**CI-CD Jenkins JBoss/WildFly setup**

* **Create an Instance and install Jenkins**
* **Create an AWS linux instance and install JBoss/Wildfly.**

To configure Jboss/WildFly, login to your linux instance

**ec2-user**

**sudo su -**

Step 1. Install Java 8, then just run the commands below to install it.

sudo yum install java-1.8.0-openjdk-devel

Step 2: Download WildFly

(Check [WildFly Downloads](https://wildfly.org/downloads/)page for latest releases)

sudo yum -y install wget  
export WILDFLY\_RELEASE="16.0.0"  
wget <https://download.jboss.org/wildfly/$WILDFLY_RELEASE.Final/wildfly-$WILDFLY_RELEASE.Final.tar.gz>

Once the file is downloaded, extract it.

tar xvf wildfly-$WILDFLY\_RELEASE.Final.tar.gz

Move resulting folder to /opt/wildfly

sudo mv wildfly-$WILDFLY\_RELEASE.Final/ /opt/wildfly

Step 3: Configure Systemd for WildFly

Let’s now create a system user and group that will run WildFly service.

sudo groupadd --system wildfly  
sudo useradd -s /sbin/nologin --system -d /opt/wildfly -g wildfly wildfly

Create WildFly configurations directory.

sudo mkdir /etc/wildfly

Copy WildFly systemd service, configuration file and start scripts templates from the /opt/wildfly/docs/contrib/scripts/systemd/ directory.

sudo cp /opt/wildfly/docs/contrib/scripts/systemd/wildfly.conf /etc/wildfly/  
sudo cp /opt/wildfly/docs/contrib/scripts/systemd/wildfly.service /etc/systemd/system/  
sudo cp /opt/wildfly/docs/contrib/scripts/systemd/launch.sh /opt/wildfly/bin/  
sudo chmod +x /opt/wildfly/bin/launch.sh

Set /opt/wildfly permissions.

sudo chown -R wildfly:wildfly /opt/wildfly

Reload systemd service.

sudo systemctl daemon-reload

Configure SELinux:

sudo restorecon -Rv /opt/wildfly/bin/

Start and enable WildFly service:

sudo systemctl start wildfly  
sudo systemctl enable wildfly

Confirm WildFly Application Server status.

$ **systemctl status wildfly**  
 ● wildfly.service - The WildFly Application Server  
 Loaded: loaded (/etc/systemd/system/wildfly.service; enabled; vendor preset: disabled)  
 Active: active (**running**) since Wed 2019-04-03 16:22:58 EAT; 6s ago  
 Main PID: 31303 (launch.sh)  
 Tasks: 119 (limit: 11510)  
 Memory: 330.8M  
 CGroup: /system.slice/wildfly.service  
 ├─31303 /bin/bash /opt/wildfly/bin/launch.sh standalone standalone.xml 0.0.0.0  
 ├─31304 /bin/sh /opt/wildfly/bin/standalone.sh -c standalone.xml -b 0.0.0.0  
 └─31396 java -D[Standalone] -server -Xms64m -Xmx512m -XX:MetaspaceSize=96M -XX:MaxMetaspaceSize=256m -Djava.net.preferIPv4Stack=true -Djbos>  
 Apr 03 16:22:58 rhel8.local systemd[1]: Started The WildFly Application Server.

Service should bind to port 8080.

# **ss -tunelp | grep 8080**

Step 4: Add WildFly Users

WildFly 16 is now distributed with security enabled for the management interfaces. We need to create a user who can access WildFly administration console or remotely use the CLI. A script is provided for managing users.

Run it by executing the command:

sudo /opt/wildfly/bin/add-user.sh

You will be asked to choose type of user to add. Since this the first user, we want to make it admin. So choose a.

