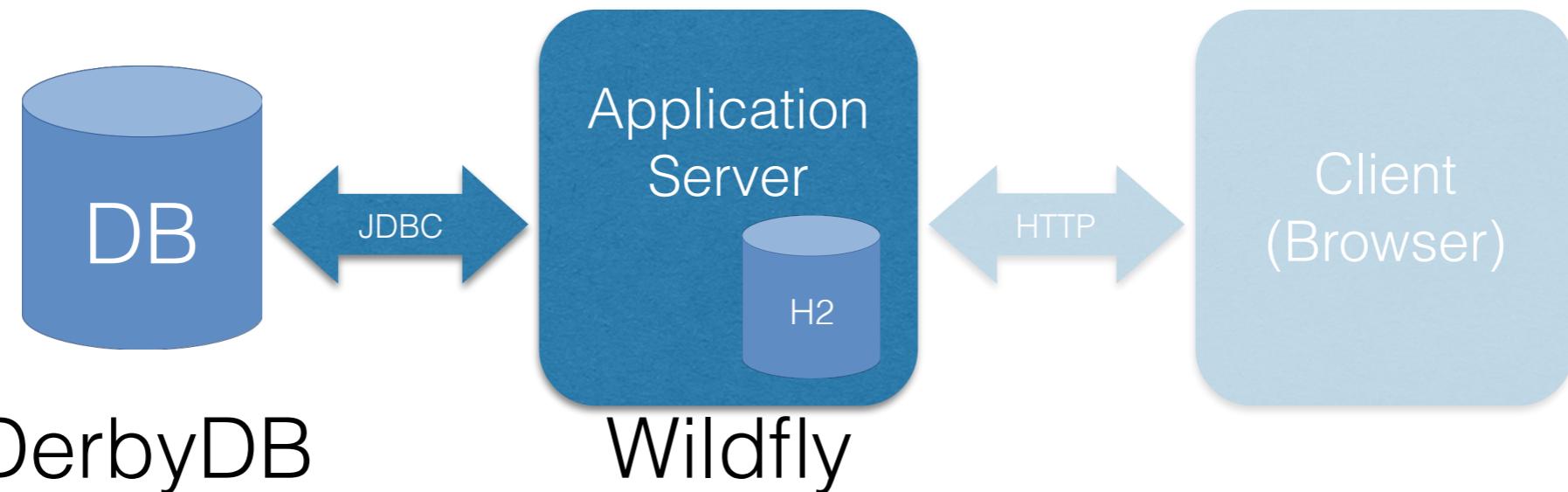


# Install Wildfly 16

inkl. Datasource für DerbyDB

# Big Picture



- Der Wildfly Application Server hat bereits eine eigene Datenbank eingebaut (H2)
- Wir verwenden jedoch eine eigene Datenbank: die in Java mitgelieferte JavaDB (Apache Derby)
- Zunächst wird ein JDBC-Treiber im Wildfly registriert
- Anschließend wird die Derby DB gestartet und der Wildfly kann über den Port 1527 auf die DB zugreifen.

# Download Wildfly

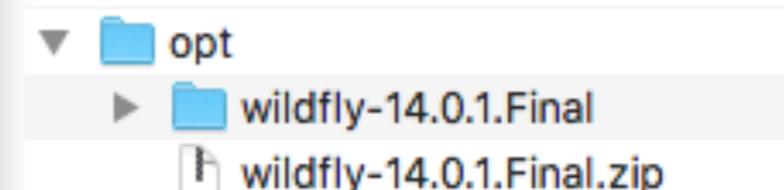
The screenshot shows a web browser window with the title bar "Downloads - WildFly". The address bar contains "wildfly.org/downloads/". The page itself is the WildFly Downloads page, featuring the WildFly logo and the slogan "Fly Fast, and Free.". The navigation menu includes Home, About, News, **Downloads**, Documentation, Source Code, Get Help, Join Us, WildFly Swarm, and CI. A "Follow Us" dropdown is also present. Below the menu, a breadcrumb trail shows "WildFly Homepage / Downloads". The main content area is titled "Downloads" and contains a message about JBoss EAP availability. It features a green button labeled "Get The Latest JBoss EAP Release!" and a link to "Nightly Builds". A table lists download options for version 14.0.1.Final:

Version	Date	Description	License	Size	Format
14.0.1.Final	2018-09-05	Java EE Full & Web Distribution	LGPL	171 MB	<a href="#">ZIP</a> <span style="border: 2px solid red; padding: 2px;"> </span>
				170 MB	<a href="#">TGZ</a>
		Servlet-Only Distribution	LGPL	41 MB	<a href="#">ZIP</a>
				41 MB	<a href="#">TGZ</a>
		Application Server Source Code	LGPL	28 MB	<a href="#">ZIP</a>

To the right of the table is a "Compliance" section with icons for LGPL v2.1 (Licensed), Java EE8 (Implements), Full & Web Configs, Supported by Tools, and Tested with Arquillian. Below this is a "Supported In:" section with a note about Enterprise Application Platform.

