Secure Middleware with JBoss Application Server v5.x

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JBoss by Red Hat

netceteca Sun

AGENDA

- Security as we know it
- Security Features versus configuration
- Security in JBossAS5.x
- Authentication
- Authorization
- Audit
- Password Masking in Microcontainer Beans
- References

Security as we know it

- Secure
  - Shoot dog?
  - Drugged food?

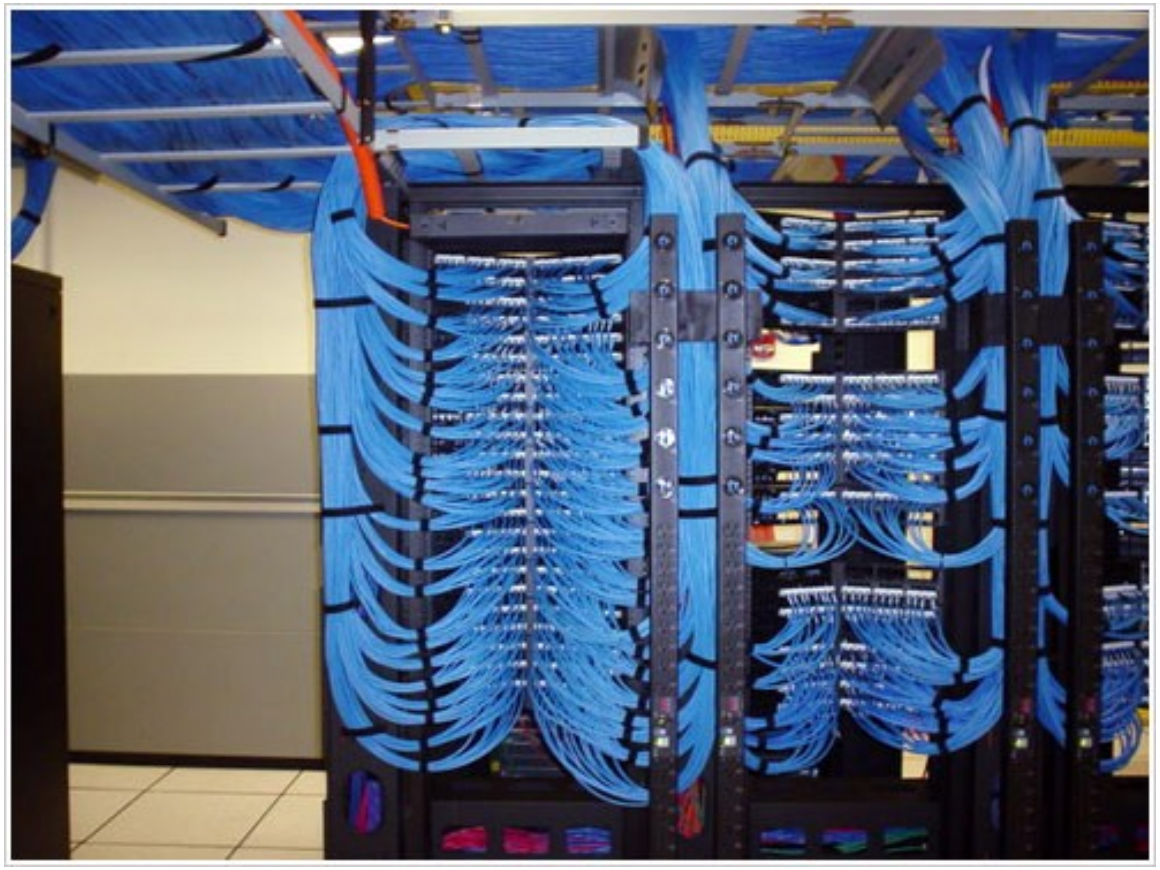
Security as we know it

- Top of the line security
  - Not in action

Security Features versus configuration

- Goal is to provide new security features all the time
  - While minimizing additions to configuration