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

Provide desired username for the user. **Type a**

Enter the details of the new user to add.  
Using realm 'ManagementRealm' as discovered from the existing property files.  
Username : **devopsuser**

Set password for the user:

Password recommendations 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 : **<Enter Password>**  
Re-enter Password : **<Confirm Password>**

Press enter and agree to subsequent prompts to finish user creation.

What groups do you want this user to belong to? (Please enter a comma separated list, or leave blank for none)[ ]: **<Enter>**  
 About to add user 'devopsuser' for realm 'ManagementRealm'  
 Is this correct yes/no? yes  
 **Added user 'devopsuser' to file** '/opt/wildfly/standalone/configuration/mgmt-users.properties'  
 Added user 'devopsuser' to file '/opt/wildfly/domain/configuration/mgmt-users.properties'  
 Added user 'devopsuser' with groups to file '/opt/wildfly/standalone/configuration/mgmt-groups.properties'  
 Added user 'devopsuser' with groups to file '/opt/wildfly/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? **yes**  
 To represent the user add the following to the server-identities definition

Notice that:

User information is kept on: /opt/wildfly/domain/configuration/mgmt-users.properties  
Group information is kept on: /opt/wildfly/standalone/configuration/mgmt-groups.properties

Step 5: Accessing WildFly Admin Console

To be able to run WildFly scripts from you current shell session, add /opt/wildfly/bin/ to your $PATH.

cd /opt/wildfly/bin/

cat >> ~/.bashrc <<EOF  
export WildFly\_BIN="/opt/wildfly/bin/"  
export PATH=\$PATH:\$WildFly\_BIN   
EOF

Source the bashrc file.

source ~/.bashrc

Now test by connecting to WildFly Admin Console from CLI with jboss-cli.sh command.

# **jboss-cli.sh --connect**  
[standalone@localhost:9990 /] **version**  
JBoss Admin Command-line Interface  
JBOSS\_HOME: /opt/wildfly  
Release: 8.0.0.Final  
Product: WildFly Full 16.0.0.Final  
JAVA\_HOME: /usr/lib/jvm/java-11-openjdk-11.0.ea.28-8.el8.x86\_64  
java.version: 11-ea  
java.vm.vendor: Oracle Corporation  
java.vm.version: 11-ea+28  
os.name: Linux  
os.version: 4.18.0-32.el8.x86\_64

Now exit (ctrl + d)

Accessing WildFly Admin Console from Web Interface

By default, the console is accessible on localhost IP on port 9990.

# ss -tunelp | grep 9990

tcp LISTEN 0 50 127.0.0.1:9990 0.0.0.0:\* users:(("java",pid=6769,fd=404)) uid:999 ino:30407 sk:3 <->

We can start it on a different IP address accessible from outside the local server. Edit /opt/wildfly/bin/launch.sh to look like this:

.....  
if [[ "$1" == "domain" ]]; then  
 $WILDFLY\_HOME/bin/domain.sh -c $2 -b $3  
else  
 $WILDFLY\_HOME/bin/standalone.sh -c $2 -b $3 **-bmanagement=0.0.0.0**  
fi

We added -bmanagement=0.0.0.0 to start script line. This binds “management” interface to all available IP addresses. Restart wildfly service

sudo systemctl restart wildfly

Confirm

$ **ss -tunelp | grep 9990**  
tcp LISTEN 0 50 0.0.0.0:9990 0.0.0.0:\* users:(("java",pid=9496,fd=320)) uid:999 ino:73367 sk:c <->

Open ports on firewall

sudo firewall-cmd --permanent --add-port={8080,9990}/tcp  
sudo firewall-cmd --reload

Open your browser and URL http://<pulic IP of JBoss>:9990 to access WildFly Web console.

