



Working with BusinessWorks

Raiffeisen Software

CONFIDENTIALITY & DISCLAIMER

The information in this document is confidential information of TIBCO Software Inc. and/or its affiliates. Use, duplication, transmission, or republication for any purpose without the prior written consent of TIBCO is expressly prohibited.

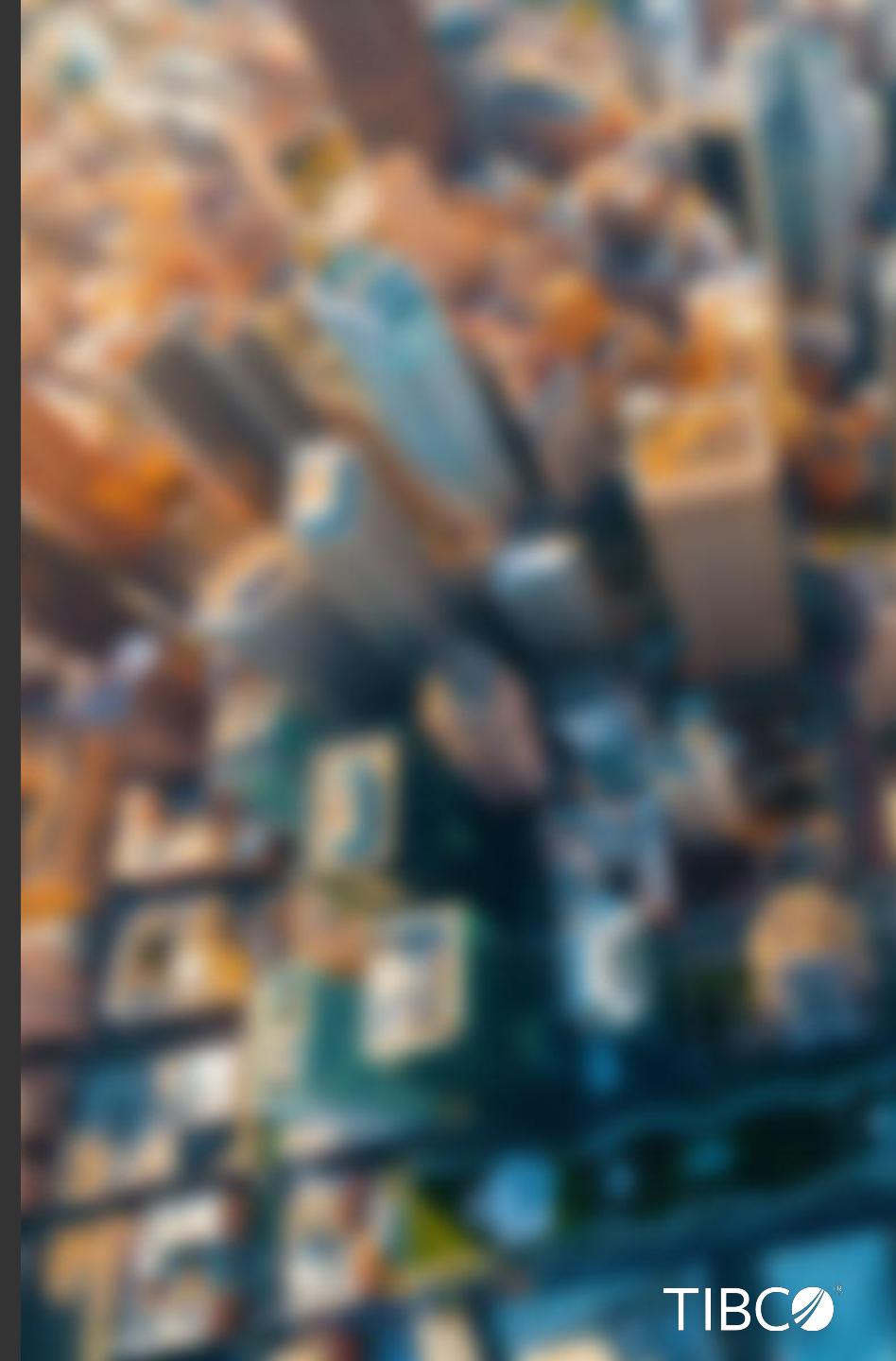
This document (including, without limitation, any product roadmap or statement of direction data) illustrates the planned testing, release and availability dates for TIBCO products and services. This document is provided for informational purposes only and its contents are subject to change without notice. TIBCO makes no warranties, express or implied, in or relating to this document or any information in it, including, without limitation, that this document, or any information in it, is error-free or meets any conditions of merchantability or fitness for a particular purpose.

The material provided is for informational purposes only, and should not be relied on in making a purchasing decision. The information is not a commitment, promise or legal obligation to deliver any material, code, or functionality. The development, release, and timing of any features or functionality described for our products remains at our sole discretion.

During the course of this presentation, TIBCO or its representatives may make forward-looking statements regarding future events, TIBCO's future results or our future financial performance. These statements are based on management's current expectations. Although we believe that the expectations reflected in the forward-looking statements contained in this presentation are reasonable, these expectations or any such forward-looking statements could prove to be incorrect and actual results or financial performance could differ materially from those stated herein. TIBCO does not undertake to update any forward-looking statement that may be made from time to time or on its behalf.

Agenda

- Objective
- Prerequisite
- Integration with Git
- Working with Maven Plugin
 - Mavenizing the Application
- Managing BWCE Runtime
 - Building Base BWCE Image
 - Extend Base Image for additional dependencies
 - Building Application Image
 - Deploy BWCE App in Docker Container
- FAQs



Objective

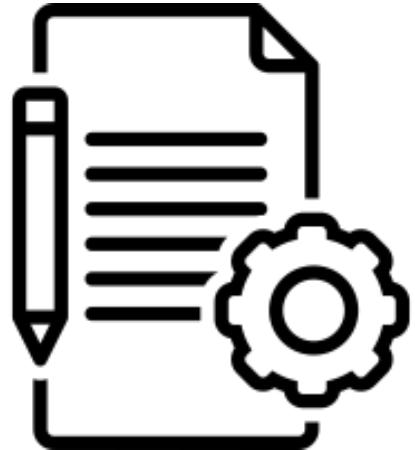


Usecase Details

The Usecase's described in the following sections

Usecases	Description
Integrating with GIT	<ul style="list-style-type: none">• Create remote repository on GIT server• Connect BWCE app with Local and Remote Git repository• Commit changes to Git repository• Verify the changes at remote repository
Working with Maven Plugin	<ul style="list-style-type: none">• Generate the default POM for BWCE Application• Configure BWCE POM to connect with Docker instance• Perform docker build, test and start (deploy) actions from maven goals
Working with BWCE Runtime	<ul style="list-style-type: none">• Create a Base BWCE Image for BWCE applications• Create or extend BWCE base image for EMS or other dependencies (plugins, DB, etc.)• Create an application image using maven• Start an application docker container using maven

Prerequisites



Prerequisites

The required tooling and installation to work efficiently

Git Server and Local Client	<ul style="list-style-type: none">• You can use hosted GIT server; there are multiple hosted services available, ex. Github, bitbucket, etc.• A local Git client installation is required https://git-scm.com/
BWCE Installation	<ul style="list-style-type: none">• You can download the required installers from https://edelivery.tibco.com/• Follow the steps documented here.
Maven and BW6 Maven Plugin	<ul style="list-style-type: none">• A maven installation is required https://maven.apache.org/download.cgi• BW6 maven plugin is OOTB available in BWCE installation under /tibco_home/bw/2.x/maven/
Docker Installation	<ul style="list-style-type: none">• A local docker engine & client is required https://docs.docker.com/engine/install/

Integrating with Git

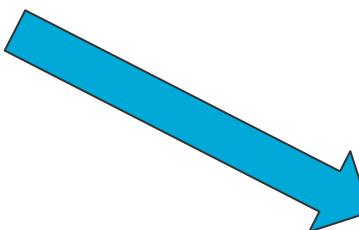


Integrating with Git

[Create GitHub Repository](#)

Create GIT Repository

- scheduler-sample-bwce-app

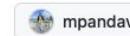


Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository](#).

Required fields are marked with an asterisk (*).

Owner *



mpandav /

Repository name *

scheduler-sample-bwce

scheduler-sample-bwce-app is available.

Great repository names are short and memorable. Need inspiration? How about [glowing-octo-spork](#) ?