Security Features versus configuration

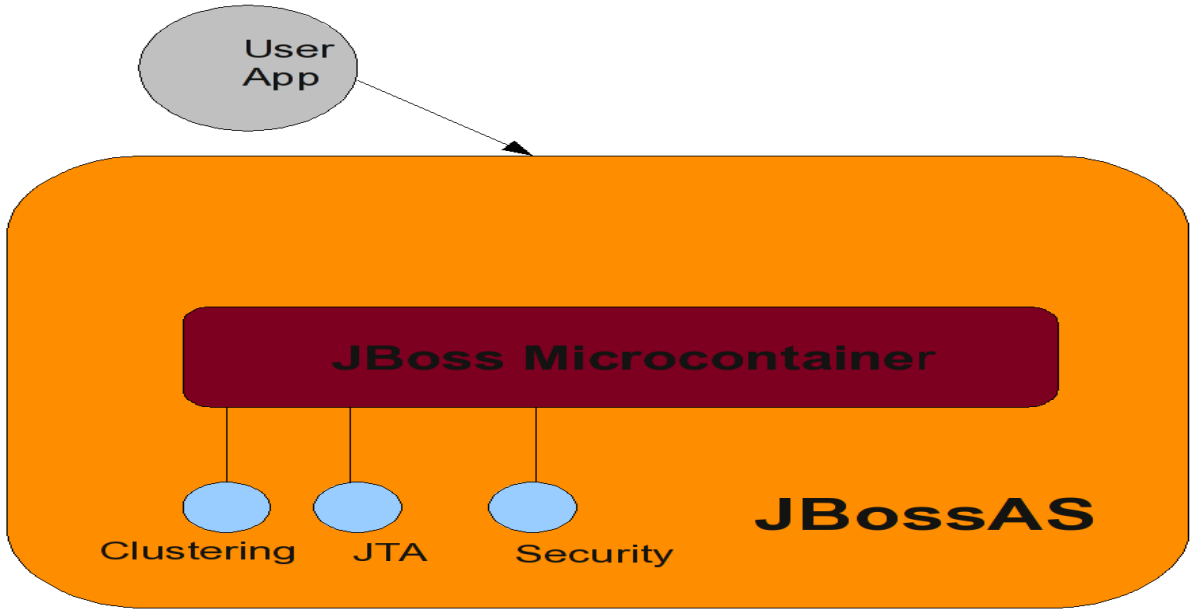


- Great System
  - Hard Wiring between objects

Security Features versus configuration

- New Features
  - Feeble foundation

Security in JBAS 5.x



Security in JBAS 5.x

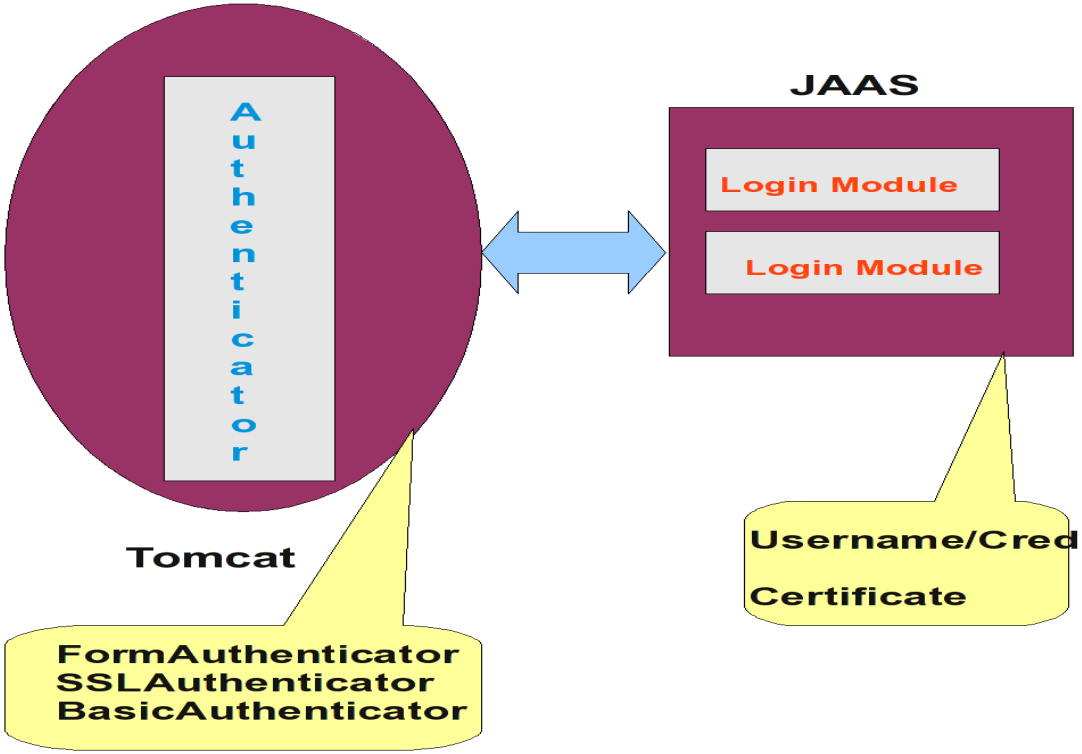
- Makes use of the JBoss Microcontainer based architecture
- Introduce new features
  - Authentication: Support for JSR-196
  - Authorization: Pluggable access control stack (Spec, JACC, XACML ...)
  - Auditing
  - Mapping : Role mapping, Principal mapping
  - Password Masking Feature for MC beans
- Simplify Configuration
  - Security Domain Configuration

