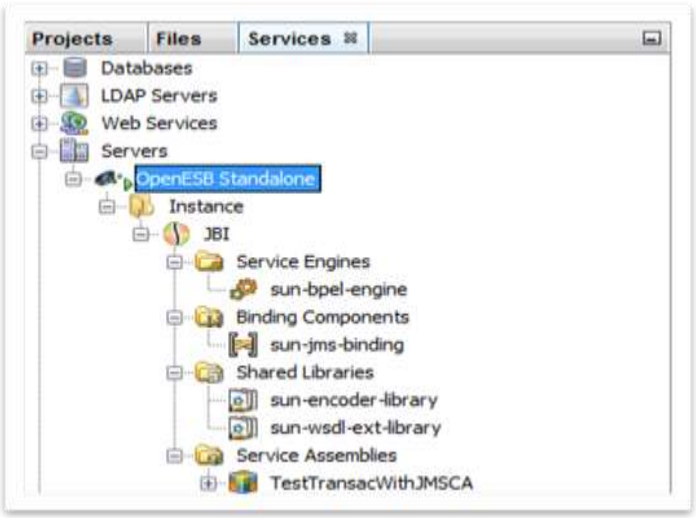
Example of OE plugin: OpenESB BPEL Editor

OpenESB Studio contains all the features required by development teams

- Powerful editors

- Mapper
- Debuggers
- Profilers
- Refactoring
- …

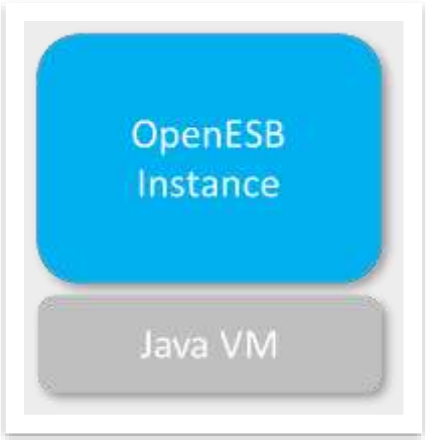
OE Studio could be connected directly with one or more instances of OpenESB Enterprise Edition and allows the user to deploy, control and test her/his OE applications without any additional tools.



OE Studio Connection to OE SE instance

1.3.2 OpenESB Instance

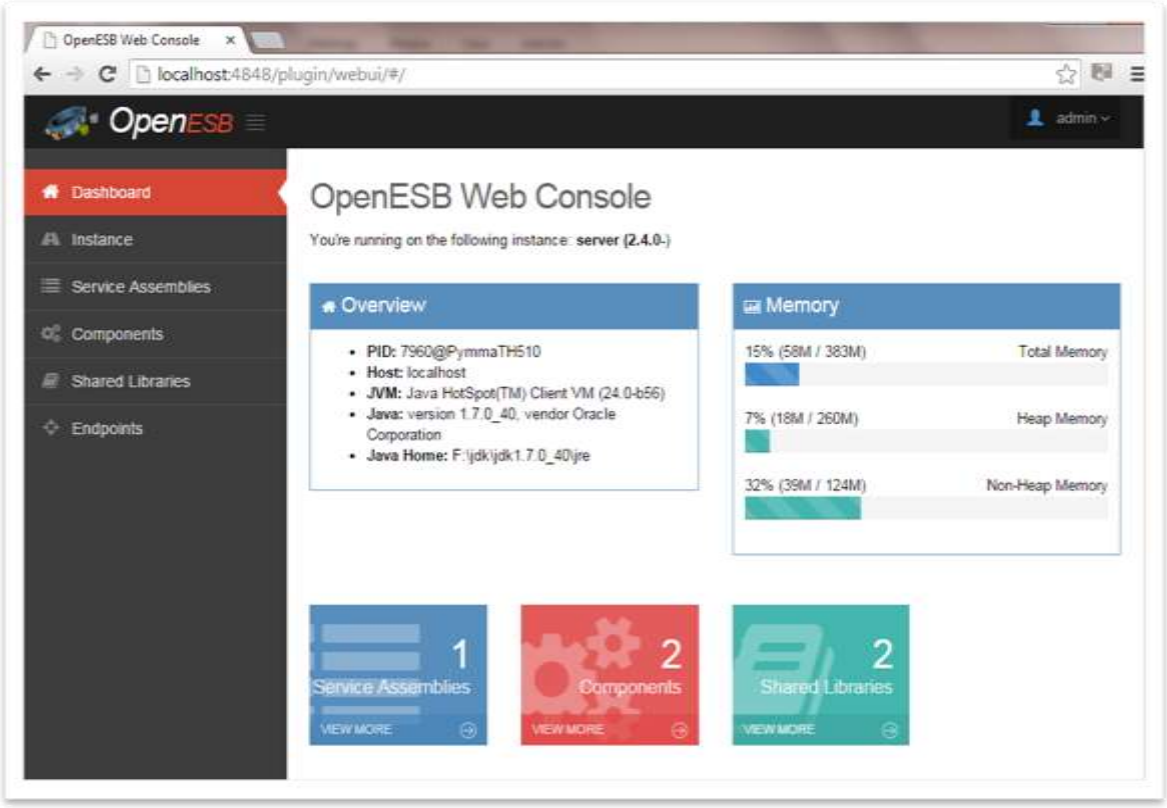
OpenESB instance is the core part of OpenESB. It is the place where applications and components are deployed and run. Unlike OpenESB legacy edition, OpenESB instance does not require any additional software or containers to start and run in a simple JVM.



