

**SUMMIT**

**JBoss  
WORLD**

**PRESENTED BY RED HAT**

**LEARN. NETWORK.  
EXPERIENCE OPEN SOURCE.**



# JBoss EAP 6 CLI - Ninja Management

Brian Stansberry  
Principal Software Engineer, Red Hat  
06.29.12

**SUMMIT**

JBoss  
WORLD

PRESENTED BY RED HAT



# Agenda

- Demo, demo, demo!
- EAP 6 management basics
- Using the CLI with a single *Standalone Server*
- CLI security
- Using the CLI with a multi-server *Managed Domain*
- Interactive and non-interactive operation



# EAP 6 Management Interfaces

## Tools

- CLI
- Web Console

## Management APIs

- Java (DMR)
- HTTP/REST
- JMX

The screenshot displays the JBoss Enterprise Application Platform 6.0 management console. The top navigation bar includes 'Overview', 'Memory', 'Threads', 'Classes', 'VM Summary', and 'MBeans'. The main content area is divided into several sections:

- Monitoring Graphs:** A 'Heap Memory Usage' graph shows memory usage over time, with a 'Used: 58.9 Mb' indicator. A 'Threads' graph shows the number of threads, with a 'Live threads: 64' indicator.
- Navigation Tree:** A sidebar on the left lists various subsystems and configurations, including 'Subsystems', 'Connector', 'JCA', 'Datasources', 'Resource Adapters', 'Mail', 'Container', 'Core', 'Infinispan', 'OSGi', 'Security', 'Web', 'General Configuration', 'Interfaces', 'Socket Binding', and 'System Properties'.
- JDBC Datasources Configuration:** The main panel shows the configuration for 'ExampleDS'. It includes a table of available datasources and a configuration form with the following details:
  - Name: ExampleDS
  - JNDI: java:jboss/datasources/ExampleDS
  - Is enabled?: true
  - Driver: h2
  - Share Prepared Statements: false
  - Statement Cache Size: 0

SUMMIT

JBoss  
WORLD

PRESENTED BY RED HAT



# New in EAP 6 -- Multi-Server Management

- Multi-server management is a core part of JBoss EAP 6 itself
- Manage multiple servers from a single control point
  - Start/quiesce/stop servers
  - Rolling deployment to a set of servers
  - Roll a config change out to a set of servers
  - Roll back changes



# Choices for How to Manage EAP 6 Instances

- Do you want to take advantage of our multi-server management features?
  - Yes: run a *Managed Domain*
    - `[bin]$ ./domain.sh`
  - No: run a *Standalone Server*
    - `[bin]$ ./standalone.sh`



# Core concepts: Subsystems & Profiles

- Subsystem: a particular set of capabilities that extend the application server core
  - Webserver, Transaction Manager, EJB3, CDI, HornetQ, OSGi, JCA, JGroups, Infinispan, etc, are all subsystems
- Profile: a named set of subsystem configurations
  - A standalone server runs a single profile
  - A managed domain can have many profiles available, with different servers running different profiles



# Core concept: Management Resources

- Everything manageable is exposed via a tree of addressable resources
  - Address is an ordered list of key/value pairs
  - /profile=default/subsystem=web/connector=http
- Resources expose attributes & operations
- Quite similar to JMX Open MBeans
  - But, resources are organized in a tree
  - Atomic multi-step operations supported
  - Operations across servers supported





# Running the CLI

- Launch from `bin` dir via `jboss-cli.sh` or `jboss-cli.bat`

```
bin $ ./jboss-cli.sh --connect
```

```
[standalone@localhost:9999 /] :read-attribute(name=server-state)
```

```
{  
  "outcome" => "success",  
  "result" => "running"  
}
```

```
[standalone@localhost:9999 /]
```

**SUMMIT**

**JBoss  
WORLD**

PRESENTED BY RED HAT



# CLI – Two Types of Commands

- Low-level:
  - provide resource address, operation name & params & you can invoke any operation on any resource

```
[standalone@localhost:9999 /] /subsystem=web/connector=http:read-attribute(name=request-count)
```