<http://wildfly.org/downloads/>

Am Besten entpackt man den Wildfly in ein opt-Verzeichnis direkt unter dem Root (alle OS - auch Win)



# Starten des Wildfly

- Der Application Server wird beim Entwickeln automatisch von der IDE gestartet.
- Wir starten den Wildfly zunächst manuell, um einen User einzurichten:

```
Toms-MBP:~ stuetz$ /opt/wildfly-16.0.1.Final/bin/standalone.sh
```

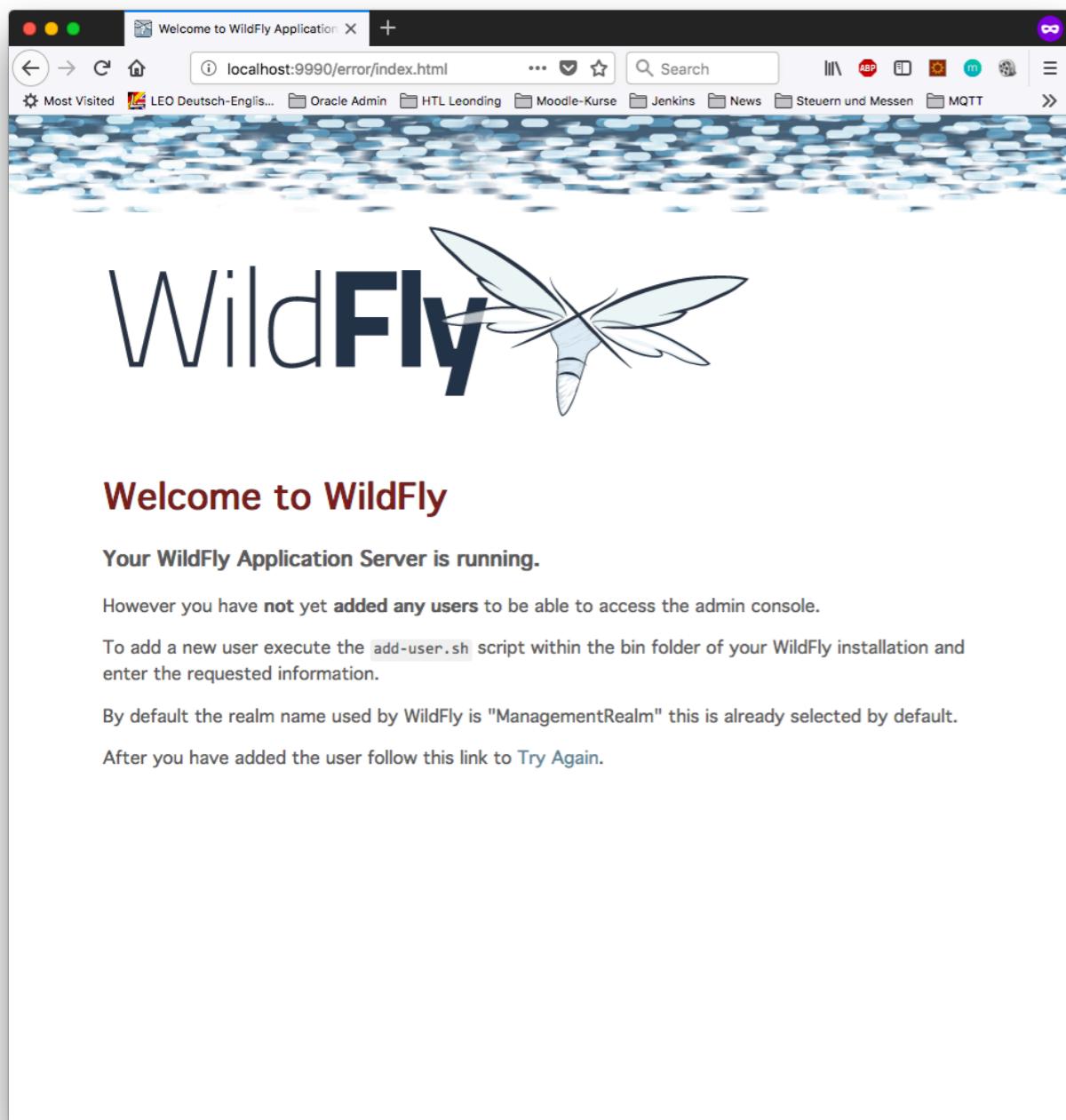
```
=====  
JBoss Bootstrap Environment
```

```
JBOSS_HOME: /opt/wildfly-16.0.1.Final
```

```
JAVA: /Library/Java/JavaVirtualMachines/jdk-10.0.1.jdk/Contents/Home/bin/java
```

```
JAVA_OPTS: -server -Xms64m -Xmx512m -XX:MetaspaceSize=96M -XX:MaxMetaspaceSize=256m -Djava.net.preferIPv4Stack=true -Djboss.modules.system.pkgs=org.jboss.byteman -Djava.awt.headless=true --add-exports=java.base/sun.nio.ch=ALL-UNNAMED --add-exports=jdk.unsupported/sun.misc=ALL-UNNAMED --add-exports=jdk.unsupported/sun.reflect=ALL-UNNAMED --add-modules=java.se
```

# Öffnen der Konsole 1



- URL der Konsole:  
<http://localhost:9990>
- Nun weist Wildfly darauf hin, dass es noch keinen User gibt. der muss nun angelegt werden:

`/opt/wildfly-16.0.1.Final/bin/add-user.sh`

- zB admin / passme

```
1. bash
Toms-MBP:RoomBasic stuertz$ /opt/wildfly-14.0.1.Final/bin/add-user.sh

What type of user do you wish to add?
a) Management User (mgmt-users.properties)
b) Application User (application-users.properties)
(a):  ↵

Enter the details of the new user to add.
Using realm 'ManagementRealm' as discovered from the existing property files.
Username : admin
User 'admin' already exists and is enabled, would you like to...
a) Update the existing user password and roles
b) Disable the existing user
c) Type a new username
(a):  Option a are listed below. To modify these restrictions edit the add-user.properties configuration file.
- The password should be different from the username
- The password should not be one of the following restricted values {root, admin, administrator}
- The password should contain at least 8 characters, 1 alphabetic character(s), 1 digit(s), 1 non-alphanumeric symbol(s)
Password :  passme
WFLYDM0099: Password should have 8 characters!
Are you sure you want to use the password? [yes/no] ? yes
Re-enter Password :  passme
What groups do you want this user to belong to? [PowerUser,BillingAdmin,]:  ↵
Updated user 'admin' to file '/opt/wildfly-14.0.1.Final/standalone/configuration/mgmt-users.properties'
Updated user 'admin' to file '/opt/wildfly-14.0.1.Final/domain/configuration/mgmt-users.properties'
Updated user 'admin' with groups to file '/opt/wildfly-14.0.1.Final/standalone/configuration/mgmt-groups.properties'
Updated user 'admin' with groups to file '/opt/wildfly-14.0.1.Final/domain/configuration/mgmt-groups.properties'
Is this new user going to be used for one AS process to connect to another AS process?
e.g. for a slave host controller connecting to the master or for a Remoting connection for server to server EJB calls.
yes/no? no
```

# Öffnen der Konsole 2

The screenshot shows the HAL Management Console interface for WildFly. The top navigation bar includes links for Most Visited, LEO Deutsch-Englis..., Oracle Admin, HTL Leonding, Moodle-Kurse, Jenkins, and News. The main menu bar has tabs for Homepage, Deployments, Configuration, Runtime, Patching, and Access Control. The 'Homepage' tab is selected. The central content area is titled 'WildFly Application Server' and contains six main sections:

- Deployments**: Add and manage deployments. Sub-options include 'Deploy an Application' (with 'Start' button) and instructions: '1. Use the 'Add Deployment' wizard to deploy the application' and '2. Enable the deployment'.
- Configuration**: Configure subsystem settings. Sub-options include 'Create a Datasource' (with 'Start' button) and instructions: '1. Select the Datasources subsystem', '2. Add a Non-XA or XA datasource', and '3. Use the 'Create Datasource' wizard to configure the datasource settings'.
- Runtime**: Monitor server status. Sub-options include 'Monitor the Server' (with 'Start' button) and instructions: '1. Select the server' and '2. View log files or JVM usage'.
- Access Control**: Manage user and group permissions for management operations. Sub-options include 'Assign User Roles' (with 'Start' button) and instructions: '1. Add a new user or group' and '2. Assign one or more roles to that user or group'.
- Patching**: Manage WildFly Full patches. Sub-options include 'Apply a Patch' (with 'Start' button) and instructions: '1. Download the patch file to the local machine' and '2. Use the 'Apply Patch' wizard to select and apply the patch'.
- Need Help?**: A section with links to General Resources (WildFly Home, WildFly Documentation, Admin Guide, Model Reference, Documentation, Browse Issues, Latest News) and Get Help (Access tutorials and quickstarts, User Forums, IRC, Developers Mailing List).

At the bottom, there are links for 3.0.6.Final, Tools, and Settings.

- Startet man den Wildfly noch einmal, kann man sich einloggen und die Konsole wird angezeigt

**<http://localhost:9990>**

# DerbyDB downloaden

[https://db.apache.org/derby/derby\\_downloads.html](https://db.apache.org/derby/derby_downloads.html)

The screenshot shows a web browser window with the title "Apache Derby: Downloads". The address bar contains the URL "https://db.apache.org/derby/derby\_downloads.html". The page itself is titled "Apache Derby: Downloads" and features the Apache feather logo and the text "The Apache DB Project". A navigation menu at the top includes "Home", "Quick Start", "Download" (which is highlighted), "Community", "Documentation", and "Resources". Below the menu, a sidebar on the left has a "Download" section with "Overview" selected, and a link to "The Apache Software Foundation". A search bar at the bottom left says "Search the site with google" and has a "Search" button.

**Apache Derby: Downloads**

Last Published: 05/03/2018 20:26:52

Font size:

**For Java 8 and Higher**

- [10.14.2.0 \(May 3, 2018 / SVN 1828579\)](#)
- [10.13.1.1 \(October 25, 2016 / SVN 1766613\)](#)

