

# Oracle SOA Suite

## Situation

For a complex SOA, standardized, loosely coupled components are required that can be implemented with different technologies. A higher level of abstraction is required for the design and the implementation of workflows, decision tables, events, routing, etc.

## Oracle SOA Suite Primer

### Components, Composites and Engines

With the release of Oracle SOA Suite 11g, the Service Component Architecture (SCA) was introduced. SCA contains a language independent *assembly model* that deals with the aggregation of *components* and the linking of components through wiring to build *composites*, which serve as standardized deployment models. A composite can contain a mix of components such as BPEL, human workflow, Spring, and the Oracle Mediator.

Oracle SOA Suite provides service *components*, which are the building blocks of a *composite* application. Service *engines* implement these components at runtime. Adapters are used to integrate services outside of a composite application such as databases or messaging systems.

### ***The "old" Oracle Enterprise Service Bus and Mediator***

Since the release of Oracle SOA Suite 11g, the former Oracle Enterprise Service Bus is called Mediator (because it is used to mediate between the SOA Suite components). In Oracle SOA Suite 11g, Mediator is a component in an SCA assembly and is only used for routing and transformations between SCA components within a composite, but not for connecting SCA components externally.

Whereas OSB is a standalone product, mediator can only be used within the SOA Suite.

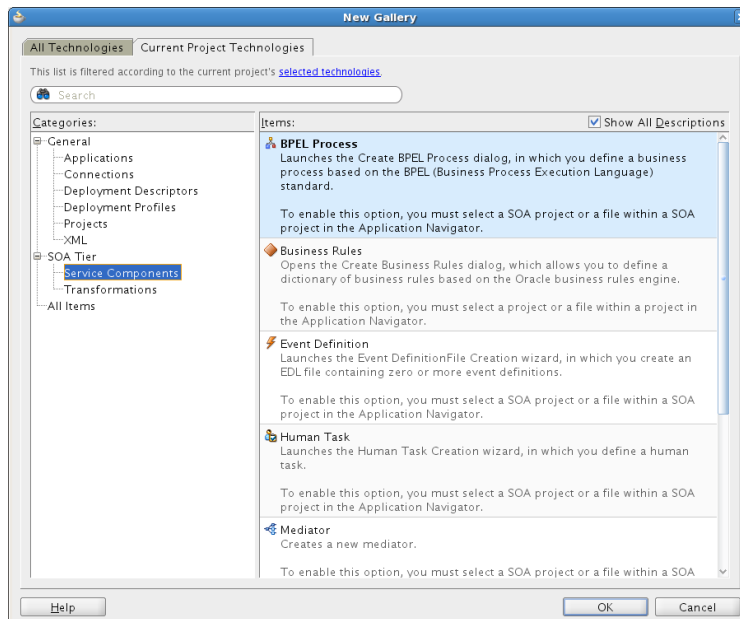
## ***Service Engines and Events***

SOA Suite consists of the following service engines:

- ✓ BPEL Process Manager
- ✓ Mediator
- ✓ Business Rules
- ✓ Human Workflow

There is a runtime for asynchronous fire-and-forget business events. These events are defined using an event definition language (EDL).

All of these artifacts are supported by JDeveloper.



## Relation to Oracle Fusion Middleware

Oracle SOA Suite is a subset of Oracle Fusion Middleware. The SOA Suite license contains Oracle Service Bus.

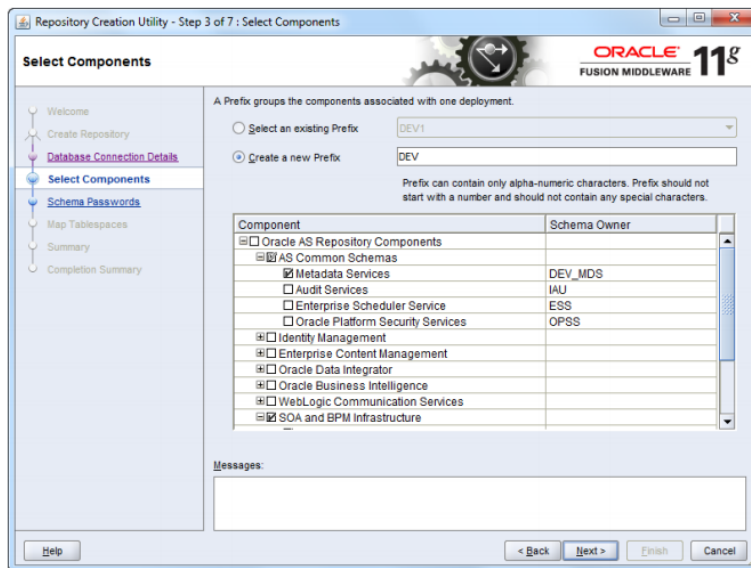
Within Fusion Middleware, Oracle Web Service Manager is used to define access policies.