Description (optional)

A demo repository to demonstrate the BWCE and Git integration

Public

Anyone on the internet can see this repository. You choose who can commit.

Private

You choose who can see and commit to this repository.

Initialize this repository with:

Add a README file

This is where you can write a long description for your project. [Learn more about READMEs](#).

Add .gitignore

.gitignore template:None

Choose which files not to track from a list of templates. [Learn more about ignoring files](#).

Choose a license

License:None

A license tells others what they can and can't do with your code. [Learn more about licenses](#).

ⓘ You are creating a public repository in your personal account.

[Create repository](#)

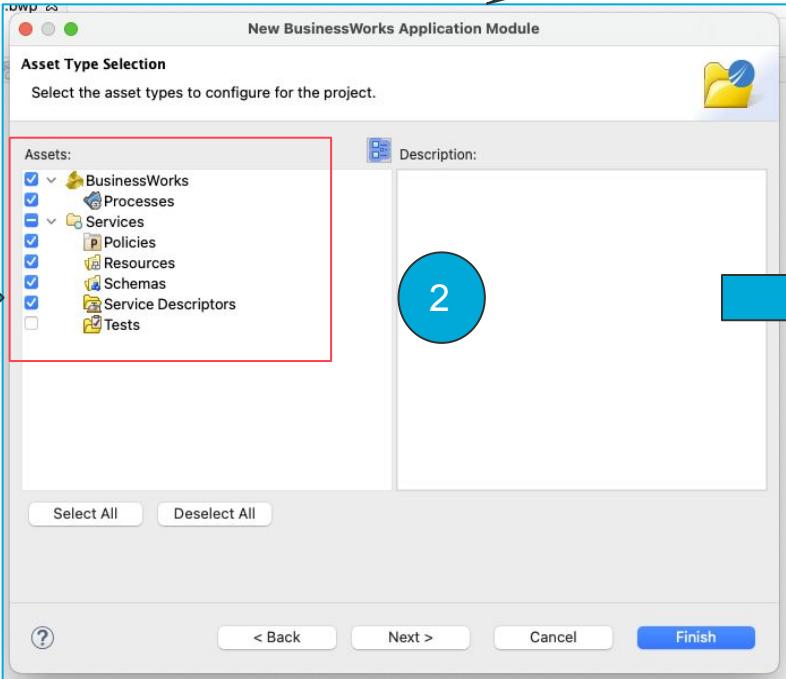
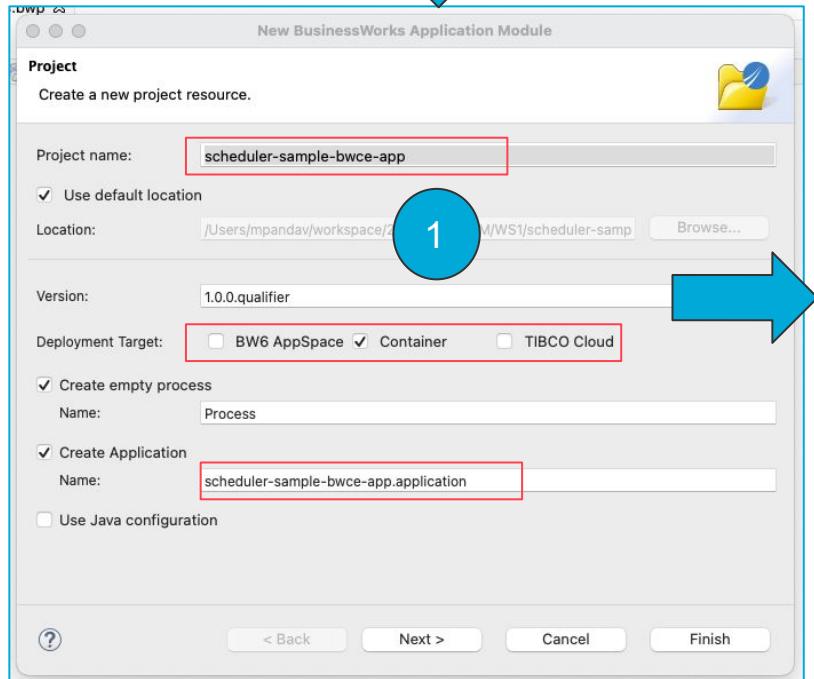
Note: We are using GitHub in our case but user can choose any git supported/hosted provider or SVN's. Ex. Gitlab, bitbucket, etc.

Integrating with Git

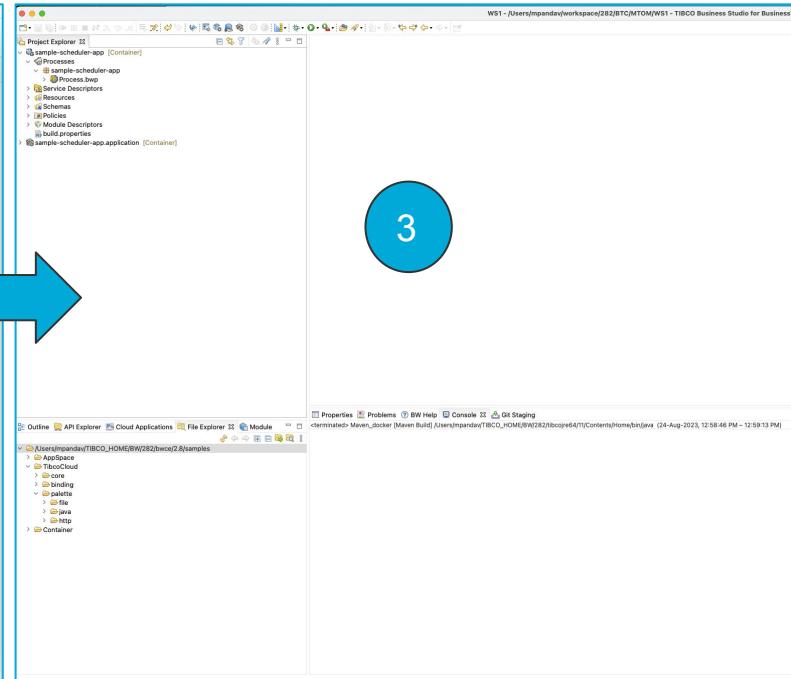
[Create BWCE application](#)

Create BWCE Application

- scheduler-sample-bwce-app



To create new BWCE application follow the steps outlined [here](#)

