

# Role WEB

## Description of the role

The role **WEB** is provided by a Java application under a modified Wildfly. The server has read and write access to both the **STORE** role and the **DATA** role. Access to the jtel portal and the jtel SOAP interfaces is provided via HTTP on port 8080 and 8081 (for HTTPS access provided by the proxy). User sessions on the portal are bound to the respective web server. This also applies to the SOAP v1 interface. The new SOAP v3 interface, which is available as of version 3.06, allows the execution of SOAP queries of a session on any web server.

## Linking the data area

Linking the Data area, as described on the site [Linking STORE \(All Linux except STORE\)](#).

## Installing the software - Wildfly installations

To include the official MySQL software repositories and install the MySQL client, use the following commands:

### Install the mysql client

```
yum -y install https://dev.mysql.com/get/mysql80-community-release-el7-3.noarch.rpm
yum -y install mysql-community-client
```

Since all access to the shared file share is via a Windows-compatible CIFS-UNC, a symbolic link must be created so that such accesses can also be made under UNIX. This is done with the following command which has to be adapted in practice according to the name of the computer for the role STORE:

### Create a symbolic link

```
mkdir /acd-store
ln -s /home/jtel/shared /acd-store/shared
```

This allows access to the files in the share with the UNC specification:

### Example: Access to the share via UNC

```
ls -la //acd-store/shared/JTELCarrierPortal
```

Next, the required Java Runtime Environment is installed with the following command:

### Install Java runtime environment

```
yum -y install https://cdn.jtel.de/downloads/java/jdk-8u202-linux-x64.rpm
```

Next, the customized application server can now be downloaded and installed:

### Install AS: CentOS 7.7 and higher

```
cd /home/jtel
wget http://cdn.jtel.de/downloads/jboss/wildfly-18.0.1.Final.03.tar.gz
tar xzf wildfly-18.0.1.Final.03.tar.gz
rm -f wildfly-18.0.1.Final.03.tar.gz
mkdir -p wildfly-18.0.1.Final/standalone/deployments
chown -R jtel:jtel wildfly-18.0.1.Final
mkdir -p /home/jtel/upload
chown -R jtel:jtel /home/jtel/upload
ln -s /home/jtel/wildfly-18.0.1.Final wildfly-current
ln -s /home/jtel/wildfly-current/init.d/wildfly /etc/init.d/wildfly
ln -s /home/jtel/wildfly-current/default/wildfly /etc/default/wildfly
cd /etc/cron.daily
ln -s /home/jtel/wildfly-current/bin/jboss-logmaint.sh
ln -s /home/jtel/wildfly-current/bin/jboss-restart.sh
cd /usr/local/bin
ln -s /home/jtel/wildfly-current/bin/updatejb.sh
chkconfig wildfly on
```

Next, the port shares for the jboss AS service must be entered in the firewall and stored permanently:

### Configure firewall

```
firewall-cmd --zone=public --add-port=5701-5801/tcp --permanent
firewall-cmd --zone=public --add-port=5455/tcp --permanent
firewall-cmd --zone=public --add-port=8080-8081/tcp --permanent
firewall-cmd --zone=public --add-port=4447/tcp --permanent
firewall-cmd --zone=public --add-port=5445/tcp --permanent
firewall-cmd --zone=public --add-port=20640/udp --permanent
firewall-cmd --zone=public --add-port=20642/udp --permanent
firewall-cmd --zone=public --add-port=20644/udp --permanent
firewall-cmd --reload
```

## Necessary adjustments of the configuration

The configuration of the jboss AS server is done via one or in case of software version  $\geq 3.06$  two configuration files. If a version of the software  $\geq 3.06$  is used, a copy of the file `hazelcast.xml` is also stored in the configuration directory of the jboss AS. Since this was already created during the installation of the primary DATA server and stored in the file share of the STORE, it can simply be copied to the destination:

#### Copy hazelcast.xml

```
cp /home/jtel/shared/hazelcast.xml /home/jtel/wildfly-current/standalone/configuration
chown jtel:jtel /home/jtel/wildfly-current/standalone/configuration/hazelcast.xml
```