## SOA Suite Download and Installation

The download and installation for SOA Suite is similar to Oracle Service Bus described in the previous recipe.

## Meta Data Repository

The meta data repository is created with the Repository Creation Utility. It contains the metadata for the composites and therefore decouples the metadata from the implementation logic.



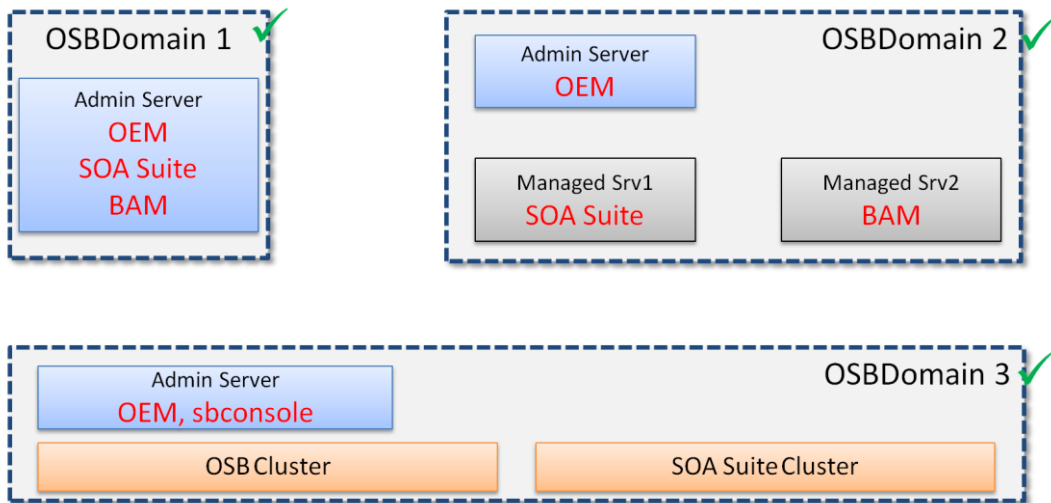
Management of MDS includes versioning, purging, as well as import and export. Content on the MDS can be labeled and rolled back.

A MDS runtime engine with management MBeans used by OEM is hosted on the managed servers.

## SOA Suite Domains

SOA Suite can run on a single admin server (make sure you have enough system resources), distributed in a domain with SOA Suite and BAM on different servers, clustered, and even together with an OSB in a single domain.

All the domain configurations shown here are valid:

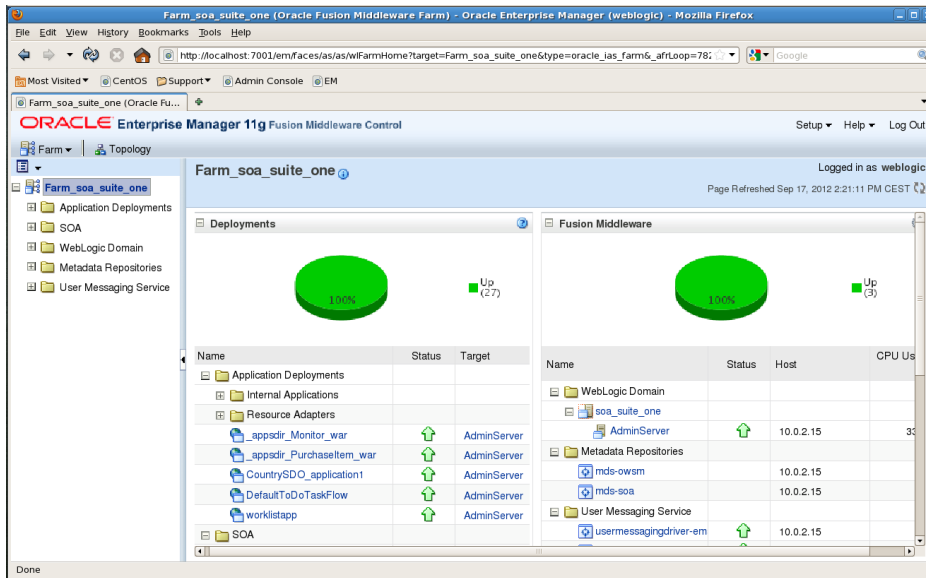


Similar to creating an OSB domain, the creation of an SOA Suite domain is done with the configuration wizard, which will target the technical components of SOA Suite automatically depending on your domain layout.

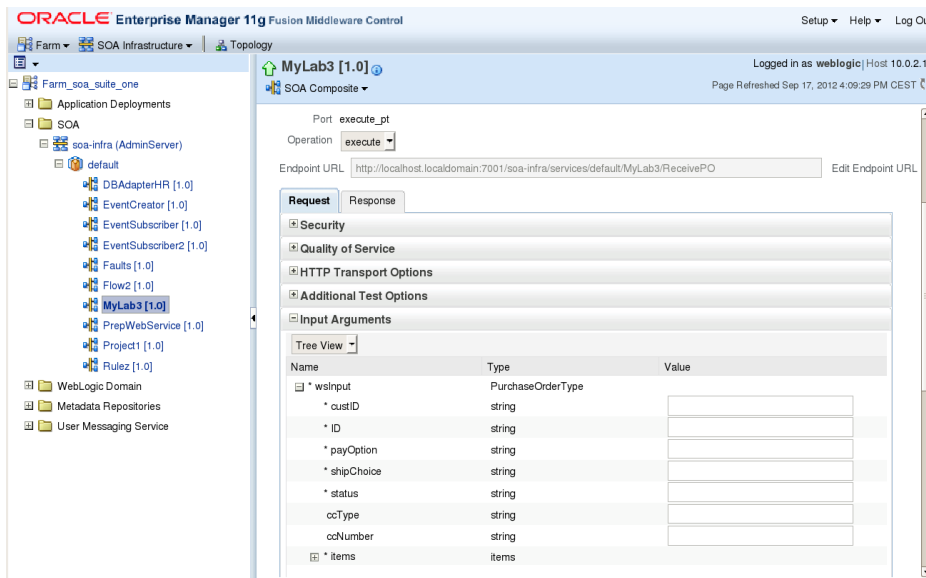
## Administration with OEM

Unlike OSB, there is no web console for the administration of, or development with SOA Suite. Administration, deployment, and testing for SOA Suite is fully integrated into Oracle Enterprise Manager.

When using the default settings, OEM is available with the context root /em on the admin server: <http://localhost:7001/em>



WSDL based components can be tested directly from OEM, which will automatically generate a web form for the parameter input.



## Development

JDeveloper is the only IDE to develop composites for any of the SOA Suite service engines. The standard JDeveloper needs an additional plugin which can be comfortably downloaded and added from within JDeveloper.

A screenshot of JDeveloper for SOA Suite is shown on the following page.

## Deployment

Composites can be deployed directly from JDeveloper or exported as .sar files (SOA Archive) and deployed with OEM. The WLST command `sca_package()` can be used to create a .sar file. Having the WLST commands to build composites serves as a basis to set up a continuous integration server.