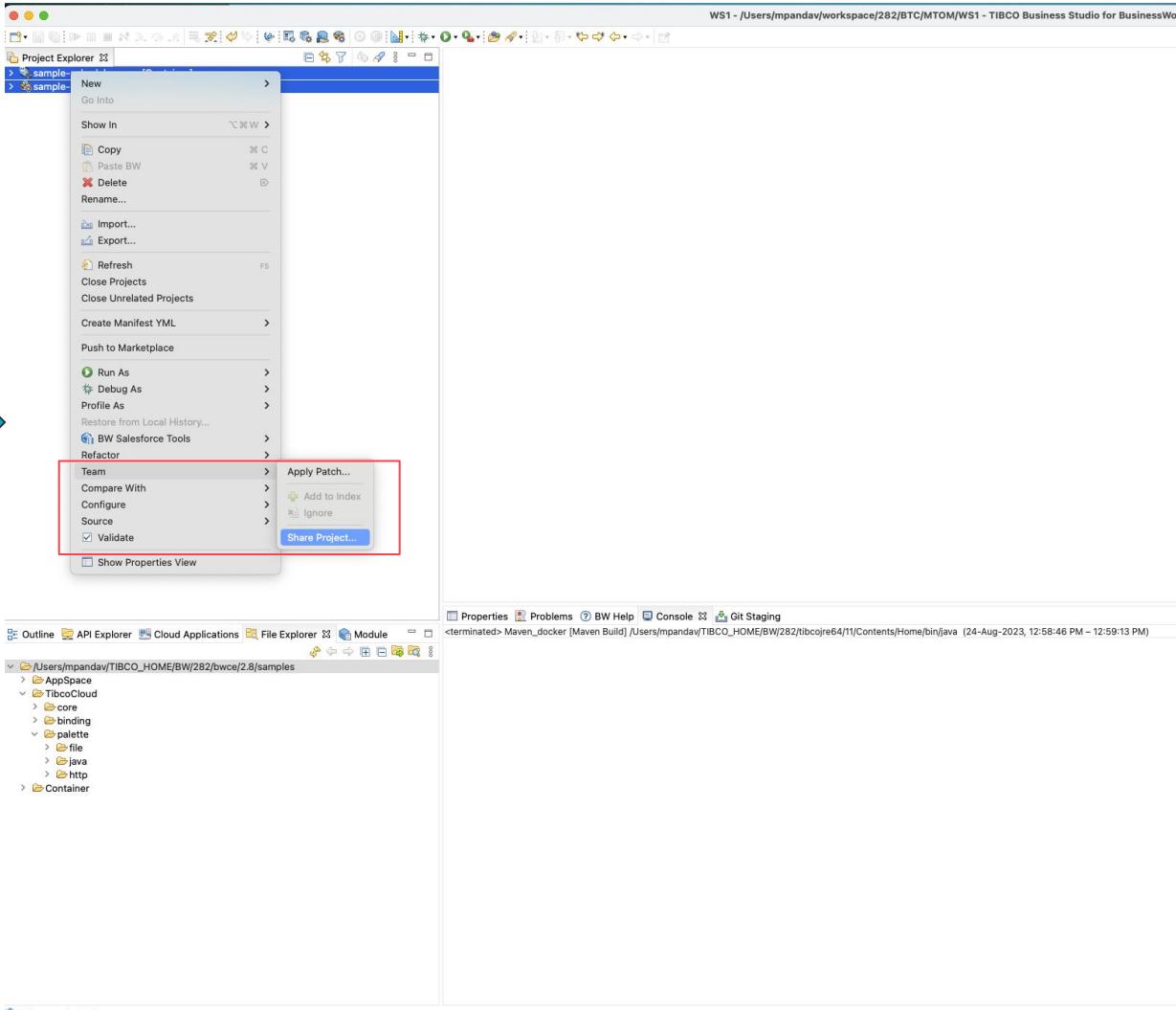


Integrating with Git

Connect BWCE application to git repository (local/remote)

Connect App to Git Repository

- Right click on application Module and application ->
select Team ->
select Share Project...

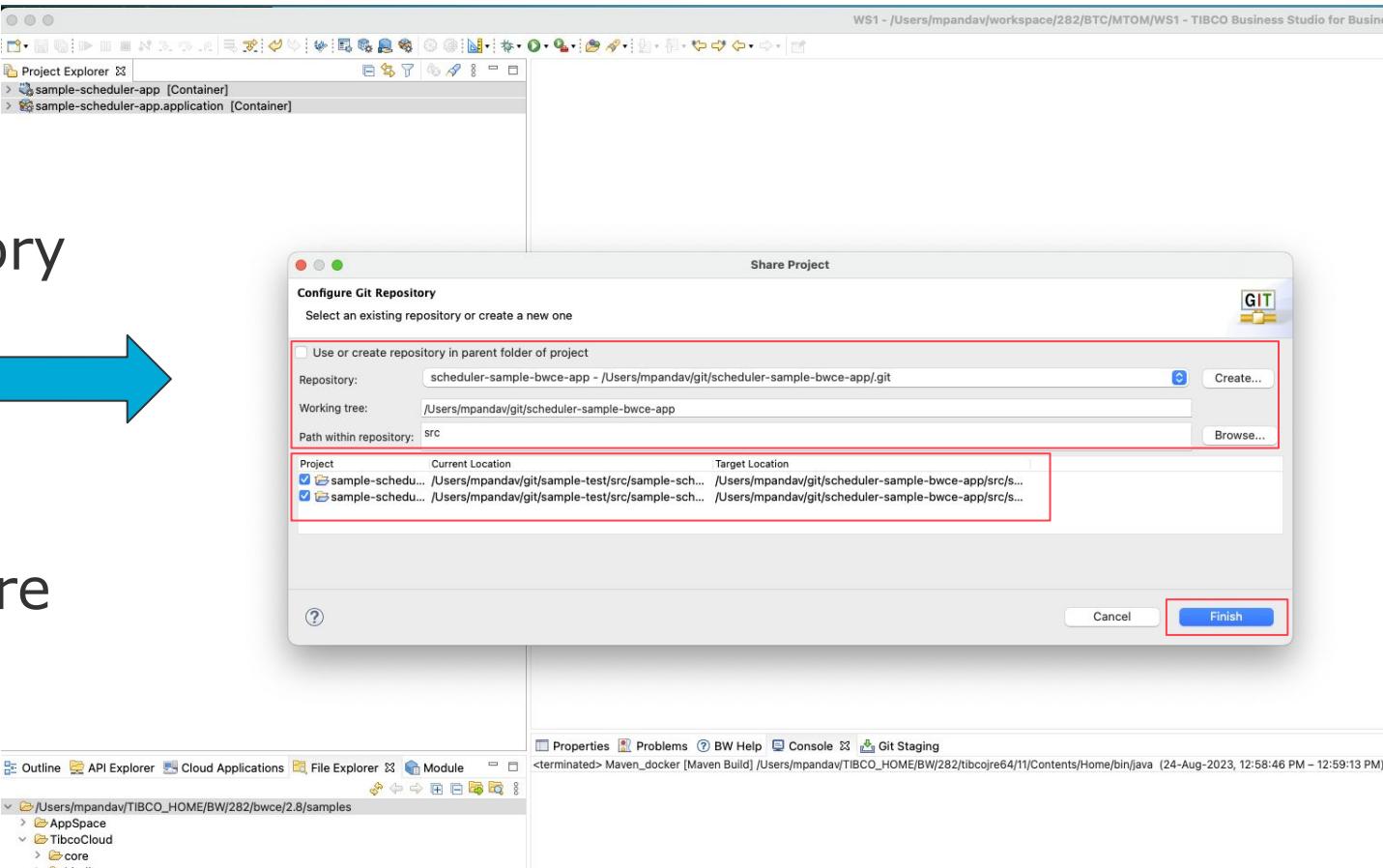


Integrating with Git

Connect BWCE application to git repository (local/remote)

Connect App to Git Repository

- Select existing local repository or create new
- select working tree
- select or create path within repository to store src code
- select project or code to store in repository