OpenESB stack

1.3.3 OpenESB Web admin console

Light and very smart, OpenESB web console offers the same administrative features that the legacy one. You can easily install libraries, components, deploy services assemblies with your browser chrome, Firefox.



OpenESB Web admin console

More information on the admin console in our document **770-003: OpenESB Web Admin Console.**

1.3.4 Components

There are components or libraries are available with OpenESB SE some of them are supported by the community, some by tiers parties such as Pymma. Pymma optimises the components on the OpenESB Enterprise Edition and offers new components (ex: Kafka, MQTT…).

The document **770-002 OE SE Hello World, 770-003 OE Admin Guide** details how to deploy a component or a library" please in OpenESB Enterprise Edition.

1.4 JDK Supported version

OpenESB Enterprise Edition has been tested with Java 1.8.151 64 bits. We strongly recommend you run OE SE in a 64 bits mode for scalability purposes.

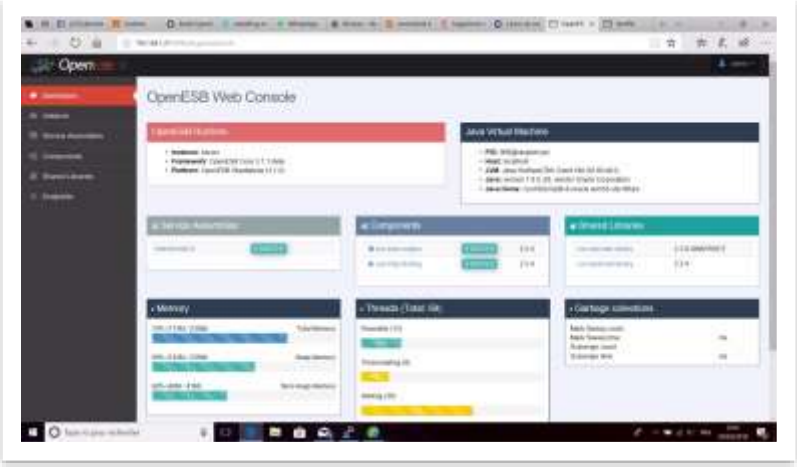
1.5 Supported Operating systems

The OpenESB Enterprise Edition has been tested successfully with the JVM 1.8-151 64 Bit

Operating System	Recommended
Ubuntu	JVM 1.8-151 64 Bit
Centos	JVM 1.8-151 64 Bit
RedHat	JVM 1.8-151 64 Bit
Solaris	JVM 1.8-151 64 Bit
Windows 64 bits	JVM 1.8-151 64 Bit
Windows Server	JVM 1.8-151 64 Bit

We recommend you use the Oracle JDK 1.8.151 to run OE SE.