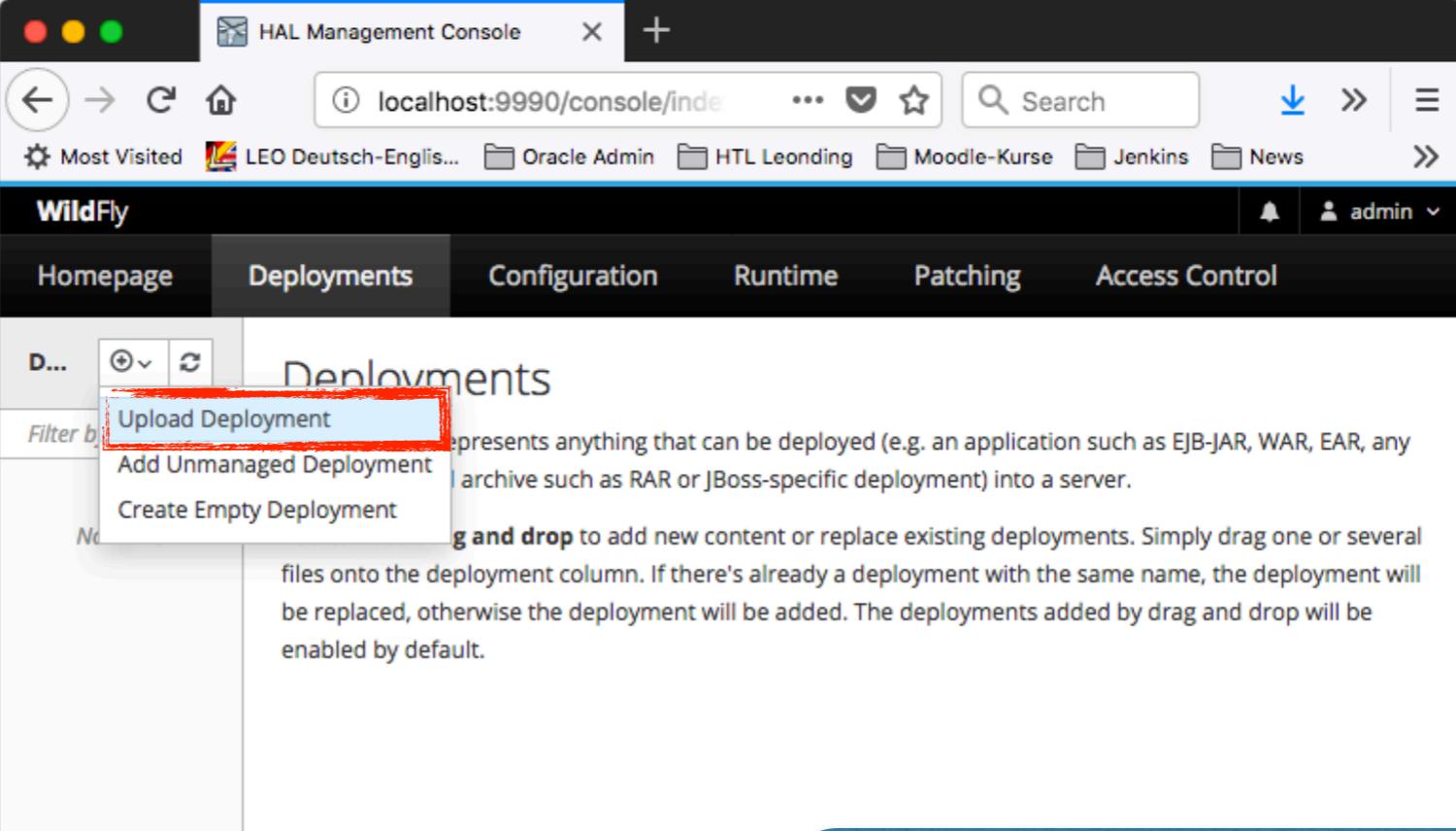
**For Java 6 and Higher**

- [10.12.1.1 \(October 11, 2015 / SVN 1704137\)](#)



