

AvalonFramework

What is Avalon-Framework?

Avalon-Framework is a small but vital jar file distributed by the [Avalon project](#), and some associated documentation. Avalon-Framework (often abbreviated as AF, or even AF4 for version 4 of the framework) defines several "lifecycle interfaces" that provide a common way for components to be created, initialized, configured, started, etcetera. Part of that lifecycle is support for [Inversion of Control](#). With a fancy term, Avalon provides service-locator-based-dependency-injection. In less fancy terms, Avalon-Framework components implement an interface, Serviceable:

```
public interface Serviceable {  
    public void service(ServiceManager sm) throws ServiceException;  
}
```

After instantiation of an Avalon-Framework component, this method is called in order to make the component aware of its environment. It will use this provided [ServiceManager](#) to gain access to the other components it needs. The [ServiceManager](#) is again a relatively simple interface:

```
public interface ServiceManager {  
    boolean hasService(String key);  
    Object lookup(String key) throws ServiceException;  
    void release(Object object);  
}
```

there are several other lifecycle interface, but this one is probably the most important. Here's an example of two Avalon-Framework components:

```

/**
 * This kind of interface is often referred to as a
 * "work interface". A component which implements this
 * interface can do everything a cat can do.
 *
 * An example of an interface that is not a work
 * interface would be java.io.Serializable, or the
 * above Serviceable interface. Implementing Serviceable
 * means a component uses other components, but it doesn't
 * specify anything about what the component does.
 */
public interface Mouse {
    int runReallyFast();
}
/**
 * It might not look like it, but this is an Avalon-Framework
 * component! Why? Because it has a public constructor that
 * doesn't take any arguments and implements all other
 * Avalon-Framework rules.
 */
public class LittleMouse implements Mouse {
    public LittleMouse() {}
    public int runReallyFast() {
        return (int)((Math.random()*12)+1);
    }
}
/**
 * Another work interface!
 */
public interface Cat {
    public void hunt();
}
/**
 * And another component! We say that VeryFastCat has
 * a dependency on another component, in this case, on
 * an implementation of Mouse.
 */
public class VeryFastCat implements Serviceable {
    private Mouse m_preY;
    private int speed = 10;

    public VeryFastCat() {}

    public void service(ServiceManager sm)
        throws ServiceException {
        m_preY = sm.lookup(Mouse.class.getName());
    }

    public void hunt() {
        if(m_preY.runReallyFast() <= speed)
            System.out.println( "Caught the mouse!" );
        else
            System.out.println( "The mouse got away!" );
    }
}

```

But who creates the [ServiceManager](#)? Who sets all this up?

You may have noticed that the sample above is missing a few vital pieces. There's no implementation of [ServiceManager](#) to use, for example. And there's also no code that creates instances of [LittleMouse](#) and [VeryFastCat](#). That code might look like this:

```
public void testCreateTheComponentsManually() throws Exception
{
    DefaultServiceManager sm = new DefaultServiceManager();
    // DefaultServiceManager is also part of Avalon-Framework...
    LittleMouse mouse = new LittleMouse();
    VeryFastCat cat = new VeryFastCat();
    sm.put( Mouse.class.getName(), mouse );
    sm.put( VeryFastCat.getName(), cat );
    sm.makeReadOnly();

    cat.service( sm );
    cat.hunt(); // prints something...
}
```

Now, it doesn't seem like Avalon-Framework really got us anything. Which is true. Avalon-Framework by itself doesn't do a whole lot. The big advantage with Avalon-Framework components is that you don't need to write the above code! Instead, you use a *container*, such as Excalibur's fortress container, to do all this for you.

That's very useful indeed, which is why many software projects utilize Avalon-Framework.

There's of course a lot more to it, but these are the basic basics. For more information about Avalon-Framework, see the Framework section of the [Excalibur website](#).