It will ask you for ID and password. Please provide ID and Password which you have created in previous steps. Services can be access from below url

http://<Public IP of JBoss>:8080

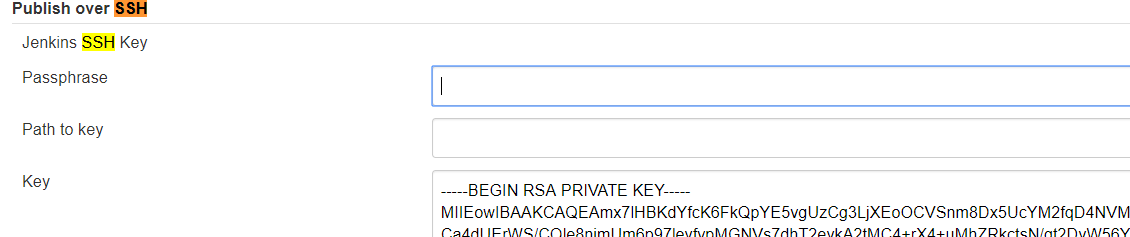
* **CI-CD Pipeline Setup.**

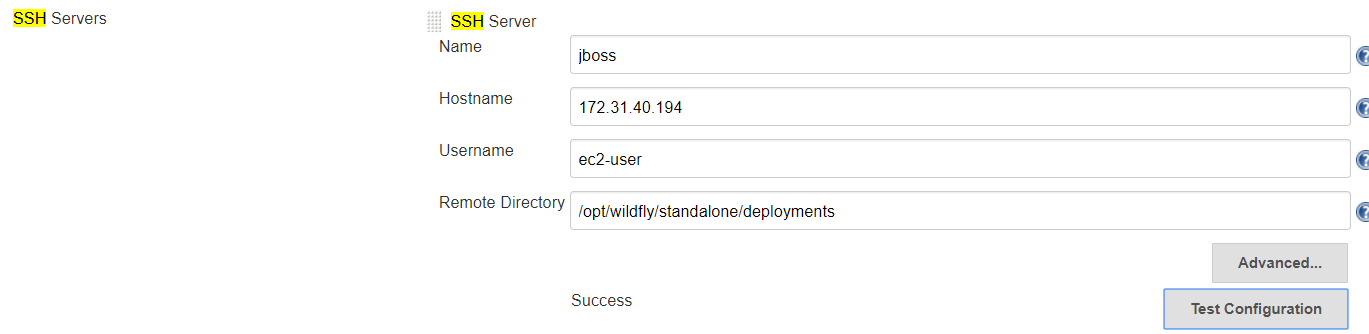
**Step 1: Login to Jenkins console, and install following plugins.**

* WildFly Deployer
* Maven Integration
* Publish over ssh
* WildFly Deployer Plugin

**Step2. Add SSH id for WildFly**

Jenkins Dashboard->Manage Jenkins->Configure System->Publish Over SSH and add JBoss instance’s pem key, private ip , remote directory and user name, then click on Test Configuration.