Furthermore, adjustments to the configuration file `standalone.xml` are necessary. When installing several servers with the WEB role, it is a good idea to store this file in the file share after initial configuration to speed up the installation. If a customized version already exists there, it can be copied to the target location using the following command:

#### Copy the file standalone-full.xml

```
cp /home/jtel/shared/standalone.xml /home/jtel/wildfly-current/standalone/configuration
chown jtel:jtel /home/jtel/wildfly-current/standalone/configuration/standalone.xml
```

If, on the other hand, the configuration of the first WEB server is adjusted, some values in the file must be adjusted according to the database server configuration. This can be done with the following commands - `<password>` replace with the appropriate password:

#### Customize the standalone-full.xml

```
DBPRI=acd-dbm
DBSTA=acd-dbs
DBREP=acd-dbr
DBPWD=<password>
sed -i -e "s/DATA_PRIMARY/${DBPRI}/g" -e "s/DATA_STATS/${DBSTA}/g" -e "s/DATA_REPORTS/${DBREP}/g" -e "s/DB_PASSWORD/${DBPWD}/g" /home/jtel/wildfly-current
/standalone/configuration/standalone.xml
unset DBPWD
unset DBREP
unset DBSTA
unset DBPRI
```

The values of the first 4 lines must be adjusted according to the database configuration:

- DBPRI: Name of the primary DATA server
- DBSTA: Name of the DATA server for real-time statistics Data
- DBREP: Name of the DATA server for report execution
- DBPWD: Password of the database connection

After adapting the configuration file `standalone-full.xml`, it can be saved to the central data share to speed up the configuration of the other WEB servers:

#### Provision of the file standalone-full.xml for the installation of additional WEB servers

```
cp -a /home/jtel/wildfly-current/standalone/configuration/standalone.xml /home/jtel/shared
```

## Starting the WEB application server

At this point the Web Server can be started. Entering the following command updates the to be executed web application and starts the web server:

#### Start the web server - CentOS 7.6 and less

```
updatejb.sh
```

A correct start can be checked in the log file of the web server. There you should be able to find the following messages after about 45 seconds from the start:

#### Success media in /home/jtel/jboss-as-7.1.1.FINAL/standalone/log/server.log

```
08:07:38,249 INFO [org.jboss.as.server] (DeploymentScanner-threads - 2) JBAS018559: Deployed "SMSReceiver.war"
08:07:38,250 INFO [org.jboss.as.server] (DeploymentScanner-threads - 2) JBAS018559: Deployed "CarrierPortal.war"
08:07:38,250 INFO [org.jboss.as.server] (DeploymentScanner-threads - 2) JBAS018559: Deployed "jasper-utils-0.0.1-SNAPSHOT.jar"
```

Furthermore, in case of software version  $\geq 3.06$  the status of the hazelcast-cluster can be recognized by messages like this