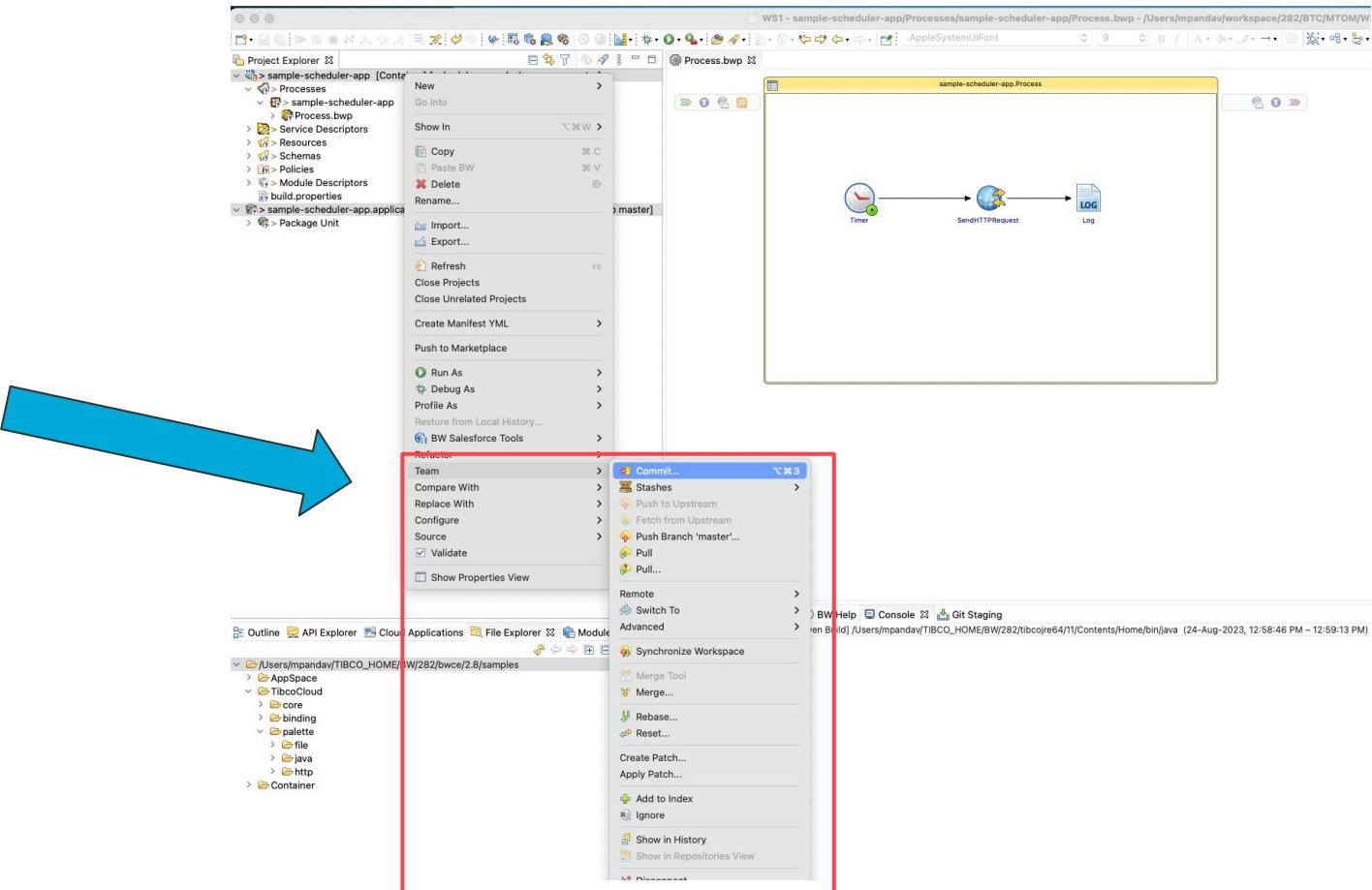


Integrating with Git

Connect BWCE application to git repository (local/remote)

Commit the first Change to Repository

- Right click on application Module and application -> select Team -> Commit...

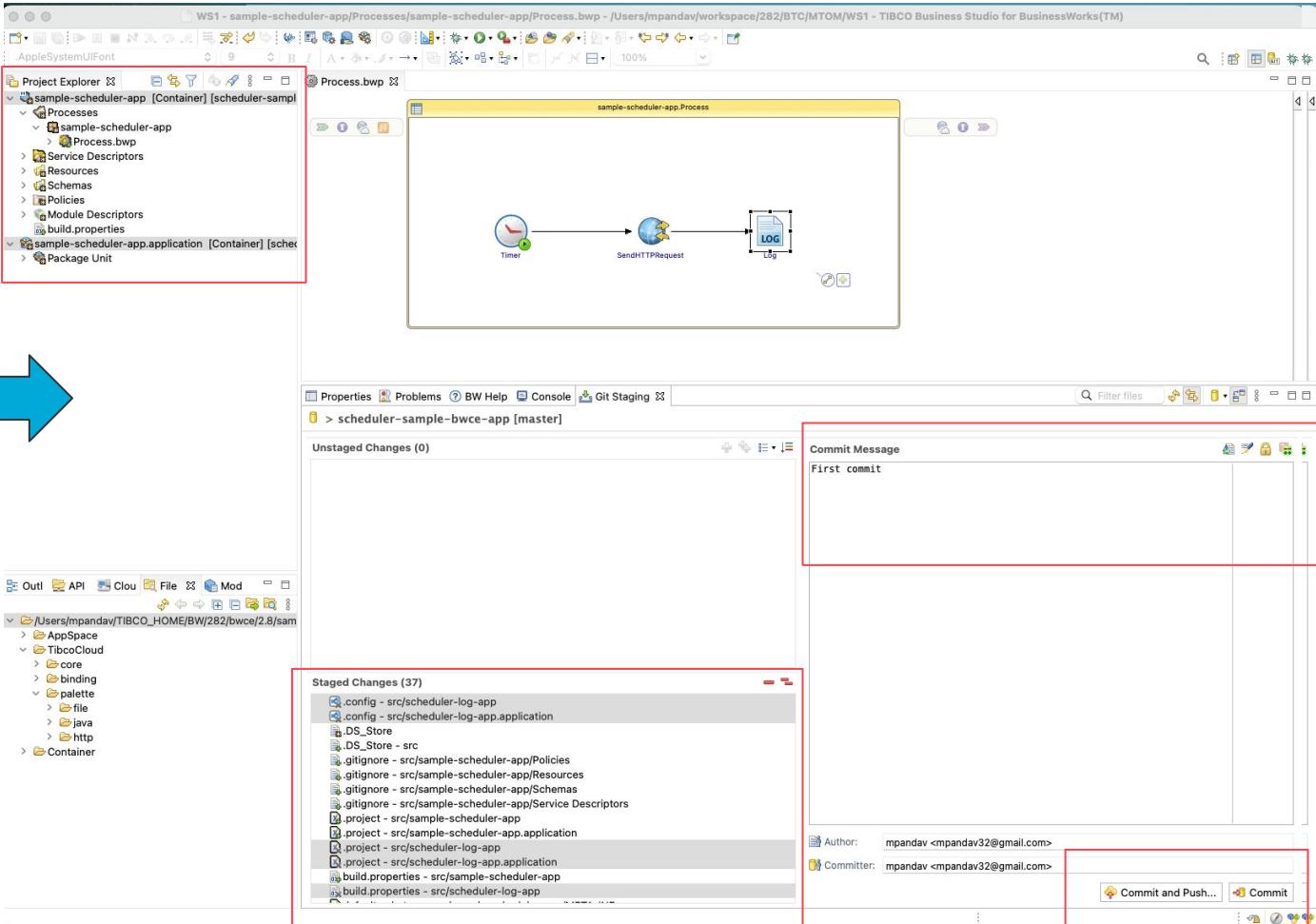
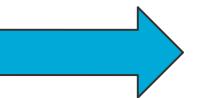


Integrating with Git

Connect BWCE application to git repository (local/remote)

Commit the first Change to Repository

- select all the Unstaged changes that you would like to stage
- provide commit message that you would want to provide
- select Commit and Push

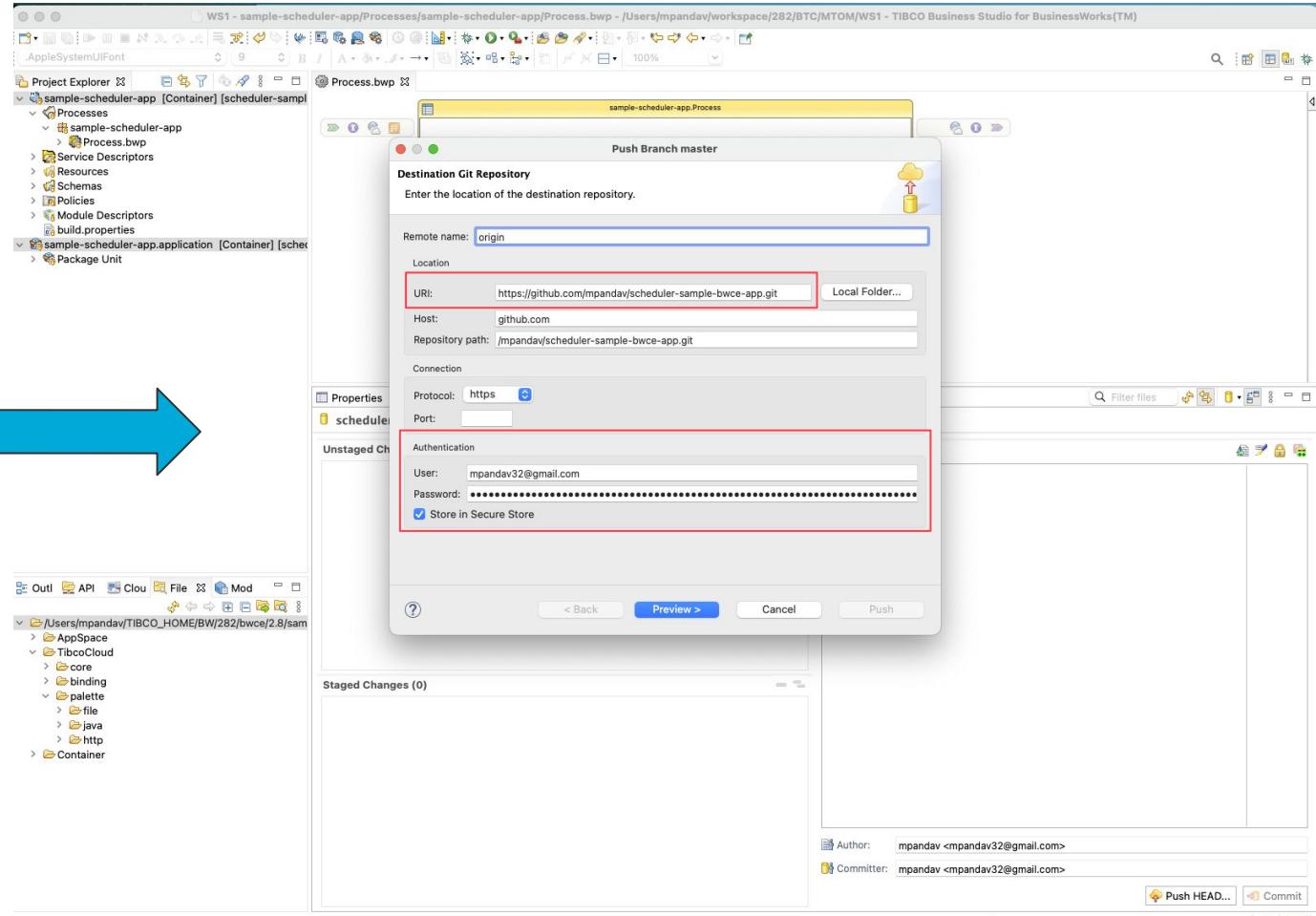


Integrating with Git

Connect BWCE application to git repository (local/remote)