1.6 Memory requirement



OpenESB running on a Raspberry PI with 235 Mb of memory

OpenESB Enterprise Edition runs on many platforms from the raspberry PI up to AWS cloud. The amount of memory is depending on the application and invocation number running on OpenESB. On production, Pymma advises its customers to run instances with 4 to 8 Go of memory. If more memory is required, create new instances

1.7 External software and applications supported

Through its connectors, OpenESB communicates with many external applications and products. Please find below a short list of database and message queuing systems compatible with OpenESB. The list is

not exhaustive; if you do not see your product on the list, it does not mean it is incompatible with OpenESB but rather that we have not tested it yet. Please contact us for further information on OpenESB compatibility.

1.7.1 SQL Databases

We test OpenESB with the last version of:

Database	Editor
Oracle	Oracle
MySQL	Oracle
PostgreSQL	The PostgreSQL Development group
Derby	Apache group
Java DB	Oracle
PostgreSQL 9.x	PostgreSQL
SQL Server	Microsoft
Sybase DB	SAP
DB2	IBM
Many Other Databases with JDBC support	See: OpenESB Enterprise Edition JNDI Support

1.7.2 Message Queuing Systems

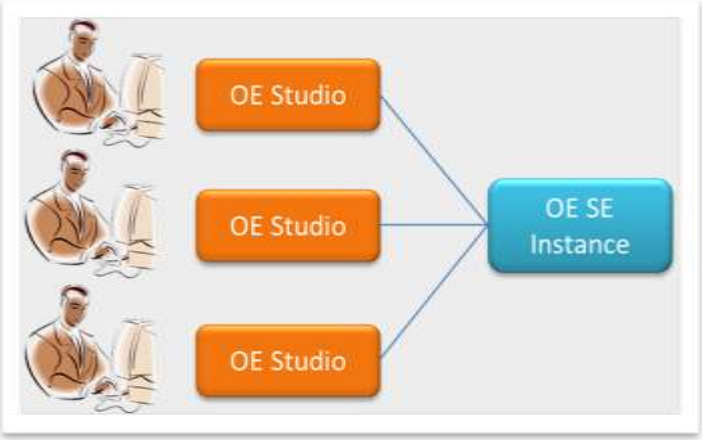
JMS Broker	Editor
Websphere MQ	IBM
OpenMQ	Oracle
Active MQ	Apache
Hornet MQ	JBoss
All JMS Compliant brokers	See: OpenESB JMS Connection

2 Hardware requirements

2.1 Hardware requirements at the design time

When designing, developers tend to run their IDE and OpenESB instances on the same machine. Sophisticated configurations allow them to share the same instances of OE SE and work together on larger units of development.

One OE Instance per developer



Share OE SE instance(s)

In both cases, machines used for the development must be set up with enough power and memory to work comfortably. OE Studio runs on any decent machine with 4 GB. However, if you would like to improve your productivity, we recommend you use an 8 GB machine with 17 inches screen.

OpenESB requires at least 2 GB free space disk to be installed: 60% for the studio, 35% for the components and 5% for the OpenESB instance. We recommend you dedicate 10 GB to OE SE.

2.2 Hardware requirements at the runtime

OpenESB Enterprise Edition is a very light java process, which can run with limited resources; it can run on a simple Raspberry PI system designed for embedded applications for cars, robots and industrial machines. Nevertheless, OE SE has been designed to process billions of messages every day, and the performance you obtain is proportional to the hardware resource you dedicate to your projects. The feedback received from our customers who are using OpenESB as infrastructures for their SOA projects shows that OpenESB consumes very few CPU but requires enough memory to run properly. At the start, OpenESB takes up all the memory available on the machine and then manages it to process messages most efficiently. So, if you dedicate x GB of memory to an OpenESB instance, x GB are used when starting OpenESB whatever the activity.

