

| External systems integration technologies |
|---|
| <ul style="list-style-type: none"> • Web Services <ul style="list-style-type: none"> • SOAP, with WS-* • OGC WMS, WFS and KML – should follow INSPIRE Directive 2007/2/E • sFTP /FTP |

WS-* standards will be the preferred way for securing, and enabling QoS, reliability, etc. for these web services.

3.3. APPLICATION ENVIRONMENT

3.3.1. Application Server

EMSA architecture is based on the standard JEE version 7. The following Application Servers should be used as the base Web and EJB containers:

| Application Servers |
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| <ul style="list-style-type: none"> • Weblogic Application Server (latest version) • Wildfly/JBoss (latest version) |

New development or 'significant'⁶ changes to existing applications should always target the latest version of the application server in use at EMSA. For existing applications, EMSA will assess the desirability vs the risks of upgrading the underlying application server on a case by case basis.

Simple applications, where distribution is not foreseen, the EJB container is not needed; see below for details.

(a) Web Tier

The delivery of Rich GUI based on Web Browsers is achieved by a set of components located in this tier and in close relationship with the Client Tier. Those components may vary depending on the technical solution adopted and level of complexity required for the Rich GUI; major technologies are presented in the next table:

| Web Tier Technologies |
|---|
| <ul style="list-style-type: none"> • JSP – Java Server Pages • JSF – Java Server Faces • Portlets • Rich server side components⁷ |

| Portal technology |
|--|
| <ul style="list-style-type: none"> • Liferay Enterprise Edition |

Simple applications, that only require a Web Container can use:

| Web Container |
|--|
| <ul style="list-style-type: none"> • Tomcat (latest stable version) |

Web Services are used to provide communication between loosely connected system components and are the preferable mechanism to expose services to external systems/applications. Several technologies could be adopted:

| Web Services technologies |
|---|
| <ul style="list-style-type: none"> • AXIS 2 • Spring Web Services • UDDI |

⁶ Significant shall be understood as any change resulting in a change of either major or minor versioning number (see further for a description of the version numbering scheme in use at EMSA)

⁷ No preferable solution yet. On a case by case, other technologies that enable Rich Web base clients can be used