Commit the first Change to Repository

- Copy the remote repository URL and it automatically fill all the information for you
- Provide authentication:
 - user/pwd for https or
 - you can use ssh key if you are using ssh protocol (*set the ssh key in preferences*)

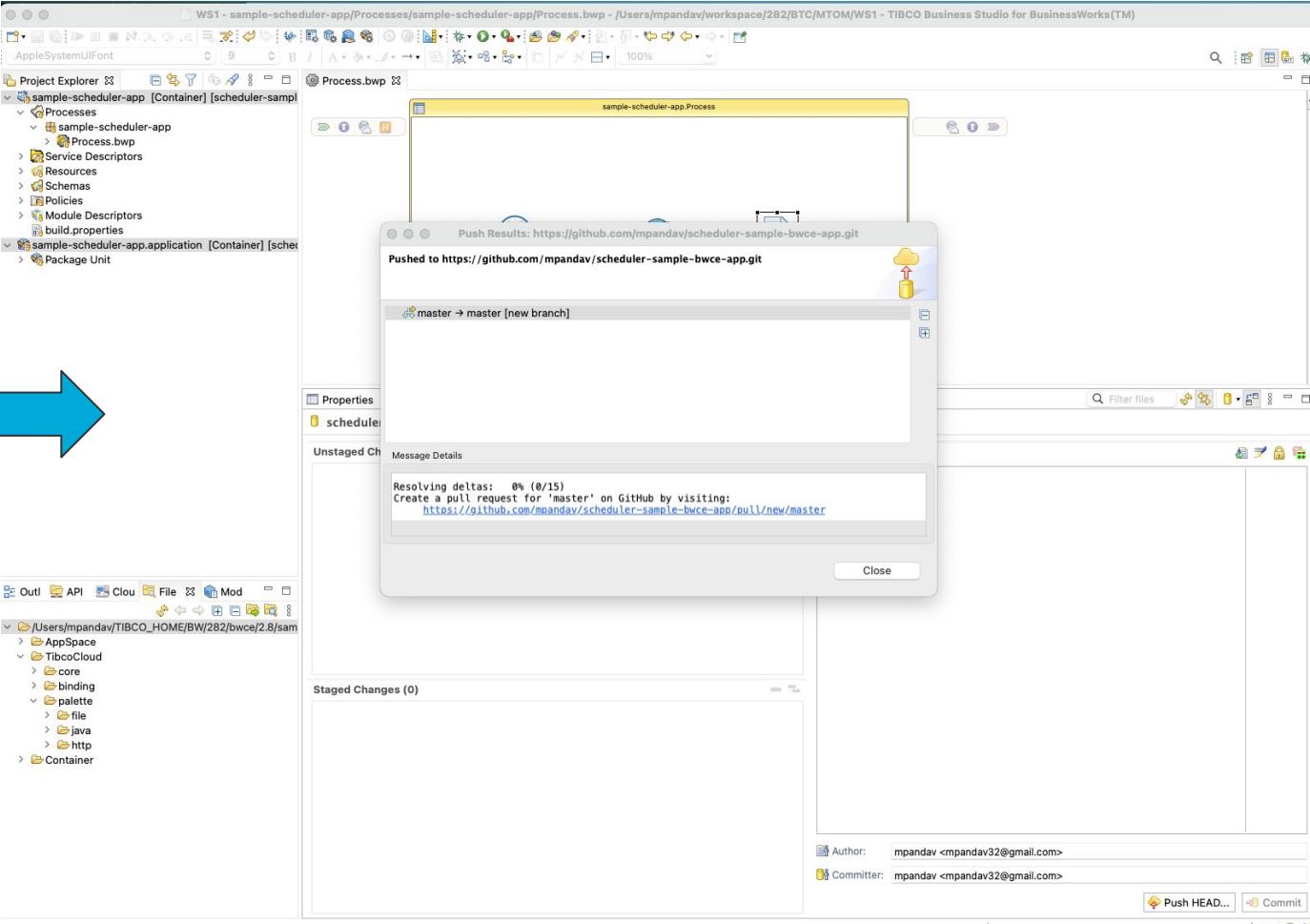


Integrating with Git

Connect BWCE application to git repository (local/remote)

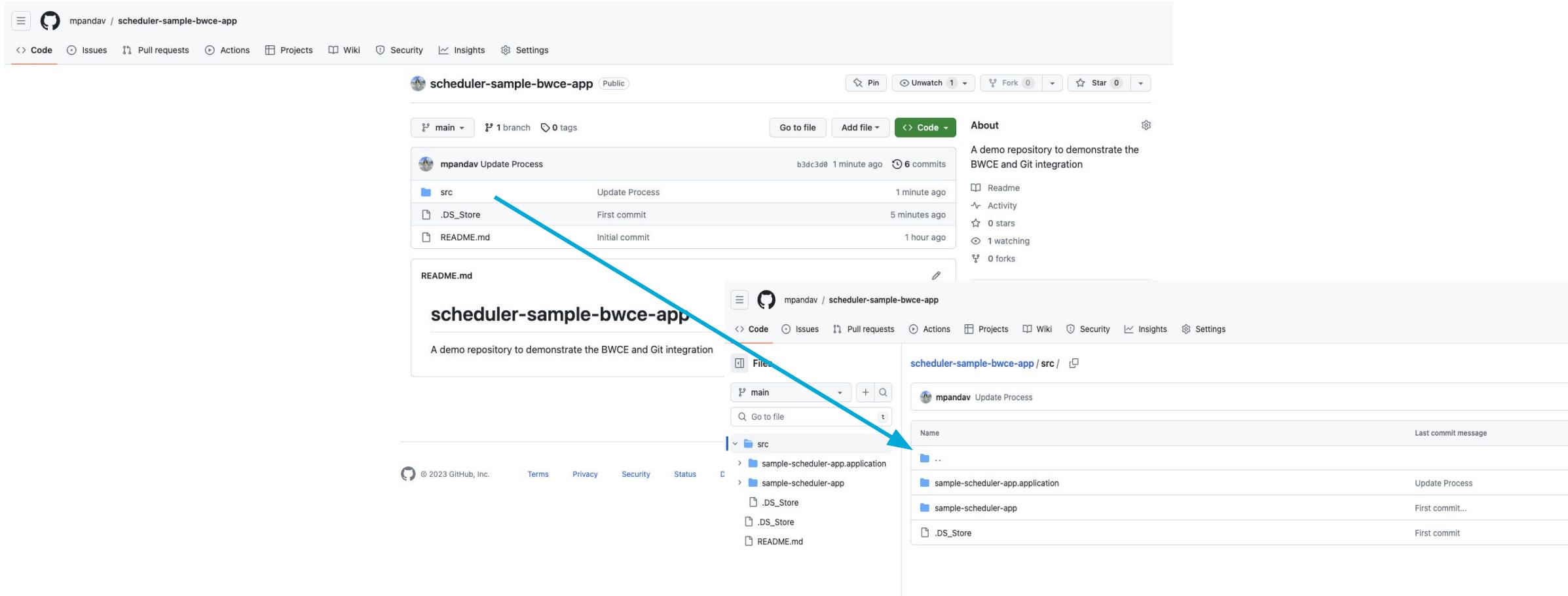
Commit the first Change to Repository

- Click Push to push the changes to remote repository



Integrating with Git

Changes into Remote Repository on GitHub



Final outcome on Remote Git Repository

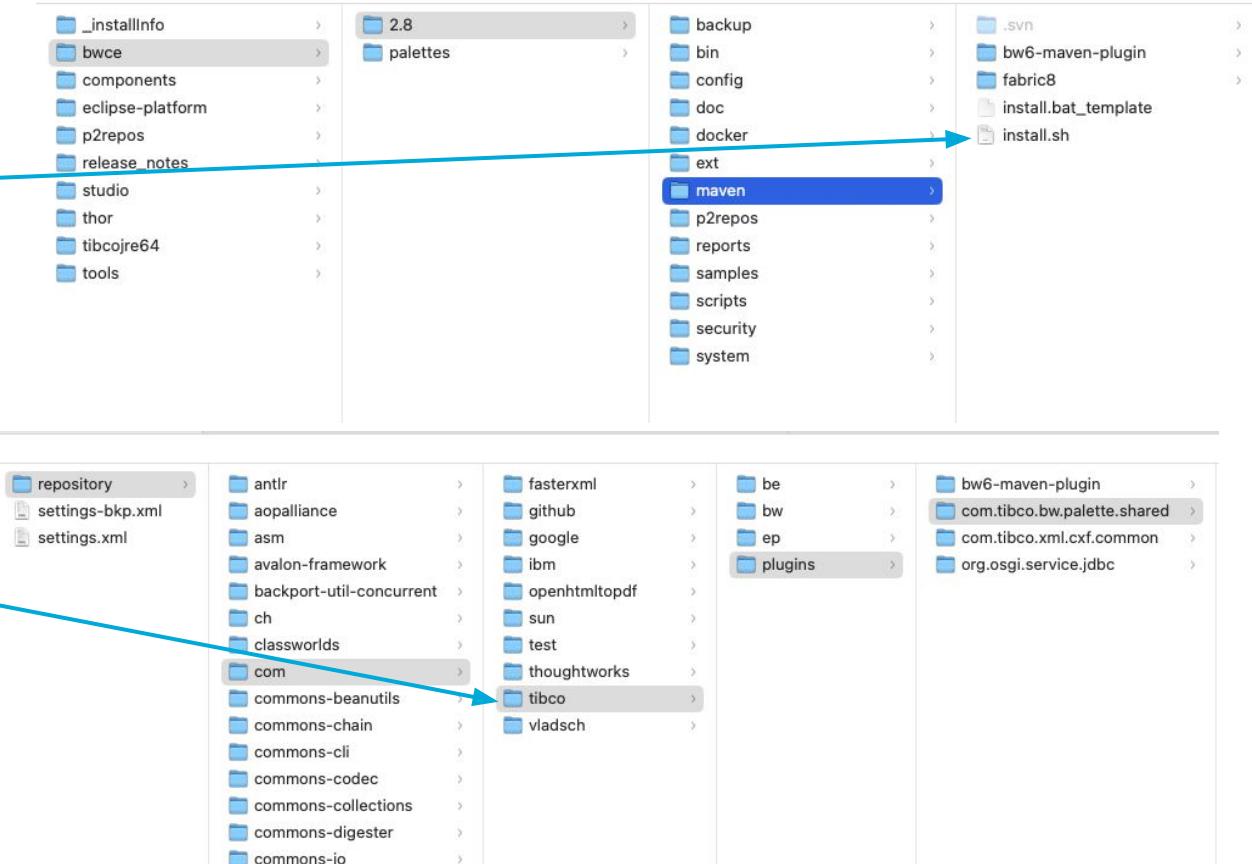
Build Automation



Working with Maven

Install BW6 Maven plugin

- Though the plugin available OOTB in installation, user still need to run install script to update local maven repositories
- After installation bw6 repositories will available under `./.m2/repository/com/tibco/` directory

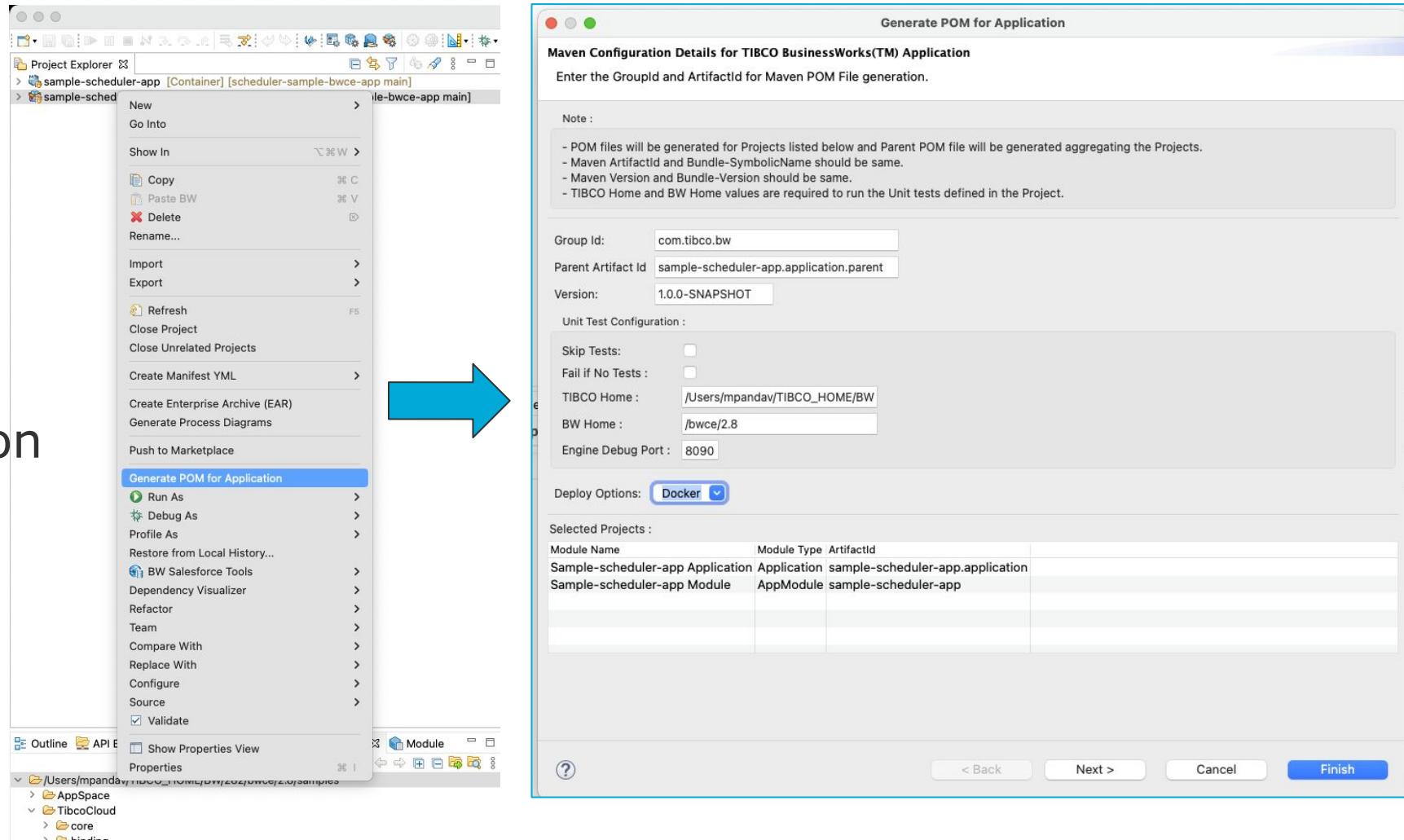


Note: BW6 maven plugin is OOTB available in BWCE installation under `/tibco_home/bw/2.x/maven/`

Working with Maven

Generate application (default) POM file (Mavenize BWCE App)