OE configurations with 2 GB can process millions of messages per day. We recommend you set up your JVM memory between 2-4 GB for your first tests and QA. For the benchmark and production configuration, set up your JVM between 4 and 8 GB. If more memory is needed, create additional OpenESB instances and run your project in multi-instances configurations.

Some large projects deploy tens of OpenESB instance running concurrently and reach billions of processes daily.

For further information, see our documents: **770-010 OpenESB optimisation** and **770-008 OpenESB Multi-instance mode.**

3 OpenESB Enterprise Edition Installation

As the application server does not require any more, OE SE installation is easier and faster than the previous legacy versions of OpenESB.

3.1 Install Java JDK

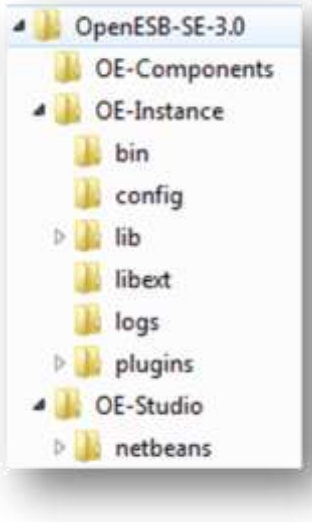
Install on your machine a JDK compliant with your OpenESB then set up the environment variable JAVA_HOME.

3.2 Download OpenESB

OpenESB Enterprise Edition can be downloaded on demand (www.pymma.com) and the OpenESB Community Edition directly downloaded from the Pymma website or the community website (www.open-esb.net).

3.3 Install OpenESB

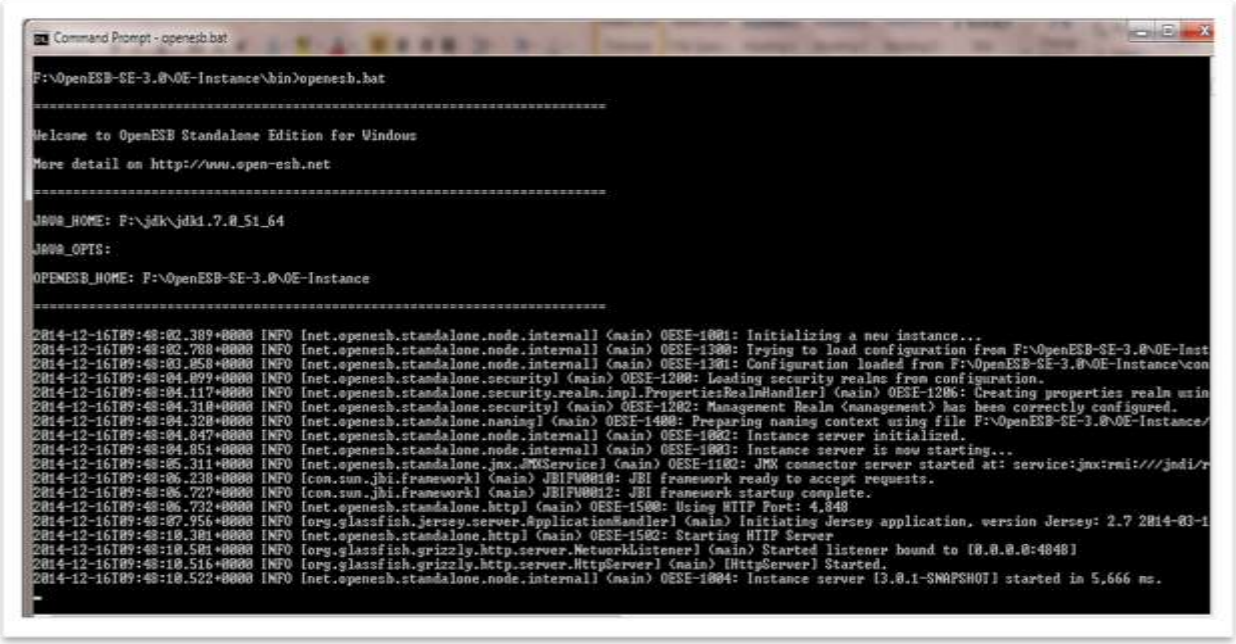
Unzip the OpenESB-QuickStart-Enterprise-x.x.zip in a convenient place on your disk (in this document we choose "F:\" on a windows system). After unzipping the file, it contains 3 main subdirectories OE-Components, OE-Instance and OE-Studio. Congratulation! OpenESB is now installed on your machine. Please note some noticeable directories:



…/OE-Instance/bin	Batch or shell files to start OE SE
…/OE-Studio/NetBeans	NetBeans installation
…/OE-Studio/NetBeans/bin	File to start OE-studio
…/OE-Instance/libext	Copy your external libraries in this file and start OE SE. You libraries added in the OE SE classpath
…/OE-Instance/logs	OE SE Logs can be found here

3.4 Test your installation

Open a console and go to the directory …/OE-Studio/bin and start OpenESB.bat on Windows or OpenESB.sh on Linux/Unix systems.



OpenESB SE starts in few seconds.

From now, OpenESB is ready to run.

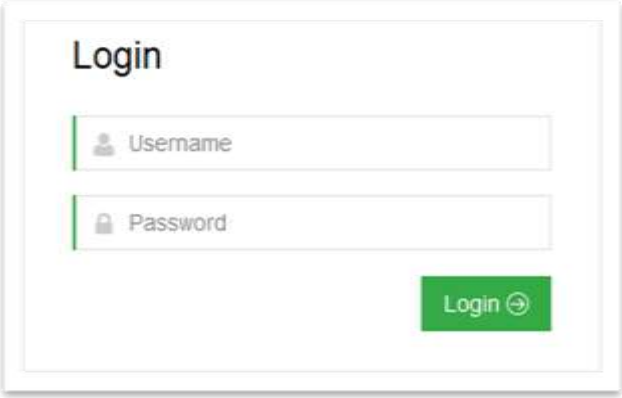
4 Test OpenESB Web admin console

The next step is to test OE Web admin console. As explained above, the web console replaces the Glassfish admin console and supports all the admin command to manage components, libraries and service assemblies.

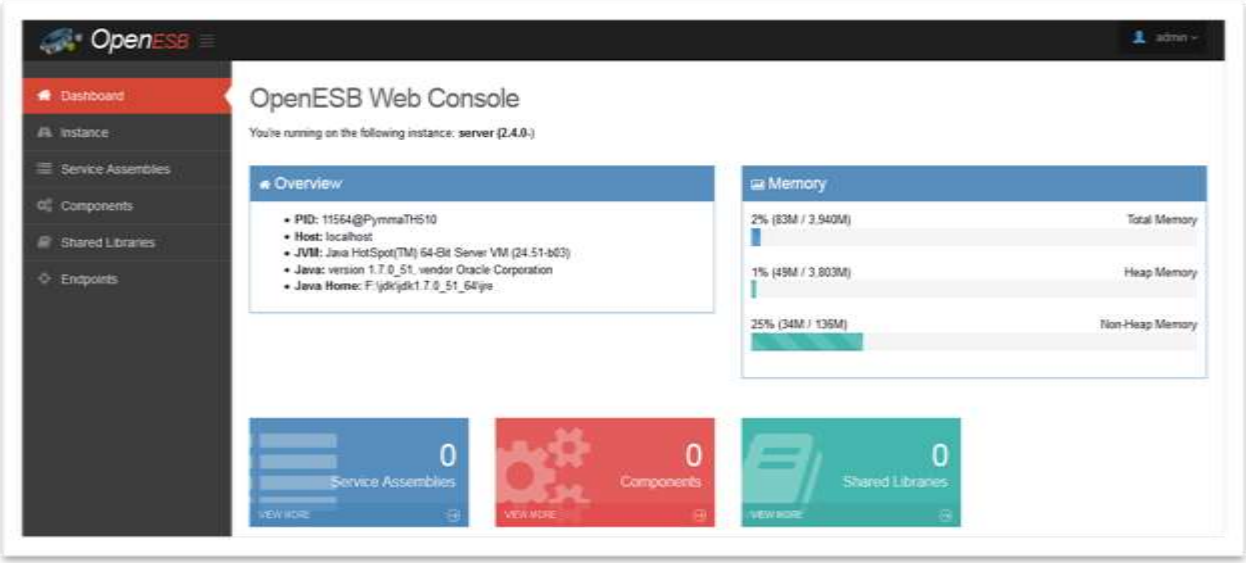
Pymma tested successfully the OpenESB console with Chrome, Firefox, Opera and Safari browsers. Edge and Internet Explorer do not offer the same reliability.