*Name: jboss*

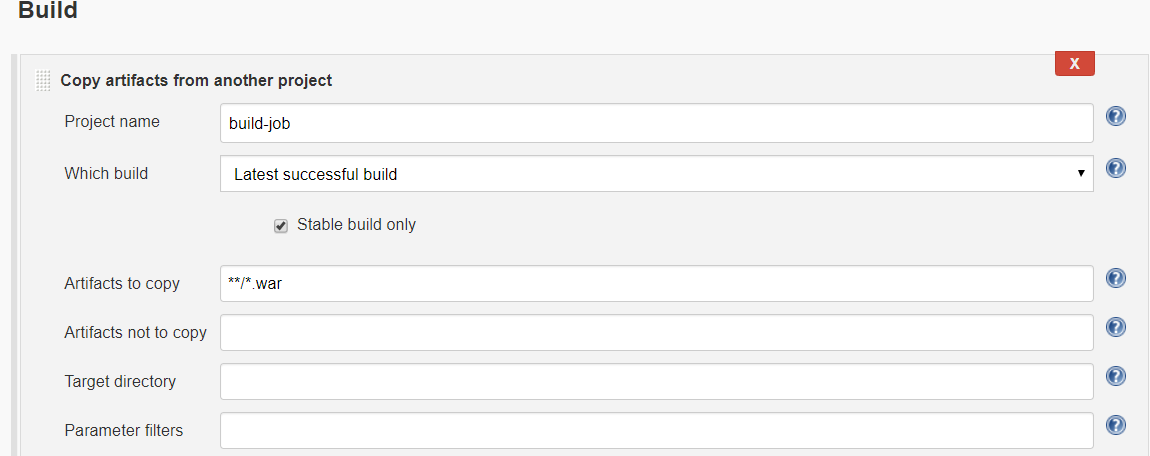
*Hostname: <JBoss instance private IP>*

*Username: <ec2-user>*

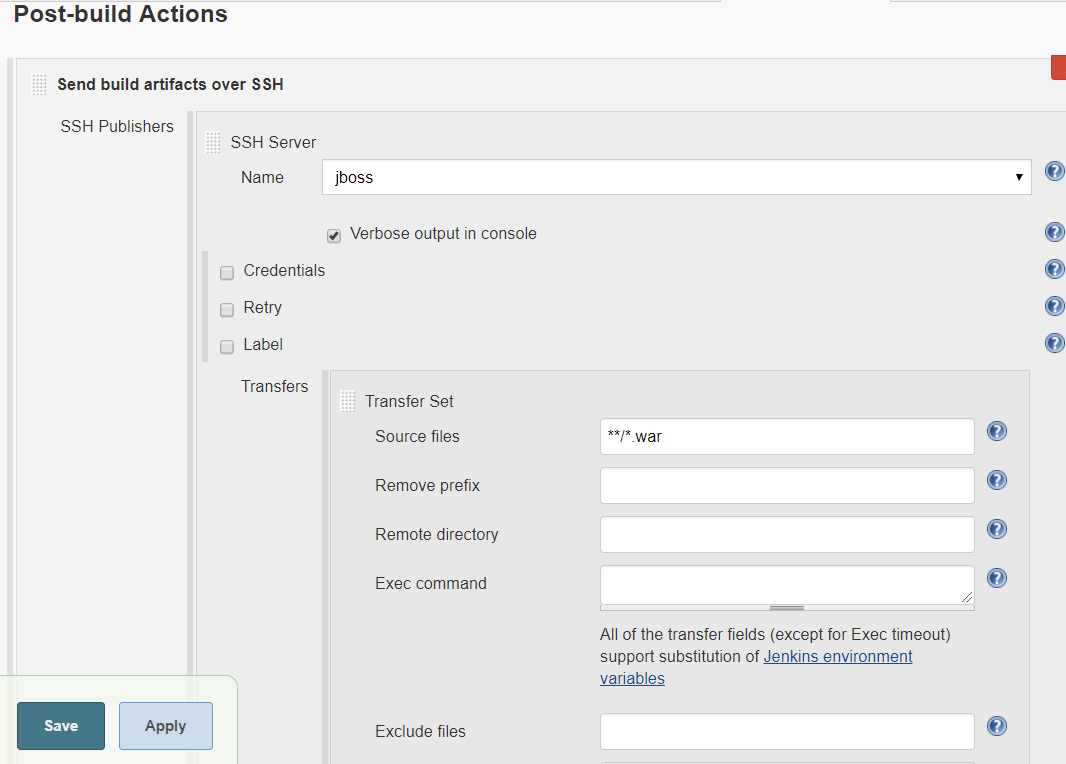
*Remote Directory: /opt/wildfly/standalone/deployments*

**Step 3: Create CD job.**

Select copy artifact from another job from drop down under build section.



**Step 4. Select send build artifact over ssh from drop down under Post-Build Action. (If you face any problem during the deployment, its good practice to select verbose, click Advanced and check Verbose. It provides you detailed console output)**



**Step 5. Save deploy job and trigger your build job.**

**Step 6. http://<Public ip of your JBoss>:8080/webapp/**



Done. ☺