- Right Click on .application
- select Generate POM for Application

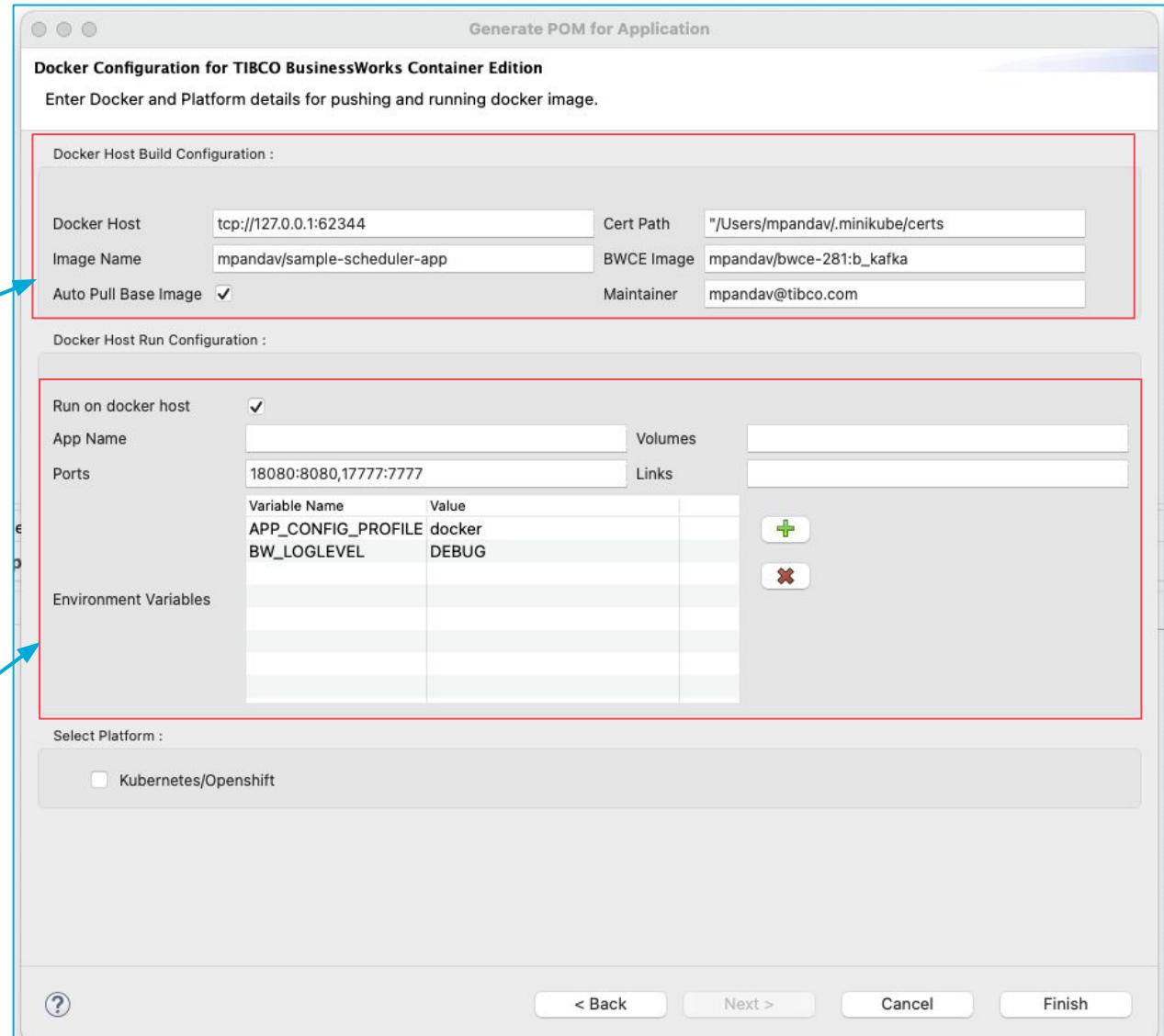


Note: The details steps are found [here on Github page](#) of BW6 Maven plugin along with more details of plugin usage and step-by-step guide.

Working with Maven

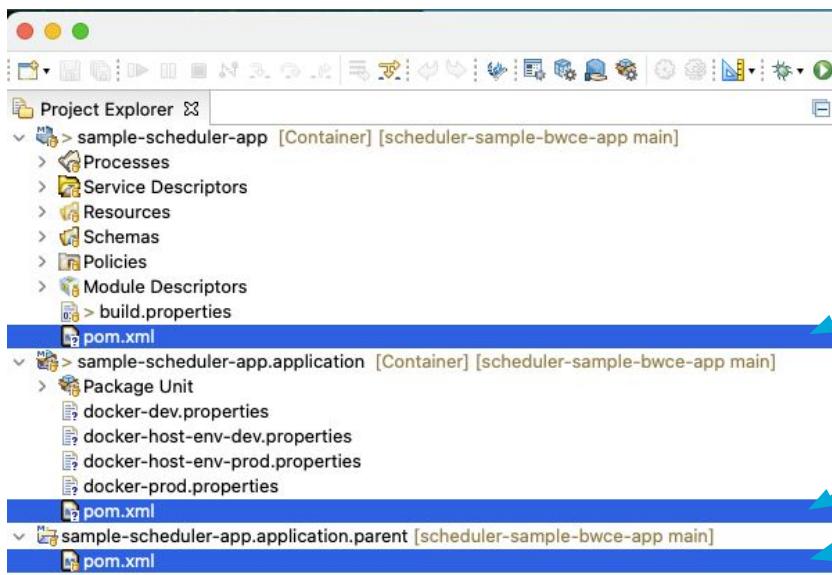
Docker details for maven Build and Deploy

- Provide docker env details
Docker Host, Certificate Path, Image Name to generate, Base Image Name, etc.
- If you deploying app on the docker host then provide details - App Name, volume to mount, container to links, port to expose, etc.



Working with Maven

Review the Generated POM files



We have 3 POM file Generated for use:

- Application Module
- Application
- Parent

Let's review each of these in Subsequent section!

Working with Maven

Review POM file - Application Module

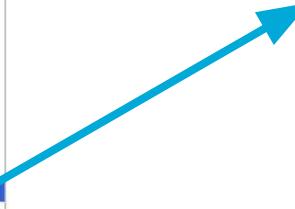
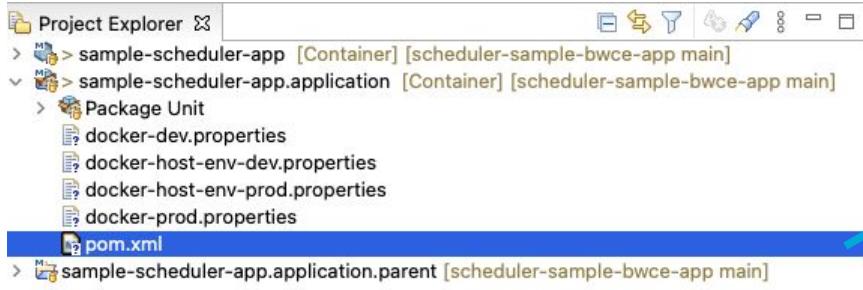


```
<?xml version="1.0" encoding="UTF-8"?>
<project xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 https://maven.apache.org/xsd/maven-4.0.0.xsd" xmlns="http://maven.apache.org/POM/4.0.0"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <modelVersion>4.0.0</modelVersion>
    <parent>
        <groupId>com.tibco.bw</groupId>
        <artifactId>sample-scheduler-app.application.parent</artifactId>
        <version>1.0.0-SNAPSHOT</version>
        <relativePath>../sample-scheduler-app.application.parent</relativePath>
    </parent>
    <artifactId>sample-scheduler-app</artifactId>
    <packaging>bwmodule</packaging>
    <dependencies>
        <dependency>
            <groupId>com.tibco.plugins</groupId>
            <artifactId>com.tibco.bw.palette.shared</artifactId>
            <version>6.2.1900</version>
            <scope>provided</scope>
        </dependency>
    </dependencies>
    <build>
        <sourceDirectory>src</sourceDirectory>
        <outputDirectory>target/classes</outputDirectory>
        <plugins>
            <plugin>
                <groupId>com.tibco.plugins</groupId>
                <artifactId>b6-maven-plugin</artifactId>
                <version>2.9.6</version>
                <extensions>true</extensions>
            </plugin>
            <plugin>
                <groupId>io.fabric8</groupId>
                <artifactId>docker-maven-plugin</artifactId>
                <version>0.34.1</version>
            </plugin>
        </plugins>
    </build>
</project>
```

Application Module POM (1/3)