In your browser type: **http://localhost:4848/webui/**

After a few seconds, the login screen appears:



By default, the login and password are “admin” and “admin”.



OE Web admin console

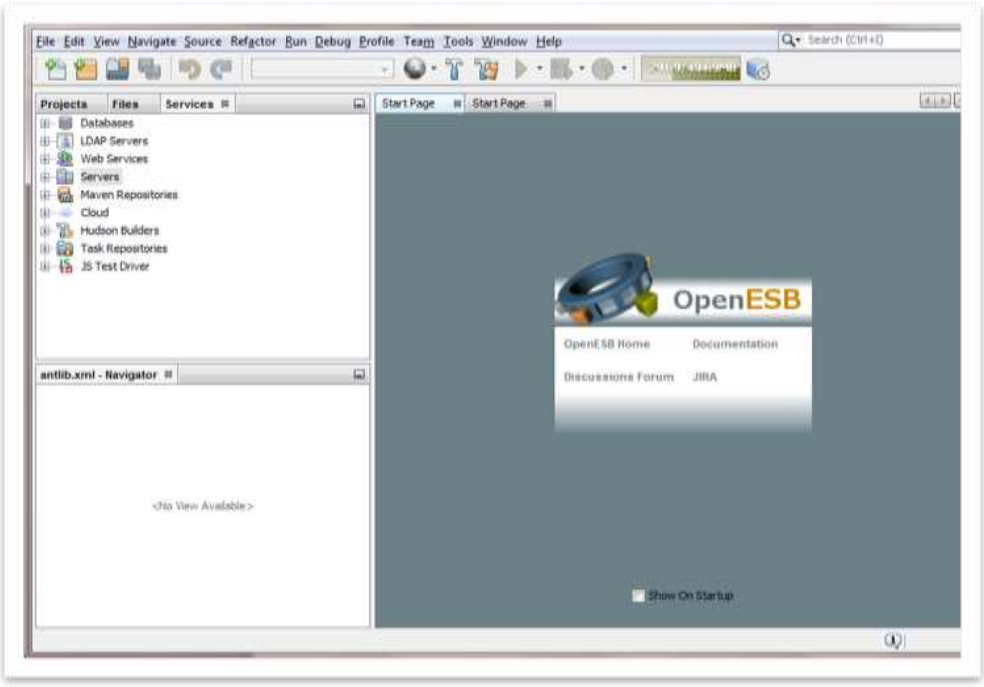
OE web admin console is ready and can be used to install the components and deploy your projects.