Auch die DerbyDb wird in das opt-Verzeichnis unter dem Root entpackt

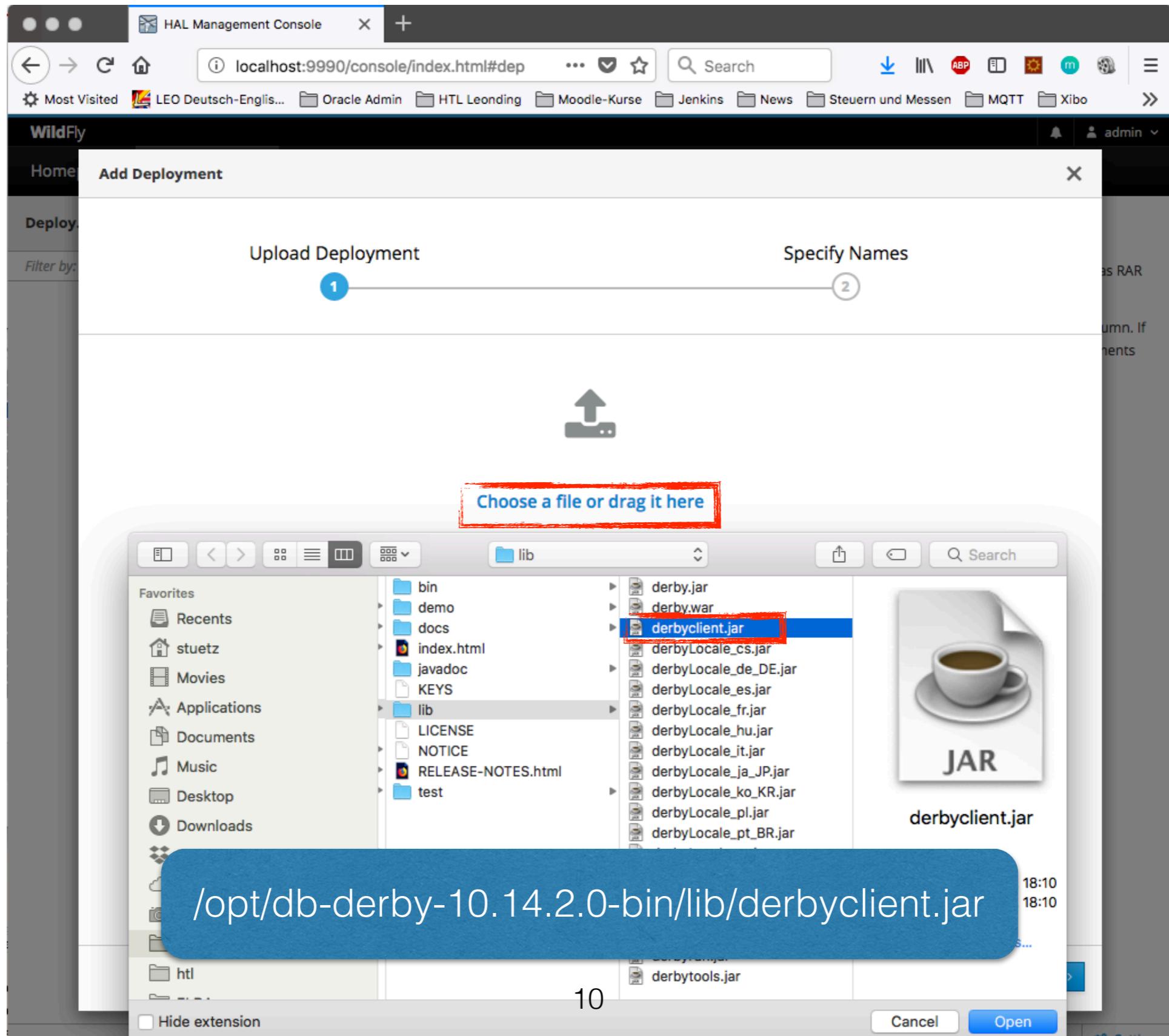
# Registrieren des JDBC-Treibers

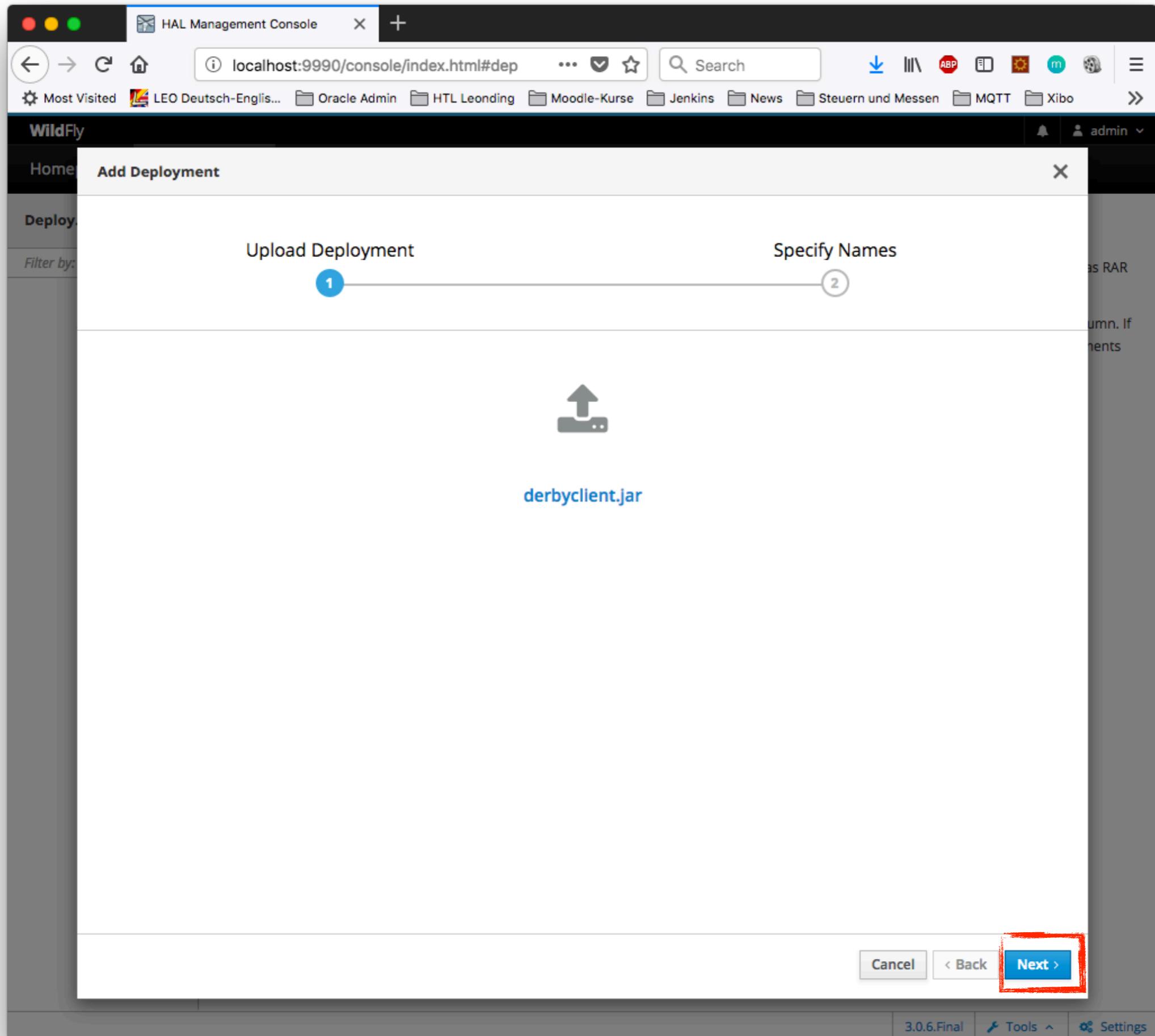


The screenshot shows the WildFly Management Console interface. The title bar reads "HAL Management Console" and the address bar shows "localhost:9990/console/index". The navigation bar includes links for "Most Visited" (LEO Deutsch-Englis..., Oracle Admin, HTL Leonding, Moodle-Kurse, Jenkins, News), "WildFly" (Homepage, Deployments, Configuration, Runtime, Patching, Access Control), and a user account for "admin". The main content area is titled "Deployments" and contains three buttons: "Upload Deployment" (highlighted with a red box), "Add Unmanaged Deployment", and "Create Empty Deployment". A tooltip for "Upload Deployment" explains it represents anything that can be deployed (e.g., an application such as EJB-JAR, WAR, EAR, any archive such as RAR or JBoss-specific deployment) into a server. It also describes how to drag and drop files onto the deployment column to add new content or replace existing deployments.

Der JDBC-Treiber wird (wie eine Anwendung) in den Wildfly deployed

# Auswählen des jdbc-Treibers





HAL Management Console

localhost:9990/console/index.html#dep

Search

Most Visited LEO Deutsch-Englis... Oracle Admin HTL Leonding Moodle-Kurse Jenkins News Steuern und Messen MQTT Xibo

WildFly

Home Add Deployment

Deploy

Filter by:

Upload Deployment

Specify Names

① Help

Name \* derbydb-connector

Runtime Name derbyclient.jar

Enabled ON

Required fields are marked with \*

Cancel < Back Finish

3.0.6.Final Tools Settings

The screenshot shows the 'Add Deployment' dialog in the WildFly HAL Management Console. The 'Name' field is filled with 'derbydb-connector' and is highlighted with a red box. The 'Enabled' switch is set to 'ON' and is also highlighted with a red box. The 'Finish' button at the bottom right is also highlighted with a red box.

HAL Management Console

localhost:9990/console/index.html#dep

WildFly

Add Deployment

Upload Deployment

Specify Names

1

2

Upload successful

derbydb-connector has been successfully uploaded to the content repository.

View Deployment

Cancel < Back Close

3.0.6.Final Tools Settings

The screenshot shows a browser window for the WildFly HAL Management Console. The URL is localhost:9990/console/index.html#dep. The main content is a 'Add Deployment' dialog. On the left, there's a sidebar with 'Deploy' selected. The main area has two tabs: 'Upload Deployment' (selected) and 'Specify Names'. A large green circular icon with a checkmark is centered. Below it, the text 'Upload successful' is displayed. Underneath that, a message states 'derbydb-connector has been successfully uploaded to the content repository.' A blue 'View Deployment' button is present. At the bottom right of the dialog are 'Cancel', '< Back', and a blue 'Close' button. The browser's address bar shows the same URL. The status bar at the bottom of the browser indicates version 3.0.6.Final and links for Tools and Settings.

HAL Management Console

localhost:9990/console/index.html#dep

WildFly

Homepage Deployments Configuration Runtime Patching Access Control

Deploy... +

Filter by: name or deployment

de... View

## derbydb-connector

The deployment **derbydb-connector** is enabled and active. [Disable](#)

### Main Attributes

Name:	derbydb-connector
Runtime Name:	derbyclient.jar
Enabled, Managed, Exploded:	✓ ✓ ✘
Status:	OK
Last enabled at:	9/19/18, 12:11 PM
Last disabled at:	n/a

3.0.6.Final Tools Settings

# Konfigurieren der Datasource

HAL Management Console

localhost:9990/console/index.html#configuration

WildFly

Homepage Deployments Configuration Runtime Patching Access Control

Configuration	Subsystem (29)	Datasources & Drivers	JDBC Driver
Subsystems >	Filter by: name or subtitle	Datasources >	Filter by: driver name or provider
	Batch JBeret	JDBC Drivers >	<b>derbyclient.jar</b>
Interfaces >	Core Management		
Socket Bindings >	Datasources & Drivers >		h2
Paths	Deployment Scanners		
System Properties	Discovery		
	EE		
	EJB		
	IO		
	Infinispan >		
	JCA		
	JMX		
	JPA		
	JSF		

**JDBC Drivers**

Before your application can connect to a datasource, your datasource vendor's JDBC drivers need to be installed. You can choose between two different ways to install JDBC drivers:

**Modules**

To install a JDBC driver as a module you need to create a file path structure under the `WILDFLY_HOME/modules`, copy the JDBC driver JAR into the `main/` subdirectory and create a `META-INF/module.xml` file.

as a module you can use `mvn dependency:copy` to move driver

like any other deployment. You can copy them across multiple servers or use a managed domain. Any JDBC driver will automatically be recognized and installed into the system by name and version.

In domain mode drivers deployed as applications will only show up in this section if there are running servers which match the selected profile.

Kontrolliere, ob der derbyclient auch angezeigt wird

3.0.6.Final Tools Settings

The screenshot shows the WildFly HAL Management Console interface. The left sidebar lists various configuration subsystems like Subsystems, Interfaces, Socket Bindings, Paths, and System Properties. The main content area is titled 'Configuration' and shows the 'Subsystem (29)' section. Under 'Datasources & Drivers', the 'Datasources' section is selected, displaying the 'ExampleDS' datasource. A context menu is open over the 'Datasource' button, with the 'Add Datasource' option highlighted.

**Annotation 1 (Blue Callout):**

Die bereits bestehende Datenquelle ExampleDS (Default datasource) für die im Wildfly enthaltene DB H2 wird angezeigt.

**Annotation 2 (Blue Callout):**

Es können mehrere Datasources erstellt werden (für verschiedene Projekte bzw. Datenbanken), die alle den gleichen oder auch verschiedene JDBC-Treiber verwenden

The screenshot shows the WildFly HAL Management Console interface. The left sidebar has a dark theme with the following navigation items:

- Homepage
- Configuration (selected)
- Subsystems
- Interfaces
- Socket Bindings
- Paths
- System Properties

The main content area is titled "Add Datasource" and shows a six-step wizard. Step 1, "Choose Template", is active and highlighted with a blue circle containing the number 1. The other steps are numbered 2 through 6. A red box highlights the "Custom" radio button under the "Choose one of the predefined templates to quickly add a datasource or choose "Custom" to specify your own settings." section. The "Custom" radio button is selected, while others like H2, PostgreSQL, MySQL, Oracle, Microsoft SQLServer, IBM DB2, and Sybase are unselected.

A large blue callout bubble contains the following text:

Für bestimmte Datenbanken sind die JDBC-Treiber bereits enthalten. Nicht jedoch für die DerbyDB. Daher haben wir sie vorher manuell deployed.

At the bottom right of the wizard are buttons: "Cancel", "< Back", and "Next >".

HAL Management Console

localhost:9990/console/index.html#configuration;path=

WildFly

Add Datasource

Choose Template Attributes JDBC Driver Connection Test Connection Review

1 2 3 4 5 6

?