#### Status of the hazelcast cluster

```
08:07:24,705 INFO [com.hazelcast.cluster.ClusterService] (hz._hzInstance_1_jtel-cluster-test5.generic-operation.thread-1) [192.168.1.32]:5701 [jtel-cluster-example] [3.5]

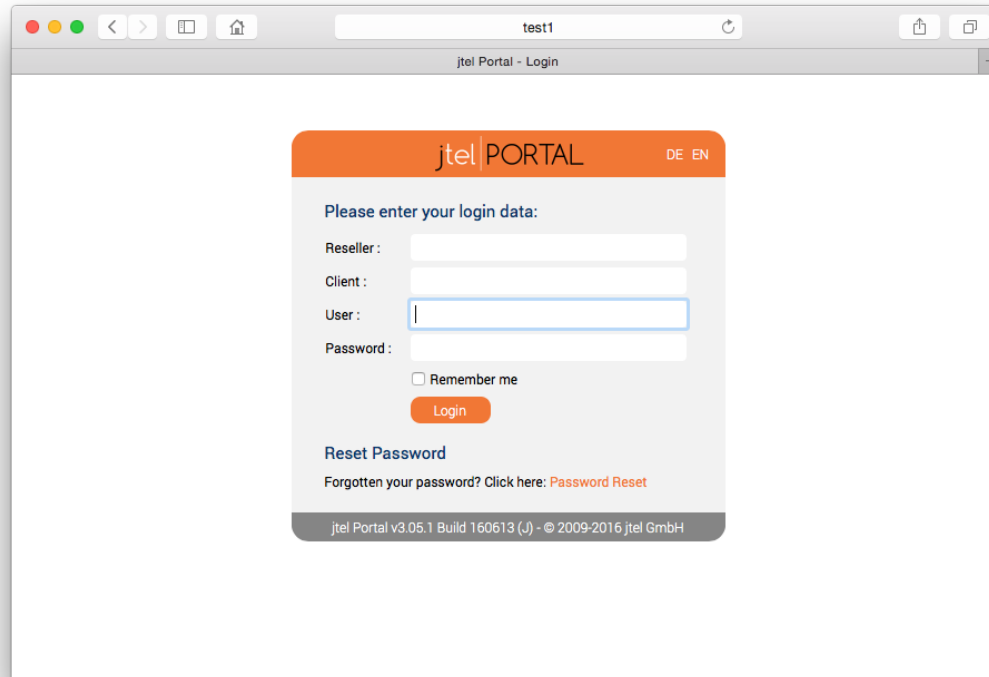
Members [3] {
    Member [192.168.1.21]:5701
    Member [192.168.1.31]:5701
    Member [192.168.1.32]:5701 this
}

08:07:26,713 INFO [com.hazelcast.core.LifecycleService] (MSC service thread 1-1) [10.42.13.65]:5701 [jtel-cluster-example] [3.5] Address[192.168.1.32]:5701 is STARTED
```

These messages appear every time a node of the cluster is added or removed. In the portal, the parameter "ACD.UDP.Webserver.Use.Hazelcast" must be activated, i.e. set to the value 1, so that the web servers use Hazelcast/UDPListener.

The final test to show that the web server has started properly is of course the call directly from the browser. Assuming that the second WEB server has just been installed, the application can be reached in the browser by entering the following URL: <http://acd-jb2.example.com:8080/CarrierPortal/sysadmin/login>

If everything works, you will be welcomed by the login mask:



The screenshot shows a web browser window with the address bar displaying 'test1'. The page title is 'jtel Portal - Login'. The main content area features a login form with the following elements:

- Header: 'jtel | PORTAL' with language links 'DE' and 'EN'.
- Instruction: 'Please enter your login data:'.
- Fields: 'Reseller:', 'Client:', 'User:', and 'Password:'.
- Checkbox: 'Remember me'.
- Button: 'Login'.
- Link: 'Reset Password'.
- Text: 'Forgotten your password? Click here: [Password Reset](#)'.
- Footer: 'jtel Portal v3.05.1 Build 160613 (J) - © 2009-2016 jtel GmbH'.

## Installing the software - JBOSS installations

To include the official MySQL software repositories and install the MySQL client, use the following commands:

### MySQL 8.x

#### Install the mysql client

```
yum -y install https://dev.mysql.com/get/mysql80-community-release-el7-3.noarch.rpm
yum -y install mysql-community-client
```

## MySQL 5.6

#### Install the mysql client

```
yum -y install http://dev.mysql.com/get/mysql-community-release-el6-5.noarch.rpm
yum -y install mysql-community-client
```

## Beide Varianten

Since all access to the common file share takes place via a Windows-compatible CIFS-UNC, a symbolic link must be created so that such accesses can also take place under UNIX. This is done with the following command which has to be adapted in practice according to the name of the computer for the role STORE:

#### Create a symbolic link

```
mkdir /acd-store
ln -s /home/jtel/shared /acd-store/shared
```

This allows access to the files in the share with the UNC specification:

#### Example: Access to the share via UNC

```
ls -la //acd-store/shared/JTELCarrierPortal
```

Next, the required Java Runtime Environment is installed with the following command:

#### Install Java runtime environment

```
yum -y install http://cdn.jtel.de/downloads/java/jdk-7u79-linux-x64.rpm
```

Next, the customized application server can now be downloaded and installed:

### Install AS: CentOS 7.7 and higher

```
cd /home/jtel
wget http://cdn.jtel.de/downloads/jboss/jboss-as-7.1.1.FINAL.15.tar.gz
tar xzf jboss-as-7.1.1.FINAL.15.tar.gz
rm -f jboss-as-7.1.1.FINAL.15.tar.gz
mkdir -p jboss-as-7.1.1.FINAL/standalone/deployments
cp jboss-as-7.1.1.FINAL/jboss /etc/init.d
chown -R jtel:jtel jboss-as-7.1.1.FINAL
chkconfig jboss on
```

### Install AS: CentOS 7.6 and less

```
cd /home/jtel
wget http://cdn.jtel.de/downloads/jboss/jboss-as-7.1.1.FINAL.14.tar.gz
tar xzf jboss-as-7.1.1.FINAL.14.tar.gz
rm -f jboss-as-7.1.1.FINAL.14.tar.gz
mkdir -p jboss-as-7.1.1.FINAL/standalone/deployments
cp jboss-as-7.1.1.FINAL/jboss /etc/init.d
chown -R jtel:jtel jboss-as-7.1.1.FINAL
chkconfig jboss on
mkdir /home/jtel/upload
chown -R jtel:jtel /home/jtel/upload
```

Next, the port shares for the jboss AS service must be entered in the firewall and stored permanently:

### Configure firewall

```
firewall-cmd --zone=public --add-port=5701-5801/tcp --permanent
firewall-cmd --zone=public --add-port=5455/tcp --permanent
firewall-cmd --zone=public --add-port=8080-8081/tcp --permanent
firewall-cmd --zone=public --add-port=4447/tcp --permanent
firewall-cmd --zone=public --add-port=5445/tcp --permanent
firewall-cmd --zone=public --add-port=20640/udp --permanent
firewall-cmd --zone=public --add-port=20642/udp --permanent
firewall-cmd --zone=public --add-port=20644/udp --permanent
firewall-cmd --reload
```

Next, the daily maintenance scripts are now registered in the cron service:

### Enable daily maintenance scripts

```
cd /etc/cron.daily
ln -s /home/jtel/jboss-as-7.1.1.FINAL/bin/jboss-logmaint.sh
ln -s /home/jtel/jboss-as-7.1.1.FINAL/bin/jboss-restart.sh
```

To simplify the update of the portal software in the jboss AS service, a corresponding script is now created:

### Create the update script

```
cat <<EOFF>/usr/local/bin/updatejb.sh
#!/bin/bash
systemctl stop jboss.service
rm -rf /home/jtel/jboss-as-7.1.1.FINAL/standalone/deployments/*
rm -rf /home/jtel/jboss-as-7.1.1.FINAL/standalone/lib/*
rm -rf /home/jtel/jboss-as-7.1.1.FINAL/standalone/tmp/*
rm -rf /home/jtel/jboss-as-7.1.1.FINAL/standalone/data/*
cp /home/jtel/shared/JTELCarrierPortal/deploy/*ar /home/jtel/jboss-as-7.1.1.FINAL/standalone/deployments
chown jtel:jtel /home/jtel/jboss-as-7.1.1.FINAL/standalone/deployments/*
systemctl start jboss.service
EOFF
chmod +x /usr/local/bin/updatejb.sh
```

## Necessary adjustments of the configuration

The configuration of the jboss AS server is done via one or in case of software version  $\geq 3.06$  two configuration files. If a version of the software  $\geq 3.06$  is used, a copy of the file `hazelcast.xml` is also stored in the configuration directory of the jboss AS. Since this was already created during the installation of the primary DATA server and stored in the file share of the STORE, it can simply be copied to the destination:

### Copy hazelcast.xml

```
cp /home/jtel/shared/hazelcast.xml /home/jtel/jboss-as-7.1.1.FINAL/standalone/configuration
chown jtel:jtel /home/jtel/jboss-as-7.1.1.FINAL/standalone/configuration/hazelcast.xml
```

Furthermore, adjustments to the configuration file `standalone-full.xml` are necessary. When installing several servers with the WEB role, it is a good idea to store this file in the file share after initial configuration to speed up the installation. If a customized version already exists there, it can be copied to the target location using the following command:

### Copy the file standalone-full.xml

```
cp /home/jtel/shared/standalone-full.xml /home/jtel/jboss-as-7.1.1.FINAL/standalone/configuration
chown jtel:jtel /home/jtel/jboss-as-7.1.1.FINAL/standalone/configuration/standalone-full.xml
```



However, if you adjust the configuration of the first WEB server, some values in the file must be adjusted according to the database server configuration. This can be done with the following commands - <password> replace with the appropriate password:

#### Customize the standalone-full.xml

```
DBPRI=acd-dbm
DBSTA=acd-dbs
DBREP=acd-dbr
DBPWD=<password>
sed -i -e "s/DATA_PRIMARY/${DBPRI}/g" -e "s/DATA_STATS/${DBSTA}/g" -e "s/DATA_REPORTS/${DBREP}/g" -e "s/DB_PASSWORD/${DBPWD}/g" /home/jtel/jboss-as-7.1.1.FINAL/standalone/configuration/standalone-full.xml
unset DBPWD
unset DBREP
unset DBSTA
unset DBPRI
```

The values of the first 4 lines must be adjusted according to the database configuration:

- DBPRI: Name of the primary DATA server
- DBSTA: Name of the DATA server for real-time statistics Data
- DBREP: Name of the DATA server for report execution
- DBPWD: Password of the database connection

After adapting the configuration file `standalone-full.xml`, it can be saved to the central data share to speed up the configuration of the other WEB servers:

#### Provision of the file standalone-full.xml for the installation of additional WEB servers

```
cp -a /home/jtel/jboss-as-7.1.1.FINAL/standalone/configuration/standalone-full.xml /home/jtel/shared
```

## Starting the WEB application server

If the Centos version is 7.7, you have to apply the following patch before you start jboss

#### Start the web server - CentOS 7.7 and higher

```
bash /home/jtel/shared/JTELCarrierPortal/Update/jboss-restart-patch.sh
updatejb.sh
```

At this point the Web Server can be started. Entering the following command updates the to be executed web application and starts the web server:

### Start the web server - CentOS 7.6 and less

```
updatejb.sh
```

A correct start can be checked in the log file of the web server. There you should be able to find the following messages after about 45 seconds from the start:

### Success media in /home/jtel/jboss-as-7.1.1.FINAL/standalone/log/server.log

```
08:07:38,249 INFO [org.jboss.as.server] (DeploymentScanner-threads - 2) JBAS018559: Deployed "SMSReceiver.war"
08:07:38,250 INFO [org.jboss.as.server] (DeploymentScanner-threads - 2) JBAS018559: Deployed "CarrierPortal.war"
08:07:38,250 INFO [org.jboss.as.server] (DeploymentScanner-threads - 2) JBAS018559: Deployed "jasper-utils-0.0.1-SNAPSHOT.jar"
```

Furthermore, in case of software version  $\geq 3.06$  the status of the hazelcast-cluster can be recognized by messages like this

### Status of the hazelcast cluster

```
08:07:24,705 INFO [com.hazelcast.cluster.ClusterService] (hz._hzInstance_1_jtel-cluster-test5.generic-operation.thread-1) [192.168.1.32]:5701 [jtel-cluster-example] [3.5]

Members [3] {
    Member [192.168.1.21]:5701
    Member [192.168.1.31]:5701
    Member [192.168.1.32]:5701 this
}

08:07:26,713 INFO [com.hazelcast.core.LifecycleService] (MSC service thread 1-1) [10.42.13.65]:5701 [jtel-cluster-example] [3.5] Address[192.168.1.32]:5701 is STARTED
```

These messages appear every time a node of the cluster is added or removed. In the portal, the parameter "ACD.UDP.Webserver.Use.Hazelcast" must be activated, i.e. set to the value 1, so that the web servers use Hazelcast/UDPListener.

The final test to show that the web server has started properly is of course the call directly from the browser. Assuming that the second WEB server has just been installed, the application can be reached in the browser by entering the following URL: <http://acd-jb2.example.com:8080/CarrierPortal/sysadmin/login>

If everything works, you will be welcomed by the login mask:

