



Project OpenDMK

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Agenda

- **What is Project OpenDMK**
- OpenDMK versus Java DMK
- Open Source projects using OpenDMK
- OpenDMK APIs
 - > JMXMP Connector (JSR 160 optional packages)
 - > SNMP Toolkit
 - > Cascading API
 - > MBeanServer Interceptors and Virtual MBeans
 - > Discovery API
 - > HTML Adaptor and Proprietary Connectors
- <http://opendmk.dev.java.net/>

What is Project OpenDMK

- The Open Source version of the Java DMK 5.1
- Main features:
 - > SNMP toolkit – for SNMP Agent and SNMP Manager Application
 - > JMX Remote APIs (JSR-160) Optional Packages - the JMXMP Connector
 - > MBeanServer that can support Virtual MBeans
 - > Proxy-based Cascading API
 - > Discovery API based on IP multicast
 - > HTML adaptor

What is Project OpenDMK

- Dual license: you can choose between
 - > GNU General Public License, version 2 only (**GPL v2 + Classpath Exception**)
 - > Common Development and Distribution License (**CDDL**)
- Some code is still “encumbered”
 - > A few files are distributed in binary form (binary plug)
 - > With a binary license that let's you use and redistribute
 - > (but we're working on this)
- Fully buildable sources (ant / build.xml / NetBeans)
- Pre-built binary ZIP

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OpenDMK versus Java DMK

In OpenDMK:

- Full Java DMK 5.1 APIs
 - > Except some deprecated packages (old trace mechanism from Java DMK 4.2 etc...)
- Full interoperability with existing Java DMK applications
 - > Java DMK RMI/HTTP/HTTPS connectors
- SNMP Toolkit (SNMP APIs, Runtime, & Generator)
 - > MIB Generator (mibgen) is also open source

OpenDMK versus Java DMK

Not In OpenDMK:

- Documentation (except Java API Documentation)
 - > Refer to Java DMK doc from docs.sun.com
- Examples, Addons (source contribs),
 - > Get Java DMK evaluation from java.sun.com
- JMX / JMX Remote for JDK 1.4
 - > Get the RI from java.sun.com

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Footnote position, 12 pts.

These Projects Use OpenDMK (or plan to)

- GlassFish (Open Source Application Server)
 - > <http://glassfish.dev.java.net/>
- Common Agent Container (a component of OpenxVM – Virtualization and Management)
 - > <http://common-agent-container.dev.java.net/>
- OpenDS (planned SNMP support)
 - > <https://opends.dev.java.net/>
- OpenESB (SNMP Binding Component)
 - > <http://wiki.open-esb.java.net/Wiki.jsp?page=SNMP>

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JMX Remote Optional Packages

- JMX and JMX Remote API mandatory packages are part of the JDK since Java 5.0
 - > Open sourced through OpenJDK.
- The JMX Remote API defines an optional connector: the JMXMP connector.
 - > TCP based,
 - > Pluggable security framework through SASL.
- The JMXMP connector is open sourced through OpenDMK.

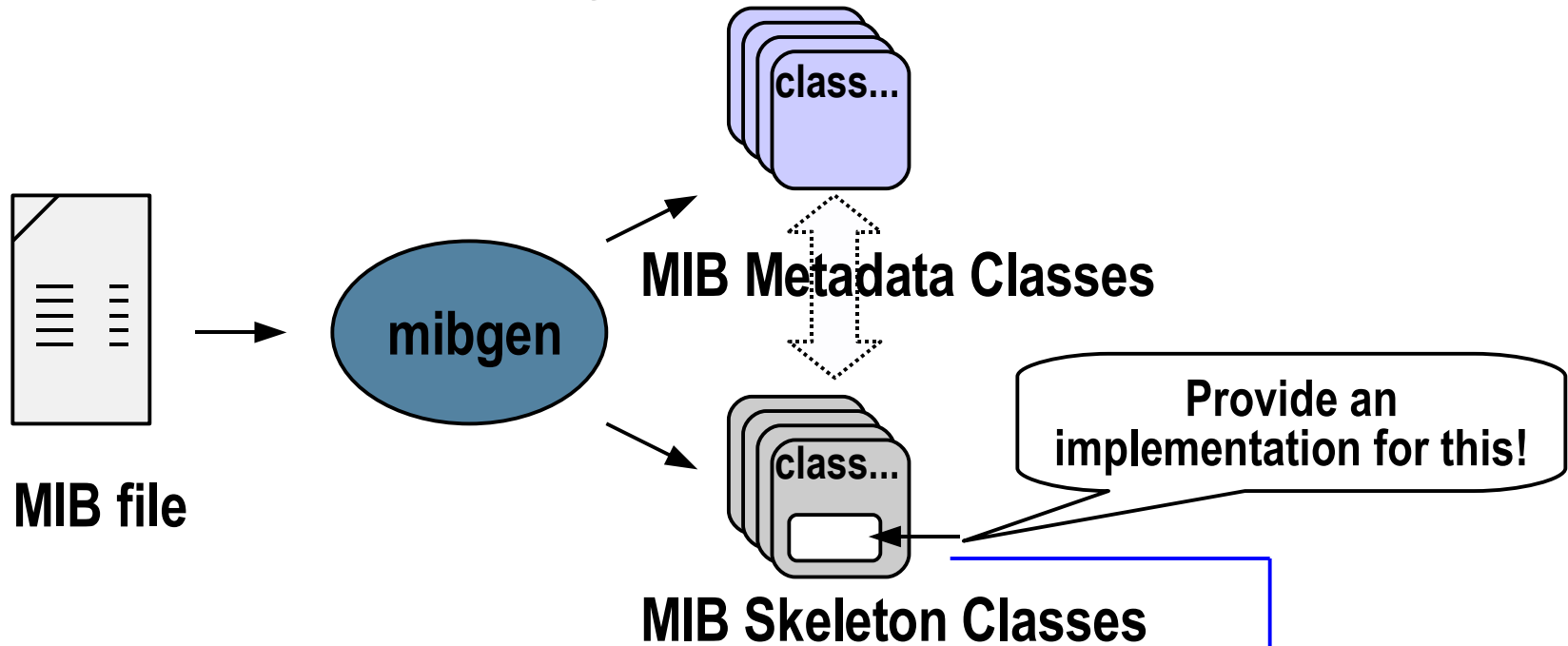
The SNMP Toolkit

- Supports SNMP v1, SNMP v2c, SNMP v3.
- Develop SNMP Manager Applications...

```
SnmplibVarBindList vbs = ...;  
SnmplibSession session = ...;  
SnmplibPeer agent = ...;  
SnmplibRequest request  
    session.snmpGetRequest(agent, null, vbs);  
request.waitForCompletion(timeout);  
SnmplibVarBindList resp =  
    request.getResponseVarBindList();
```

The SNMP Toolkit

- And develop SNMP Agents...

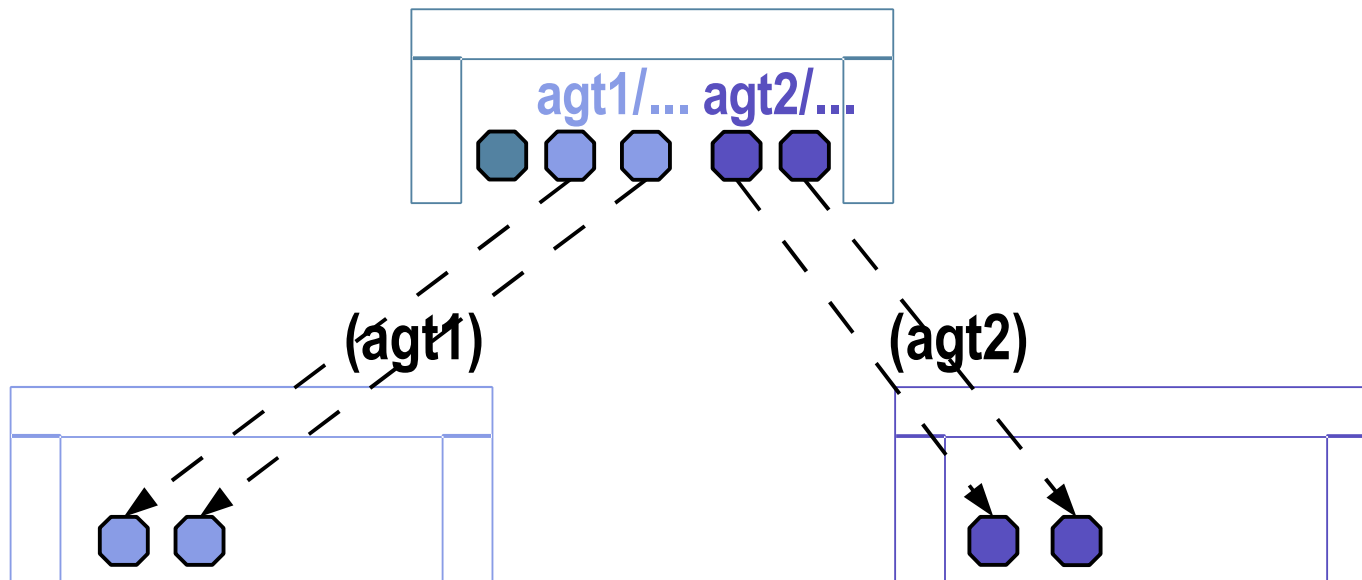


```

SnmAdaptorServer snmpSrv = ...;
snmpSrv.addMib(mib);
    
```