For more information on the console, please have a look at our document: **770-003 OE Web admin console.**

5 OE Studio

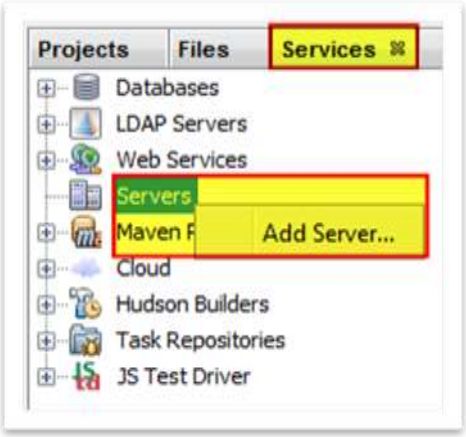
To start OE studio, run the executable file OpenESB.exe (for windows) or OpenESB (for Linux/Unix) found in the directory ${OpenESB}\OE-Studio\Netbeans\bin.

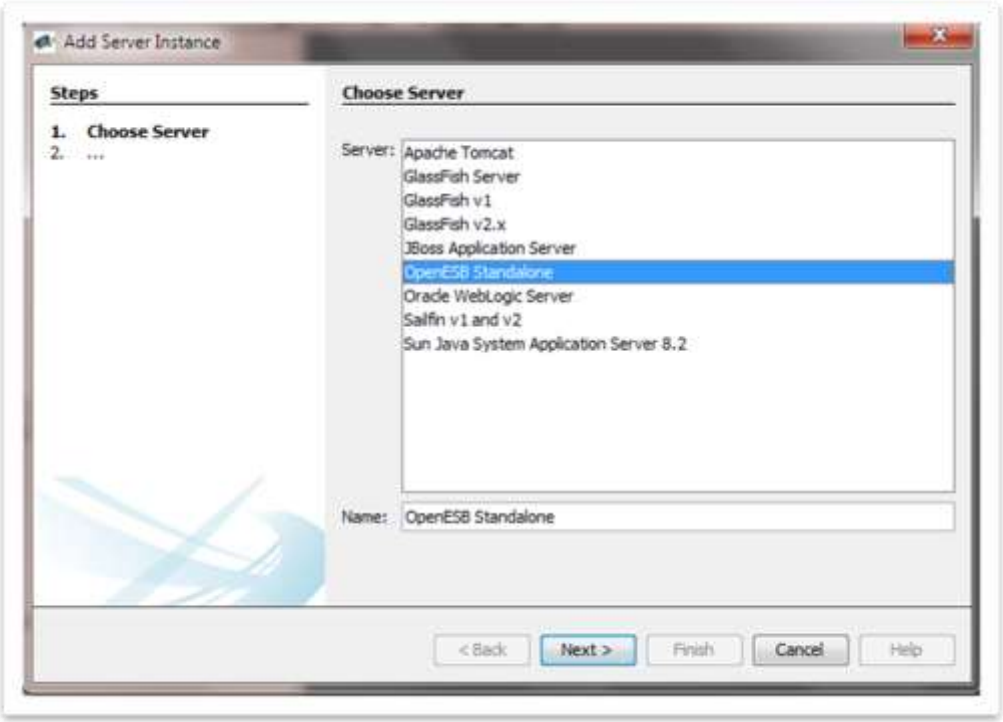
After a few seconds, the splash OpenESB appears. Regarding the number and the size of the projects you manage with OpenESB Studio, it needs from a few seconds to a few minutes to open.