Name \* dbDS

JNDI Name \* java:jboss/datasources/dbDS

Required fields are marked with \*

Cancel < Back Next >

3.1.2.Final Tools Settings

The screenshot shows the 'Add Datasource' wizard in the WildFly HAL Management Console. The 'Attributes' step is currently active, indicated by a blue circle around the number 2 in the navigation bar. The 'Name' field is filled with 'dbDS' and the 'JNDI Name' field is filled with 'java:jboss/datasources/dbDS'. Both fields are marked with a red border, suggesting they are required fields. At the bottom right of the form, the 'Next >' button is also highlighted with a red box.

HAL Management Console

localhost:9990/console/index.html#configuration;path

WildFly

Add Datasource

Choose Template Attributes JDBC Driver Connection Test Connection Review

1 2 3 4 5 6

Driver Name \* derbyclient.jar

Driver Module Name

Driver Class Name

Required fields are marked with \*

Cancel < Back Next >

3.1.2.Final Tools Settings

The screenshot shows the 'Add Datasource' wizard in the WildFly HAL Management Console. The process consists of six steps: Choose Template, Attributes, JDBC Driver, Connection, Test Connection, and Review. The 'JDBC Driver' step is currently active, indicated by a blue circle with the number 3. The 'Driver Name' field is populated with 'derbyclient.jar'. A red box highlights both the driver name and the 'Next >' button at the bottom right.

HAL Management Console

localhost:9990/console/index.html#configuration;path=

WildFly

Add Datasource

Choose Template Attributes JDBC Driver Connection Test Connection Review

1 2 3 4 5 6

Connection URL: jdbc:derby://localhost:1527/db;create=true

User Name: app

Password: app

Security Domain:

Cancel < Back Next >

3.1.2.Final Tools Settings

The screenshot shows the 'Add Datasource' wizard in the WildFly HAL Management Console. The 'Connection' step is currently active, indicated by the blue circle with the number 4. The 'Connection URL' field contains the value 'jdbc:derby://localhost:1527/db;create=true', which is highlighted with a red box. The 'User Name' and 'Password' fields both contain the value 'app', which is also highlighted with red boxes. The 'Security Domain' field is empty. At the bottom right, the 'Next >' button is highlighted with a red box.

HAL Management Console

localhost:9990/console/index.html#configuration;path

WildFly

Add Datasource

Choose Template   Attributes   JDBC Driver   Connection   Test Connection   Review

1   2   3   4   5   6

On this page you can test the connection of your datasource.

Please note that testing the connection changes the semantics of this wizard:

- If you press **Test Connection** for the first time, the datasource is **created in advance**.
- If you **go back** and change settings, this will **modify** the newly created datasource. Please note that you cannot change the name and JNDI bindings once the datasource has been created.
- If you **cancel** the wizard, the datasource will be **removed** again. This might require a reload of the server.

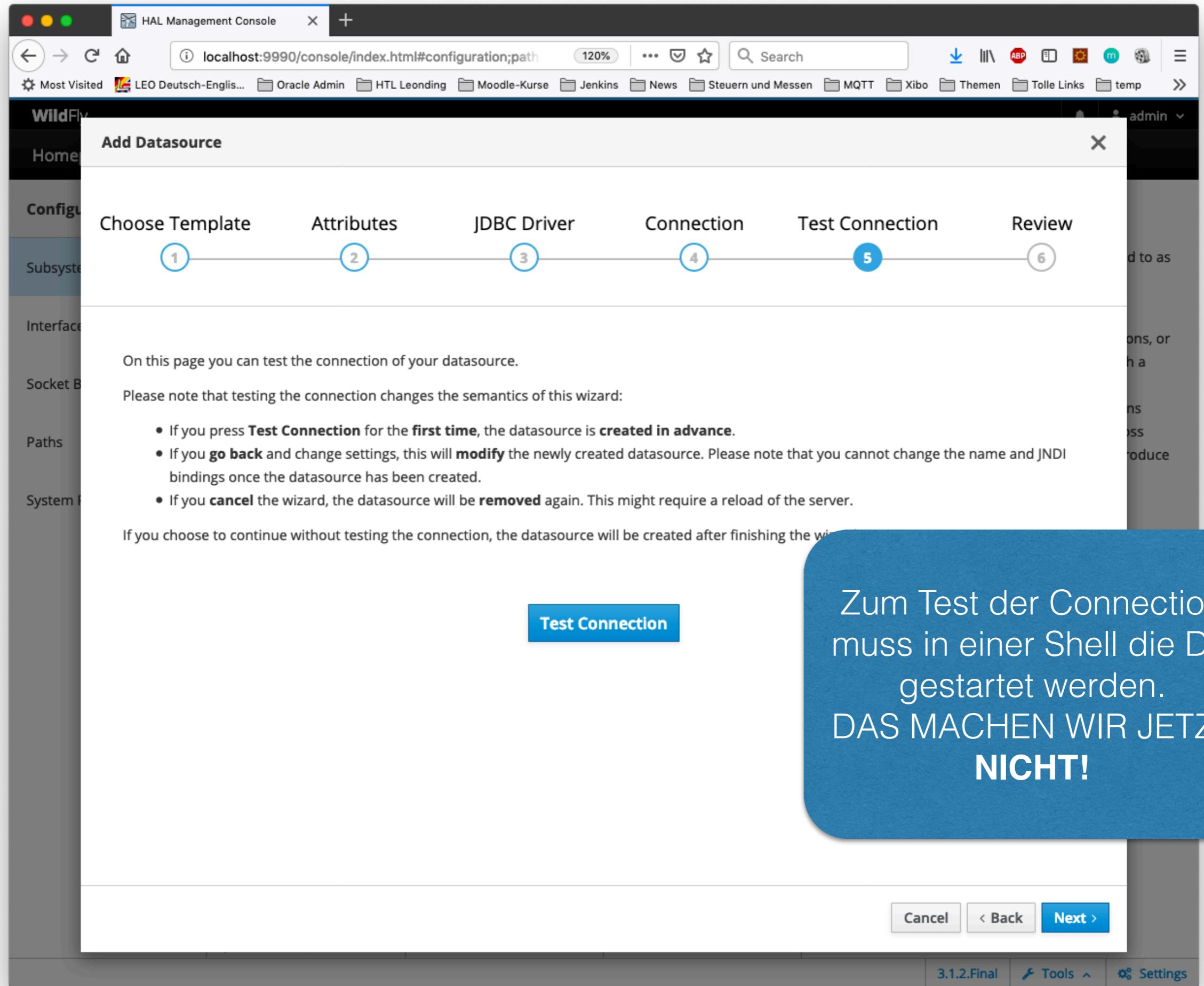
If you choose to continue without testing the connection, the datasource will be created after finishing the wizard.