Security in JBAS 5.x : Authentication

- JSR-196: Java Authentication SPI for Containers
- Allows us to externalize authentication as Server Authentication Modules(SAM)
  - JAAS does not have a notion of a container message
    - ➔ No access to HttpServletRequest, SOAPMessage etc
  - Tomcat authenticator code would be as an example in the SAM

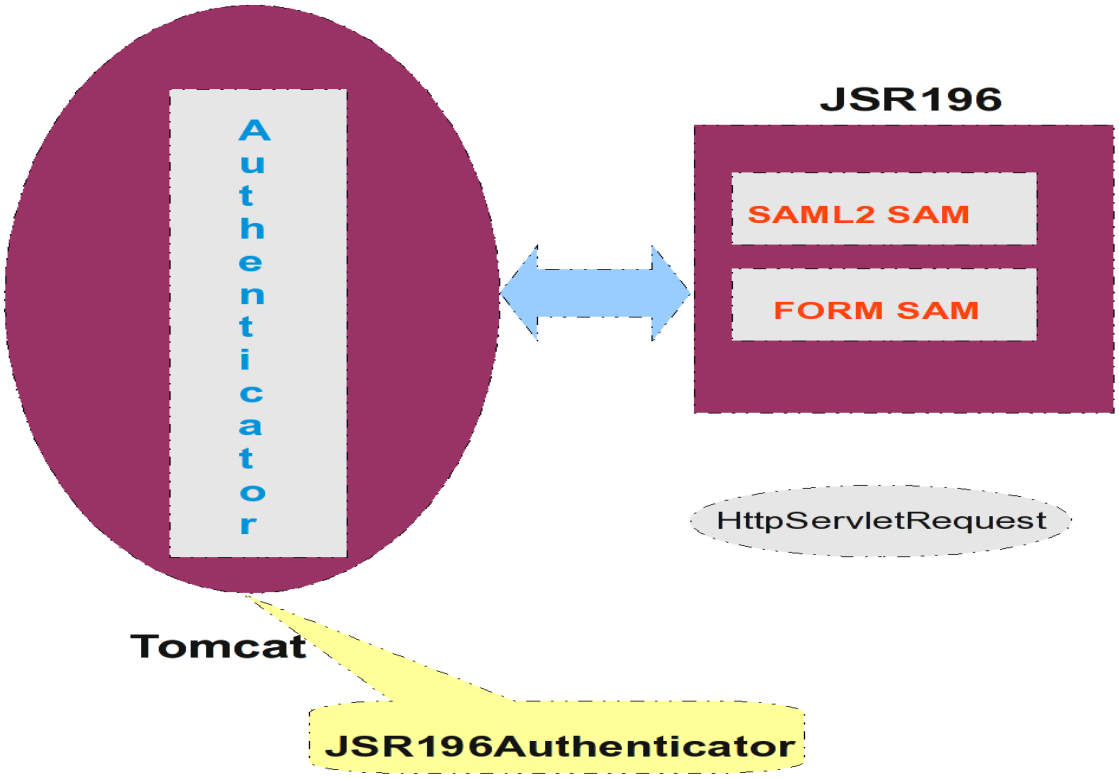
Security in JBAS 5.x : Authentication

> JSR-196



Security in JBAS 5.x : Authentication

> JSR-196



http://anil-identity.blogspot.com/search/label/jsr-196

Security in JBAS 5.x : Authorization

- Pluggable Access Control Stack for Web and EJB Applications.
- Apply spec access control, JACC, XACML (or custom) to web and ejb applications in a pluggable fashion.
  - Mix and match (JACC for Web, XACML for EJB)
- Value added feature that still maintains Java EE RBAC compliance
- Fine grained access control
  - **JBossXACML**: Oasis XACML v2.0 support
  - **JBossACL** :Instance based access control

http://server.dzone.com/articles/security-features-jboss-510-1
http://server.dzone.com/articles/security-features-jboss-510-2
http://server.dzone.com/articles/security-features-jboss-510-3

Security in JBAS 5.x : Audit

- Enable auditing of security events in web and ejb applications
- Plug in various auditing providers
  - Default provider is a Log4J provider

http://server.dzone.com/articles/security-auditing-jboss