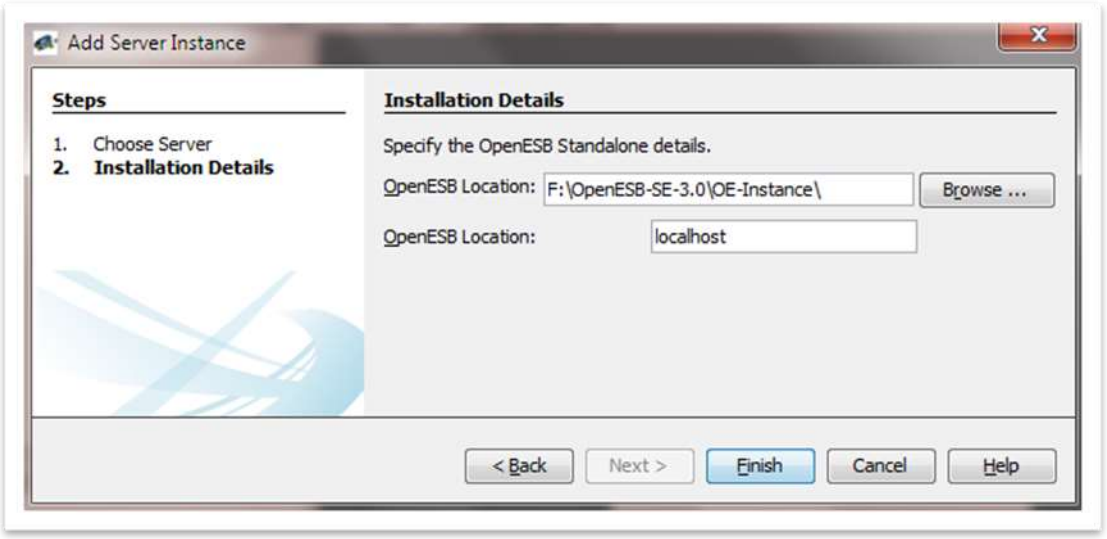
OE Studio home page

OE-Studio is ready to run. The first task to connect OpenESB Studio with the OpenESB Instance is to define a server setting. On the left side of the screen, select the tab services then Servers. Click right on Servers node and select Add Server.

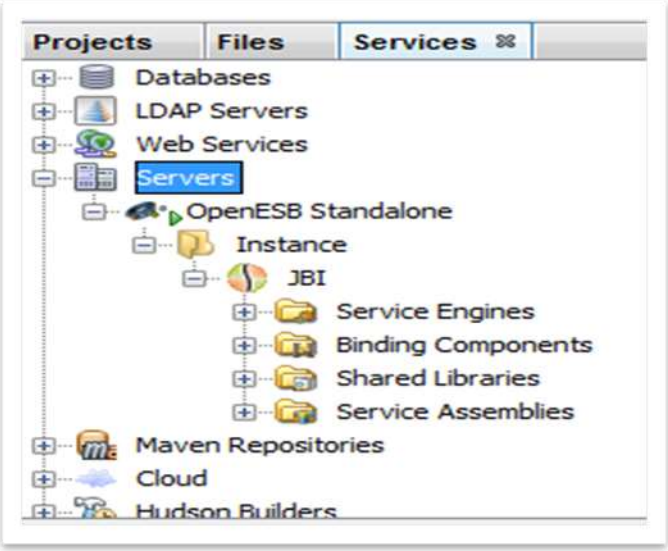




In the server list, select OpenESB Standalone then click on Next.



Installation Details



Select in the first OpenESB location the directory where you installed OE-Instance and leave "**localhost"** as value for the second location. Then click on Finish.

OE Instance hierarchy is now available from OE-Studio. From there, you can install any components, deploy your service assemblies, start and stop them and debug Java and BPEL applications.

We recommend you install the components from the web console since it offers more administration capability than OE-Studio.

OE Instance hierarchy from OE Studio

6 Next steps

The next step installs the OpenESB components and Libraries on your OpenESB instance then create and deploy your project with OpenESB Studio.

We advise you to read the following document: **770-002 OE Hello World** and the administrative guide: **770-002 OE Administrative Guide.**

7 Help and support

Pymma is deeply involved in the community and offers services and consulting on OpenESB. Pymma has professional services that can assist you with the development of your service design, implementation and ongoing management. All our skills and background are based on our extensive first-hand experience and industry-leading methods.

Pymma releases an OpenESB Enterprise Edition with many additional enterprise features and professional support.

In addition to OpenESB development, Pymma designed a new service-based development process named Rebecca to help business, architect and development team during the design and the implementation of their service-oriented projects with OpenESB or any other service-based development tool.

Feel free to contact us by email at contact@pymma.com for any further information on our OpenESB Services.