

# Overview - Plug-in Development



Apromore is using a Plug-in Framework to keep its architecture as modular as possible and to allow for flexible extension of its core features. The Plug-in Framework is based on some basic principles, some APIs and the industry standard OSGi. To use OSGi in the most convenient way, we are currently using the following technologies/tools under the "hood":

- [Apache Felix Maven Bundle Plugin](#) for build management and automatically adding OSGi meta-data
- [Eclipse Gemini Blueprint/OSGi Services](#) to dynamically install and uninstall Plug-ins at run time
- [Eclipse Virgo \(formerly Spring DM Server\)](#) as underlying application server

If you don't know anything about OSGi, **DON'T PANIC!** Development of a Plugin requires just little knowledge of the underlying technologies.

## Architecture

As described on the [official website](#) Apromore is layered into the three tiers: Presentation, Logic, Data. The Plug-in Framework sits directly under the *Repository Manager* and provides the "Plug-in" capabilities for the Toolbox and the Canonizer.

## Development

The following information should enable your to develop your own plug-in against one of the pre-defined plug-in interfaces of Apromore. If your want to know more about the plug-in framework of Apromore, add a new plug-in interface to Apromore or struggle with adding a new plug-in, you may want to read [this Master's thesis](#), Chapter 4 contains an in-depth description of Apromore's plug-in framework. Especially **Section 4.3.2 is a MUST READ!**

## Prerequisites

So before starting plugin development you should do the following:

- [Read about our Code Quality and Code Style standards](#)
- [Install all tools required for Apomore Development](#)
- [Check out the Apomore "trunk" from our version control system](#)

Now try to build Apomore as described in the included README file. Check if Eclipse Virgo is running after calling "ant copy-virgo start-virgo":

<http://localhost:9000/portal/>

You should see a similar interface as in the demo version running here:

<http://apomore.qut.edu.au/portal/>

If Apomore does not start, then try to start Eclipse Virgo manually by using the start script located in the 'bin' directory of Eclipse Virgo:

```
/Apomore-Deploy/virgo-tomcat-server-3.6.0.RELEASE/bin
```

If it still does not work, there may be more information to debug the issue located in the 'log' directory of Eclipse Virgo:

```
/Apomore-Deploy/virgo-tomcat-server-3.6.0.RELEASE/serviceability/logs
```

## Choosing a Plug-in API

Next you need to decide against what kind of Plug-in API you want to develop. Currently there are the following Plug-in APIs available:

- [Generic Plug-in API](#)
- [Canoniser Plug-in API](#)
- [Deployment Plug-in API](#)
- [Search Plug-in API](#)
- [Annotation Processing Plug-in API](#)

Plug-in development takes place in the '[Apomore-Plugins](#)' directory of Apomore. For an up-to-date list of Plug-in APIs you should always check out the available Maven sub-modules in this directory. If there is not yet a Plug-in API available that fulfills your need, then you need to develop a new Plug-in API together with our [core development team](#).

- [How to develop a Plugin](#)
- [How to develop a Plugin API](#)

## Further Information

### Java Docs

- [Plugin API JavaDoc \(coming soon\)](#)
- [Canoniser API JavaDoc \(coming soon\)](#)

## External Tutorials / FAQs

### OSGi

- [Bnd Tool](#)
- [OSGi Best Practices](#)
- [Best Practices #2](#)
- [OSGi Best Practices #3](#)

### Maven Bundle Plug-in








- [Bundle Plugin Documentation](#)
- [BND Documentation](#)

### Eclipse Virgo

- [Eclipse Virgo Website](#)

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