Security in JBAS 5.x : Audit

2008-12-05 16:08:38,997 TRACE [org.jboss.security.audit.providers.LogAuditProvider] (http-127.0.0.1-8080-17:) [**Success**]policyRegistration=org.jboss.security.plugins.JBossPolicyRegistration@76ed4518;Resource:=[org.jboss.security.authorization.resources.WebResource:contextMap={policyRegistration=org.jboss.security.plugins.JBossPolicyRegistration@76ed4518,securityConstraints=[Lorg.apache.catalina.deploy.SecurityConstraint;@6feeae6, resourcePermissionCheck=true},canonicalRequestURI=/restricted/get-only/x,request=[/web-constraints:cookies=null:headers=user-agent=Jakarta Commons-HttpClient/3.0,authorization=host=localhost:8080,][parameters=],CodeSource=null];securityConstraints=SecurityConstraint[RestrictedAccess - Get Only];Source=org.jboss.security.plugins.javaee.WebAuthorizationHelper;resourcePermissionCheck=true;

Exception:=;

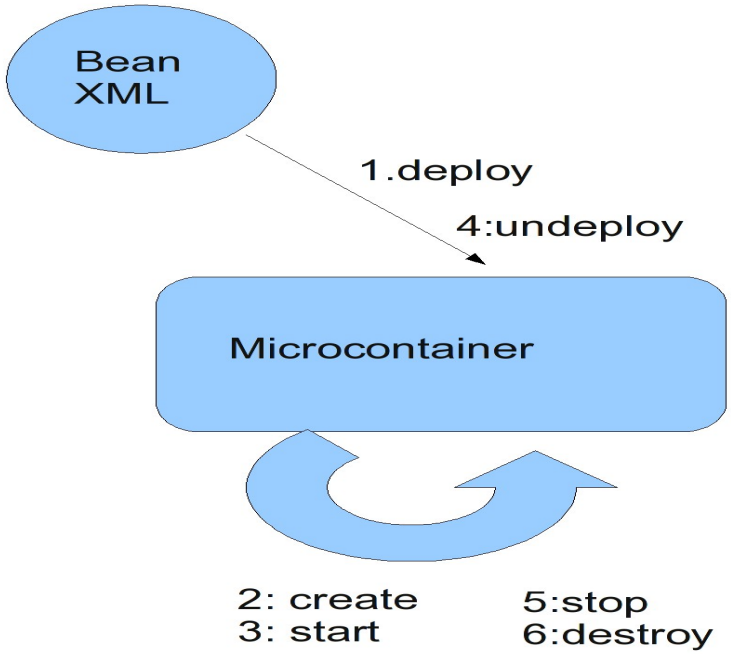
2008-12-05 16:08:41,561 TRACE [org.jboss.security.audit.providers.LogAuditProvider] (http-127.0.0.1-8080-4:) [**Failure**]principal=anil;Source=org.jboss.web.tomcat.security.JBossWebRealm;request=[/jaspi-web-basic:cookies=null:headers=user-agent=Jakarta Commons-HttpClient/3.0,authorization=host=localhost:8080,][parameters=][attributes=];2008-12-05 16:07:30,129 TRACE [org.jboss.security.audit.providers.LogAuditProvider] (WorkerThread#1[127.0.0.1:55055]:)