Test Connection

Zum Test der Connection  
muss in einer Shell die DB  
gestartet werden.  
**DAS MACHEN WIR JETZT  
NICHT!**

Cancel   Back   Next >

3.1.2.Final   Tools   Settings



HAL Management Console X Connecting to a Derby database X +

localhost:9990/console/index.html#configuration;path= 120% ... Search

Most Visited LEO Deutsch-Englis... Oracle Admin HTL Leonding Moodle-Kurse Jenkins News Steuern und Messen MQTT Xibo Themen Tolle Links temp >

WildFly admin

Add Datasource

Choose Template Attributes JDBC Driver Connection Test Connection Review

1 2 3 4 5 6

Subsystems

Interfaces

Socket Bindings

Paths

System Properties

Help

Name dbDS

JNDI Name java:jboss/datasources/dbDS

Connection URL jdbc:derby://localhost:1527/db;create=true

Driver Name derbyclient.jar

User Name

Password

Cancel < Back Finish

3.1.2.Final Tools Settings

The screenshot shows the 'Add Datasource' wizard in the WildFly HAL Management Console. The 'Choose Template' step is currently active (circled 1). Below it, the 'Attributes' step is displayed, containing fields for Name (dbDS), JNDI Name (java:jboss/datasources/dbDS), Connection URL (jdbc:derby://localhost:1527/db;create=true), Driver Name (derbyclient.jar), User Name, and Password. A horizontal progress bar at the top of the wizard shows six steps: Choose Template, Attributes, JDBC Driver, Connection, Test Connection, and Review. Each step is represented by a blue circle with a number from 1 to 6. The 'Review' step (6) is the final step in the process.

HAL Management Console X Connecting to a Derby database X +

localhost:9990/console/index.html#configuration;path= 120% ... Search

Most Visited LEO Deutsch-Englis... Oracle Admin HTL Leonding Moodle-Kurse Jenkins News Steuern und Messen MQTT Xibo Themen Tolle Links temp >

WildFly

Home Add Datasource X

Configuration

Choose Template Attributes JDBC Driver Connection Test Connection Review

1 2 3 4 5 6

Operation Successful

Data source **dbDS** successfully added.

[View Datasource](#)

Cancel < Back Close

3.1.2.Final Tools Settings

The screenshot shows the WildFly HAL Management Console interface. A modal dialog titled "Add Datasource" is open, indicating a successful operation. The dialog has six tabs: "Choose Template" (step 1), "Attributes" (step 2), "JDBC Driver" (step 3), "Connection" (step 4), "Test Connection" (step 5), and "Review" (step 6). Step 6 is highlighted with a blue circle containing the number 6. In the center of the dialog, there is a large green circular icon with a white checkmark. Below it, the text "Operation Successful" is displayed, followed by "Data source **dbDS** successfully added." A blue button labeled "View Datasource" is present. At the bottom right of the dialog are buttons for "Cancel", "< Back", and "Close". The background shows the WildFly configuration menu with various subsystems like Subsystems, Interfaces, and Paths listed on the left.

HAL Management Console

localhost:9990/console/index.html#configuration;path=

WildFly

Homepage Deployments Configuration Runtime Patching Access Control

Configuration	Subsystem (29)	Datasources & Drivers	Datasource	
Subsystems >	Filter by: name or subtitle	Datasources >	Filter by: name, xa, .../disabled,	
	Batch JBeret	JDBC Drivers >	<input checked="" type="checkbox"/> DbDS View	
Interfaces >	Core Management		<input checked="" type="checkbox"/> ExampleDS	
Socket Bindings >	Datasources & Drivers >			
Paths	Deployment Scanners			
System Properties	Discovery			
	EE			
	EJB			
	IO			
	Infinispan >			
	JCA			
	JMX			
	JPA			
	JSF			

**DbDS**

Datasource

The datasource **DbDS** is enabled. [Disable](#)

**Main Attributes**

JNDI Name: java:jboss/datasources/DbDS

Driver Name: derbyclient.jar

Connection URL: jdbc:derby://localhost:1527/db;crea...

Enabled: true

Statistics Enabled: false

Tools Settings

# Wildfly konfiguriert!

- Der Application Server ist nun installiert und kann in der Shell mit ^C beendet werden.
- Die DerbyDB wurde noch nicht gestartet, da sonst automatisch die SampleDb erstellt wird. Wir möchten unsere Datenbank mit Namen db jedoch in einem bestimmten Verzeichnis erstellen. Darum warten wir noch.