The Cascading API

- “Mount” MBeans from remote (or local) MBeanServers into a “Master” MBeanServer
- A Java DMK / OpenDMK proprietary API

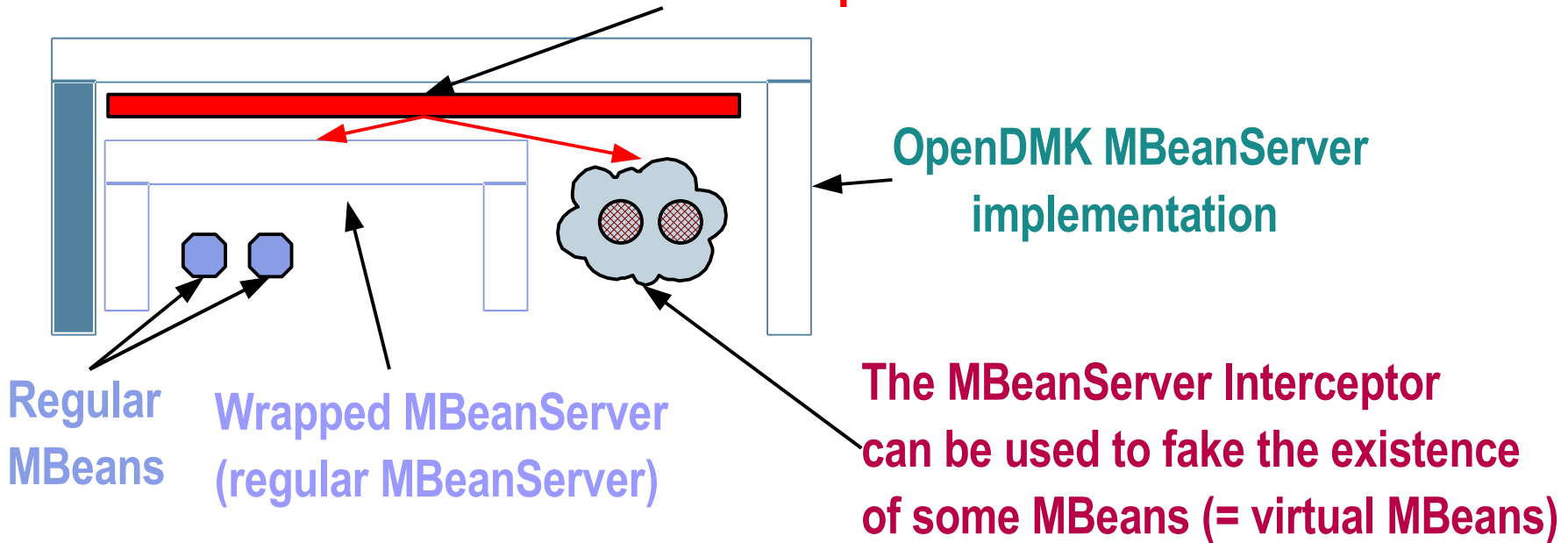


MBean Server Interceptors / Virtual MBeans

- OpenDMK provides an implementation of MBeanServer that can be used to implement “virtual MBeans” (& other things, such as logging/auditing)