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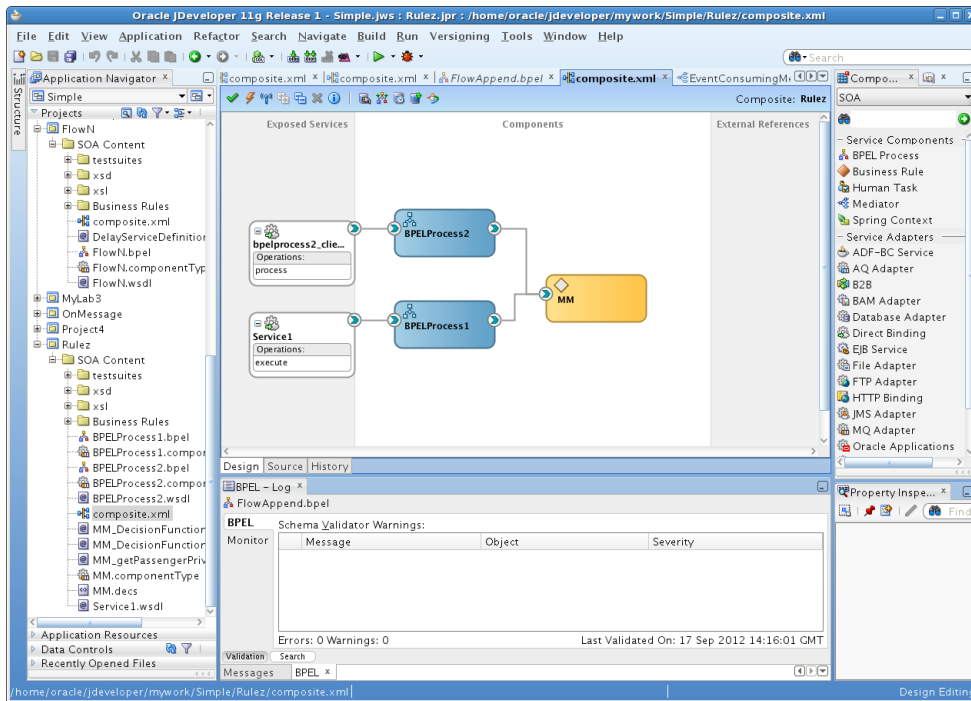
### SOA SUITE DEPLOYMENTS

SOA Suite .sar file cannot be deployed with the WebLogic admin console. The only way to deploy, manage, and view the deployments is with JDeveloper, OEM and WLST.

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Similar to the deployment plans for a Java EE archive in WebLogic, there are configuration plans for SOA Suite deployments to overwrite settings such as end point URIs for different environments.

The deployments are stored in the Meta Data Repository Service (MDS).



## ADF

Oracle Application Development Framework (ADF) provides GUI components and simplifies the Java EE development. ADF is directly supported by JDeveloper. ADF implements the model-view-controller (MVC) pattern. The model abstracts the business service layer and allows the view and controller to work with different business service implementations.

## Discussion

Compared to OSB, the learning curve for SOA Suite is steeper. Due to the different service engines provided, the products' possibilities are vast.

The free Oracle XE database does not meet the official requirements for deploying SOA Suite. It does work though, and can be used for personal development.

See the discussion in the previous recipe, Recipe **Fehler! Verweisquelle konnte nicht gefunden werden.** about Oracle Service Bus for missing features in the integration with OSB.

## More?

### Links

Oracle SOA Suite

<http://www.oracle.com/us/technologies/soa/soa-suite/index.html>

ADF

<http://www.oracle.com/us/technologies/soa/soa-suite/index.html>

### Books

The SOA Suite Developer Cookbook is covering the integration of OSB with SOA Suite 11g:

<http://www.amazon.de/Oracle-SOA-Suite-Developers-Cookbook/dp/1849683883>

There is good SOA Suite book available that I recommend. It was written by Lucas Jellema.

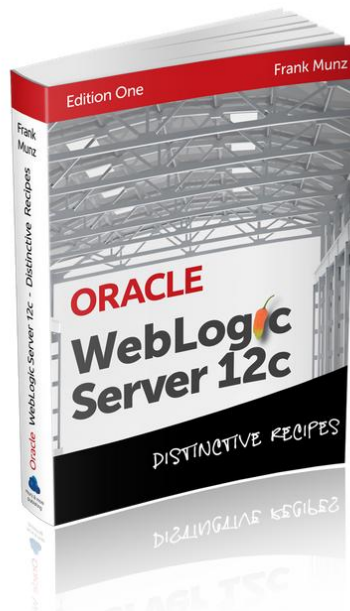
<http://www.amazon.com/dp/0071608974/>



# Oracle WebLogic Server 12c - Distinctive Recipes (Architecture, Development and Administration)

**Homepage:** <http://wls12book.munzandmore.com>  
**Amazon:** <http://amazon.com/dp/0980798019>  
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