- High-level: convenience commands for common tasks

```
[standalone@localhost:9999 /] deploy /home/admin/wars/helloworld.war
```

**SUMMIT**

JBoss  
WORLD

PRESENTED BY RED HAT



# Demo – CLI Basics with a Standalone Server

- Navigation: `ls`, `cd`, `pwd`
- Convenience: tab completion, history
- Commands:
  - Low-level: provide resource address, operation name & params & you can invoke any operation on any resource

```
[standalone@localhost:9999 /] /subsystem=web/connector=http:read-attribute(name=request-count)
```

- High-level: convenience commands for common tasks

```
[standalone@localhost:9999 /] deploy /home/admin/wars/helloworld.war
```

- Batch operations: `batch`, `run-batch`
- `reload`, shutdown operations

**SUMMIT**

JBoss  
WORLD

PRESENTED BY RED HAT



# EAP's “Native” Management Interface

- Transport uses JBoss Remoting
  - Open wire format
- Payload uses the simple JBoss DMR library
  - Represent complex data structures using just a few Java types
  - Open serialization format



# Changing the Native Interface Address/Port

- Default EAP config files let you change address/port from command line

```
$ ./standalone.sh -Djboss.management.native.port=19999 -bmanagement=10.0.0.2
```

```
<management>
  ....
  <management-interfaces>
    <native-interface security-realm="ManagementRealm">
      <socket interface="management" port="{jboss.management.native.port:9999}"/>
    </native-interface>
  </management-interfaces>
</management>
....
<interfaces>
  <interface name="management">
    <inet-address value="{jboss.bind.address.management:127.0.0.1}"/>
  </interface>
</interfaces>
```

**SUMMIT**

**JBoss  
WORLD**

PRESENTED BY RED HAT



# CLI Security

- Native management interface integrates with an EAP security-realm

```
<management>
  <security-realms>
    <security-realm name="ManagementRealm">
      ....
    <management-interfaces>
      <native-interface security-realm="ManagementRealm">
```

- Realms support different authentication stores
  - truststore, properties file, LDAP, JAAS, custom
  - properties file is the default
    - Manipulate via bin/add-user.sh (.bat) helper tool



# “Local” Authentication

- Automated challenge-response, transparent to end user
  - EAP provides location of a file writable by EAP process
  - Client proves it can write to that file
- Based on filesystem permissions
  - Assumption is if client process can write to files owned by EAP process' account, the client account is valid
- Supported by default, but can be disabled