-Djavax.management.builder.initial=com.sun.jdmk.JdmkMBeanServerBuilder

MBeanServer interceptor

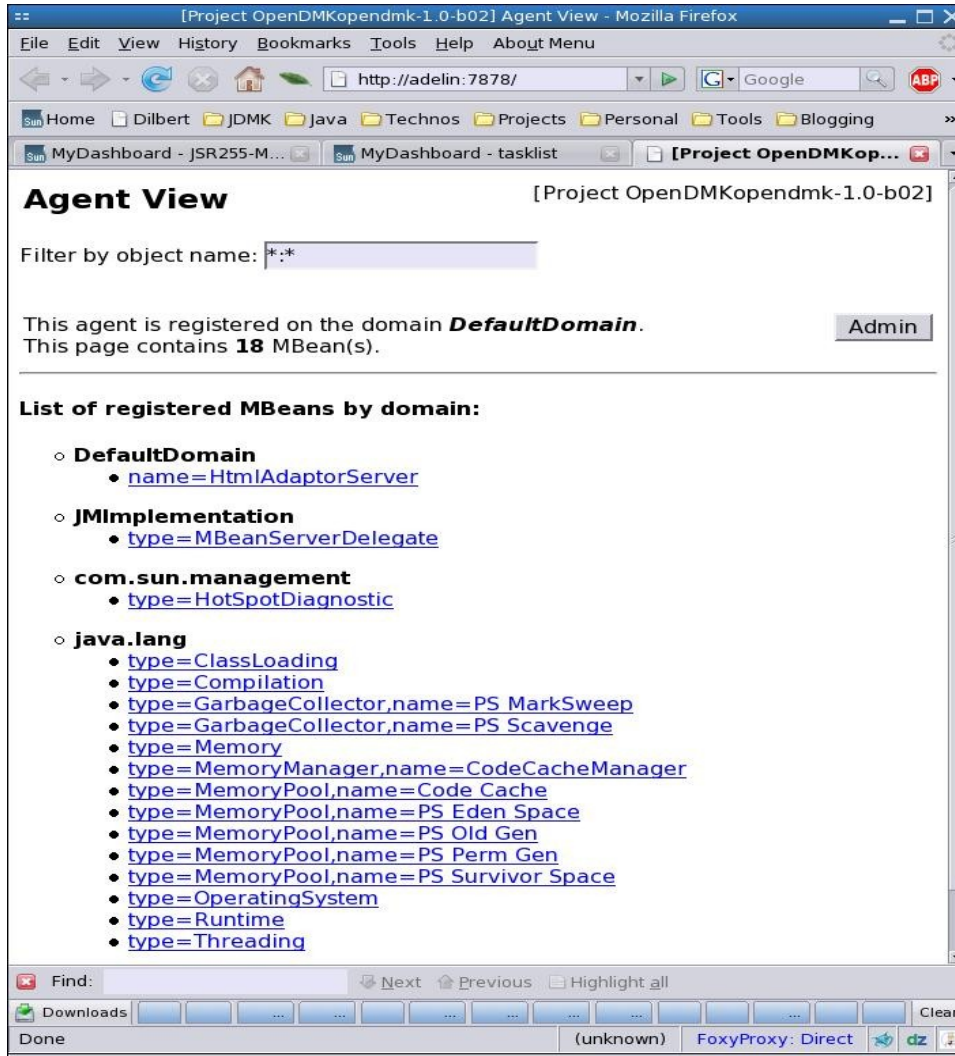


Footnote position, 12 pts.

The Discovery API

- Based on IP multicast
- An agent that wishes to be discovered starts a discovery responder.
- A discovery monitor can detect when discovery responders are started or stopped.
- Active discovery
 - > Send multicast message, receive response from responders
- Passive discovery
 - > Start discovery monitor, listen for new responders

The HTML Adaptor



- Supports HTTPS
- Supports Basic Auth.
- Not well suited for large number of MBeans
- Not well suited for complex data types

The Legacy Connectors

- Proprietary Java DMK Connectors can be used to interoperate with existing Java DMK applications
- Can be wrapped in objects implementing the `javax.management.remote.JMXConnector` interface
- Can be created through the `JMXConnectorFactory`
- Make it possible to interact with Java DMK existing servers as if they were JMX Remote API compliant.
- See Java DMK Tutorial, section 9.5, Wrapping Legacy Connectors

Summary

- Sources and Binaries: <http://opendmk.dev.java.net/>
- Examples, addons - get them from Java DMK at: <http://java.sun.com/products/jdmk>
- Tutorial and docs: <http://docs.sun.com/>
 - > search there for Java DMK 5.1 Tutorial
- Questions? users@opendmk.dev.java.net
- Contribute? Join as an observer, sign SCA, discuss fixes/enhancement on dev@opendmk.dev.java.net
- See also: JMX home page <http://java.sun.com/jmx>

END.

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