Security in JBAS 5.x : Mapping

- Map Roles
  - Application role to deployment level role
- Map Principal
  - X509 principal to a simple name

Password Masking for Microcontainer Beans

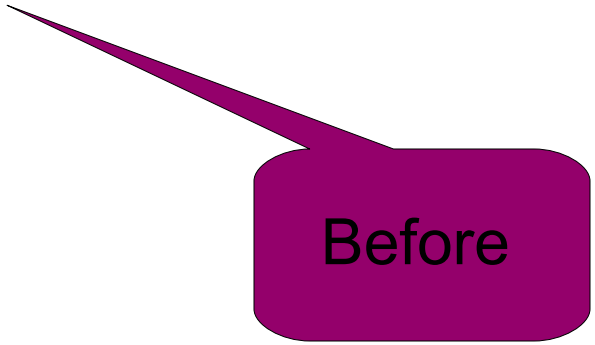
- Make use of the JBoss MC life cycle callbacks
  - Inject the password at “create”



http://server.dzone.com/articles/security-features-jboss-510-0

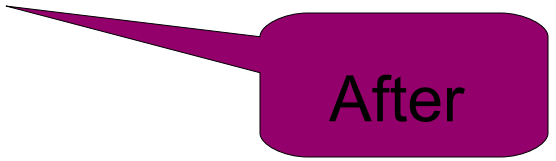
Password Masking for Microcontainer Beans

```
<bean name="SecurityStore"
class="org.jboss.jms.server.jbosssx.JBossASSecurityMetadataStore">
   <property name="suckerPassword">CHANGE ME!!</property>
   <property name="securityDomain">messaging</property>
   <property name="securityManagement">
  .<inject bean="JNDIBasedSecurityManagement"/></property>
</bean>
```



Password Masking for Microcontainer Beans

```
<bean name="SecurityStore"
class="org.jboss.jms.server.jbosssx.JBossASSecurityMetadataStore">
    <property name="suckerPassword">CHANGE ME!!</property>
    <property name="securityDomain">messaging</property>
    <property name="securityManagement">
   .<inject bean="JNDIBasedSecurityManagement"/></property>
   <!-- Password Annotation to inject the password from the common
password utility -->
<annotation>@org.jboss.security.integration.password.Password(security
Domain=messaging,methodName=setSuckerPassword)</annotation>
</bean>
```



Simplified Configuration

- Single security domain configuration for Authentication, Authorization, Auditing, Mapping, Acl etc
- Again, a feature of JBoss Microcontainer is leveraged.

http://server.dzone.com/articles/security-features-jboss-510

Simplified Configuration

```
<application-policy name="MyDomain">
  <authentication>
    <login-module code="org.jboss.security.auth.spi.UsersRolesLoginModule"
      flag="required">
      <module-option name="usersProperties">users.properties</module-option>
      <module-option name="rolesProperties">roles.properties</module-option>
      <module-option name="password-stacking">useFirstPass</module-option>
    </login-module>
  </authentication>
  <authorization>
    <policy-module code="org.jboss.security.authorization.modules.DelegatingAuthorizationModule"
      flag="required"/>
  </authorization>
 <rolemapping>
    <mapping-module code="org.jboss.security.mapping.providers.DeploymentRolesMappingProvider">
    </mapping-module>
  </rolemapping>
</application-policy>
```

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http://anil-identity.blogspot.com

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