# Demo – CLI Security

- `whoami` operation
- Disable local authentication, require login

**SUMMIT**

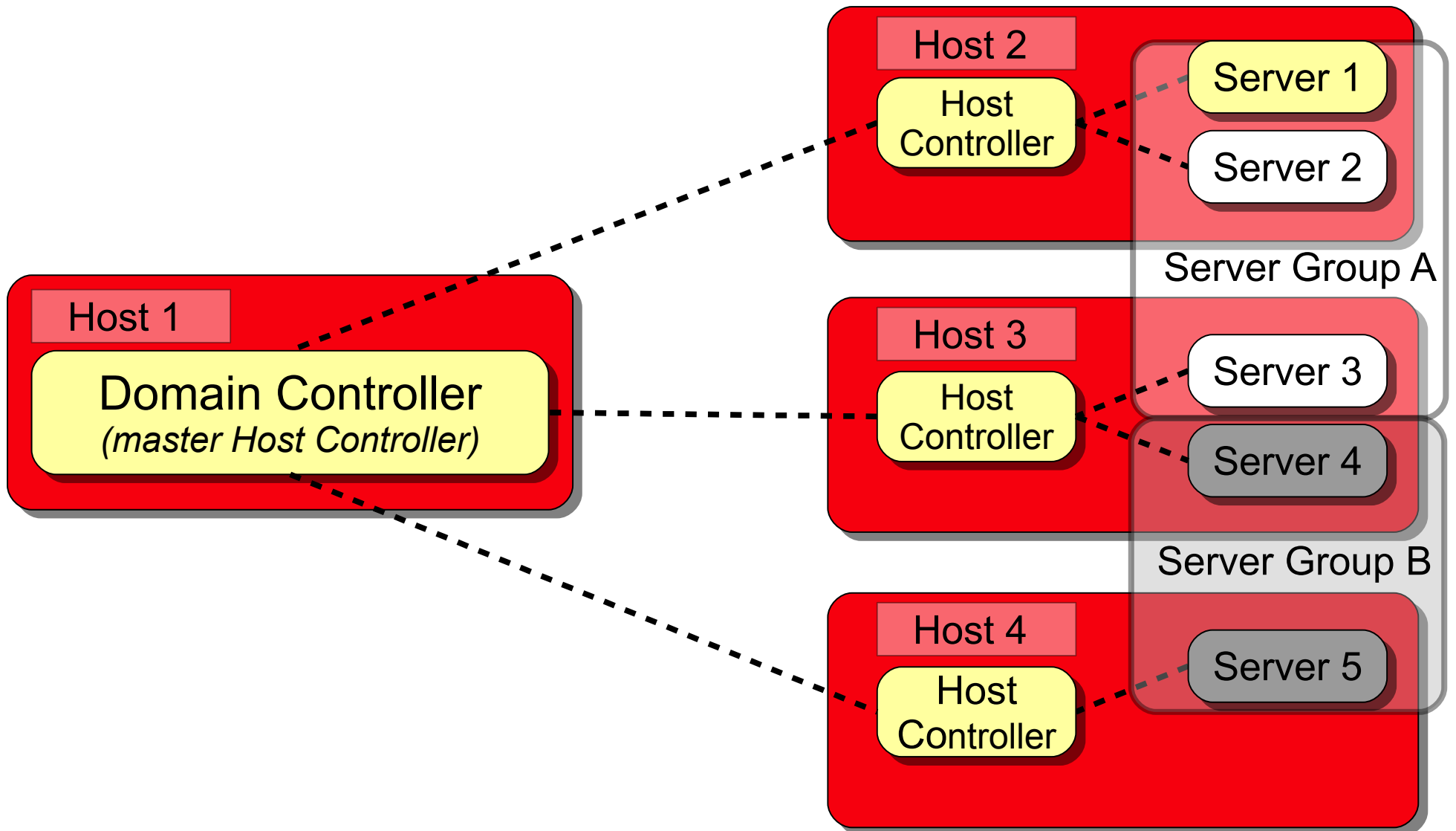
JBoss  
WORLD

PRESENTED BY RED HAT





# Managed Domain Topology



# Demo – Administer a Managed Domain

- Administer a 3 “host”, 2 server domain
- Navigate the domain
- Add a server group
- Add 2 new servers



# Rollout Plans

- Control how changes get applied to multiple servers in your domain
- Concurrency
  - Apply to all server groups concurrently or in series
  - Apply to all servers in a group concurrently or in series
- Failure tolerance
  - Failure on  $> x$  servers or  $> y\%$  of servers in a group triggers rollback (in that group or in all groups)



# Demo – Rolling Changes Out to a Domain

- Roll a deployment out to the domain
- Save a rollout plan for re-use
- Use the saved rollout plan with an undeploy operation



# Demo – Running the CLI from a Script

- Run a script that shuts down a given list of hosts

**SUMMIT**

**JBoss  
WORLD**

PRESENTED BY RED HAT



# Q&A

**SUMMIT**

**JBoss  
WORLD**

**PRESENTED BY RED HAT**



LIKE US ON FACEBOOK



FOLLOW US ON TWITTER



TWEET ABOUT IT



READ THE BLOG



GIVE US FEEDBACK



FIRST



.....