Working with Maven

Review POM file - Application



```
sample-scheduler-app.application/pom.xml
<?xml version="1.0" encoding="UTF-8"?>
<project xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 https://maven.apache.org/xsd/maven-4.0.0.xsd" xmlns="http://maven.apache.org/POM/4.0.0">
  <modelVersion>4.0.0</modelVersion>
  <parent>
    <groupId>com.tibco.bw</groupId>
    <artifactId>sample-scheduler-app-application.parent</artifactId>
    <version>1.0.0-SNAPSHOT</version>
    <relativePath>..../sample-scheduler-app.application.parent</relativePath>
  </parent>
  <artifactId>sample-scheduler-app.application</artifactId>
  <packaging>bwear</packaging>
  <properties>
    <docker.env.property.file>/Users/mpandav/git/scheduler-sample-bwce-app/src/sample-scheduler-app.application/docker-host-env-dev.properties</docker.env.property.file>
    <project.type>Docker</project.type>
    <docker.property.file>docker-dev.properties</docker.property.file>
    <bw.Home>/bwce/2.8-/bw.Home</bw.Home>
    <skipTests>false</skipTests>
    <failIfNoTests>false</failIfNoTests>
    <tibco.Home>/Users/mpandav/TIBCO_HOME/BW/282</tibco.Home>
  </properties>
  <build>
    <plugins>
      <plugin>
        <groupId>com.tibco.plugins</groupId>
        <artifactId>bw6-maven-plugin</artifactId>
        <version>2.9.6</version>
        <extensions>true</extensions>
      </plugin>
      <plugin>
        <groupId>org.codehaus.mojo</groupId>
        <artifactId>properties-maven-plugin</artifactId>
        <version>1.0.0</version>
        <executions>
          <execution>
            <phase>initialize</phase>
            <goals>
              <goal>read-project-properties</goal>
            </goals>
          </execution>
        </executions>
        <configuration>
          <files>
            <file>${docker.property.file}</file>
            <file>${docker.env.property.file}</file>
          </files>
        </configuration>
      </plugin>
      <plugin>
        <groupId>io.fabric8</groupId>
        <artifactId>docker-maven-plugin</artifactId>
        <version>0.34.1</version>
        <configuration>
          <skip>false</skip>
          <dockerHost>${bwdocker.host}</dockerHost>
          <certPath>${bwdocker.certPath}</certPath>
          <images>
            <image>
              <alias>${bwdocker.containername}</alias>
              <name>${docker.image}</name>
              <build>
                <from>${bwdocker.from}</from>
                <imagePullPolicy>${bwdocker.autoPullImage}</imagePullPolicy>
                <maintainer>${bwdocker.maintainer}</maintainer>
              </build>
              <assembly>
                <basedir>./basedir</basedir>
                <descriptorRef>artifact</descriptorRef>
              </assembly>
              <tags>
                <tag>latest</tag>
              </tags>
              <ports>
                <port>8080</port>
              </ports>
            </run>
            <namingStrategy>alias</namingStrategy>
            <ports>
              <port>${bwdocker.port.p0}</port>
              <port>${bwdocker.port.p1}</port>
            </ports>
            <envPropertyFile>${docker.env.property.file}</envPropertyFile>
          </run>
          </image>
        </images>
      </configuration>
    </plugins>
  </build>
  <reporting>
    <plugins>
      <plugin>
```

Application POM (2/3)

Working with Maven

Review POM file - Parent

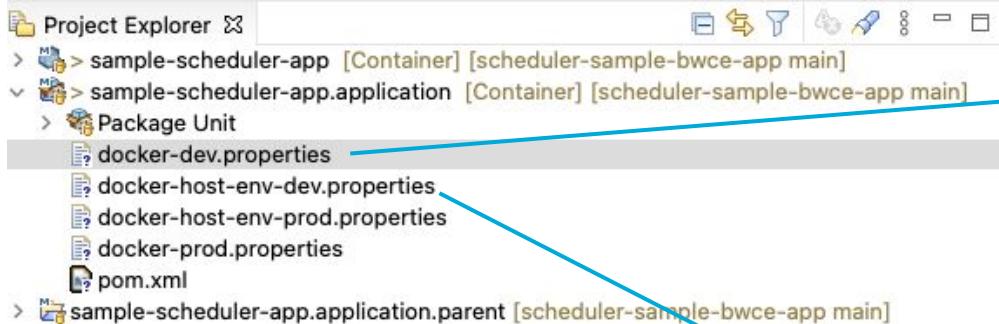


```
<?xml version="1.0" encoding="UTF-8"?>
<project xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://maven.apache.org/POM/4.0.0 https://maven.apache.org/xsd/maven-4.0.0.xsd" xmlns="http://maven.apache.org/POM/4.0.0">
  <modelVersion>4.0.0</modelVersion>
  <groupId>com.tibco.bw</groupId>
  <artifactId>sample-scheduler-app.application.parent</artifactId>
  <version>1.0.0-SNAPSHOT</version>
  <packaging>pom</packaging>
  <modules>
    <module>../sample-scheduler-app</module>
    <module>../sample-scheduler-app.application</module>
  </modules>
  <build>
    <plugins>
      <plugin>
        <artifactId>maven-site-plugin</artifactId>
        <version>3.7.1</version>
      </plugin>
      <plugin>
        <groupId>io.fabric8</groupId>
        <artifactId>docker-maven-plugin</artifactId>
        <version>0.34.1</version>
      </plugin>
    </plugins>
  </build>
</project>
```

Parent POM (3/3)

Working with Maven

Review the Generated Property Files



```
docker-dev.properties
#Docker host properties
#Fri Aug 25 13:25:15 CEST 2023
bwdocker.containername=
bwdocker.host=tcp://127.0.0.1\:62344
bwdocker.certPath="/Users/mpandav/.minikube/certs"
bwdocker.from=mpandav/bwce-281\:b_kafka
bwdocker.autoPullImage=Always
docker.image=mpandav/sample-scheduler-app
bwdocker.maintainer=mpandav@tibco.com
bwdocker.port.p0=18080\:8080
bwdocker.port.p1=17777\:7777
```

```
docker-host-env-dev.properties
#Your Docker Host Environment Variables properties
#Fri Aug 25 13:25:15 CEST 2023
APP_CONFIG_PROFILE=docker
BW_LOGLEVEL=DEBUG
```

The Maven Plugin automatically produces these files for user with provided details in the wizard. The files subsequently used in build, test, deploy process. Similar files are created for PROD Env

Let's take deeper look at the each of property described above in next section...

Working with Maven

Review properties in docker-dev.properties

```
docker-dev.properties
#Fri Aug 25 13:25:15 CEST 2023
bwdocker.containername=
bwdocker.host=tcp://127.0.0.1:62344
bwdocker.certPath="/Users/mpandav/.minikube/certs"
bwdocker.from=mpandav/bwce-281\kafka
bwdocker.autoPullImage=Always
docker.image=mpandav/sample-scheduler-app
bwdocker.maintainer=mpandav@tibco.com
bwdocker.port.p0=18080\8080
bwdocker.port.p1=17777\7777
```

The Name given to the Container that will be started when start/run command docker:start goal executed.

The IP Address or hostname of the machine where our Docker Daemon is running. This can obtained using steps described below...

Location of id_rsa private key to communicate with Docker Host. The files will automatically placed when using minikube as a docker env provider.

Name of the TIBCO BWCE base docker image.

The Image pull policy.

Name of final docker image containing BWCE application.

The details of the maintainer of the image. (deprecated feature from docker)

The Ports that needs to be exposed from container to work BWCE application properly. There are few ports are required to be enabled by default.

If using Minikube then you can use it to provide docker-env using below cmd, but similar can be obtained for docker toolbox on windows or docker running on linux.

```
mpandav@mpandav-m1 maven % minikube docker-env
export DOCKER_TLS_VERIFY="1"
export DOCKER_HOST="tcp://127.0.0.1:62344"
export DOCKER_CERT_PATH="/Users/mpandav/.minikube/certs"
export MINIKUBE_ACTIVE_DOCKERD="minikube"

# To point your shell to minikube's docker-daemon, run:
# eval $(minikube -p minikube docker-env)
Host added: /Users/mpandav/.ssh/known_hosts ([127.0.0.1]:62343)
mpandav@mpandav-m1 maven %
```

Working with Maven

Review properties in docker-host-env-dev.properties

```
docker-host-env-dev.properties ✘
#Your Docker Host Environment Variables properties
#Fri Aug 25 13:25:15 CEST 2023
APP_CONFIG_PROFILE=docker
BW_LOGLEVEL=DEBUG
```

Name of the application profile that is to be used from a configuration management system such as ZUUL or Spring Cloud Config.

Used to set a log level for the TIBCO BusinessWorks Container Edition application. The default value is ERROR. Supported values are:

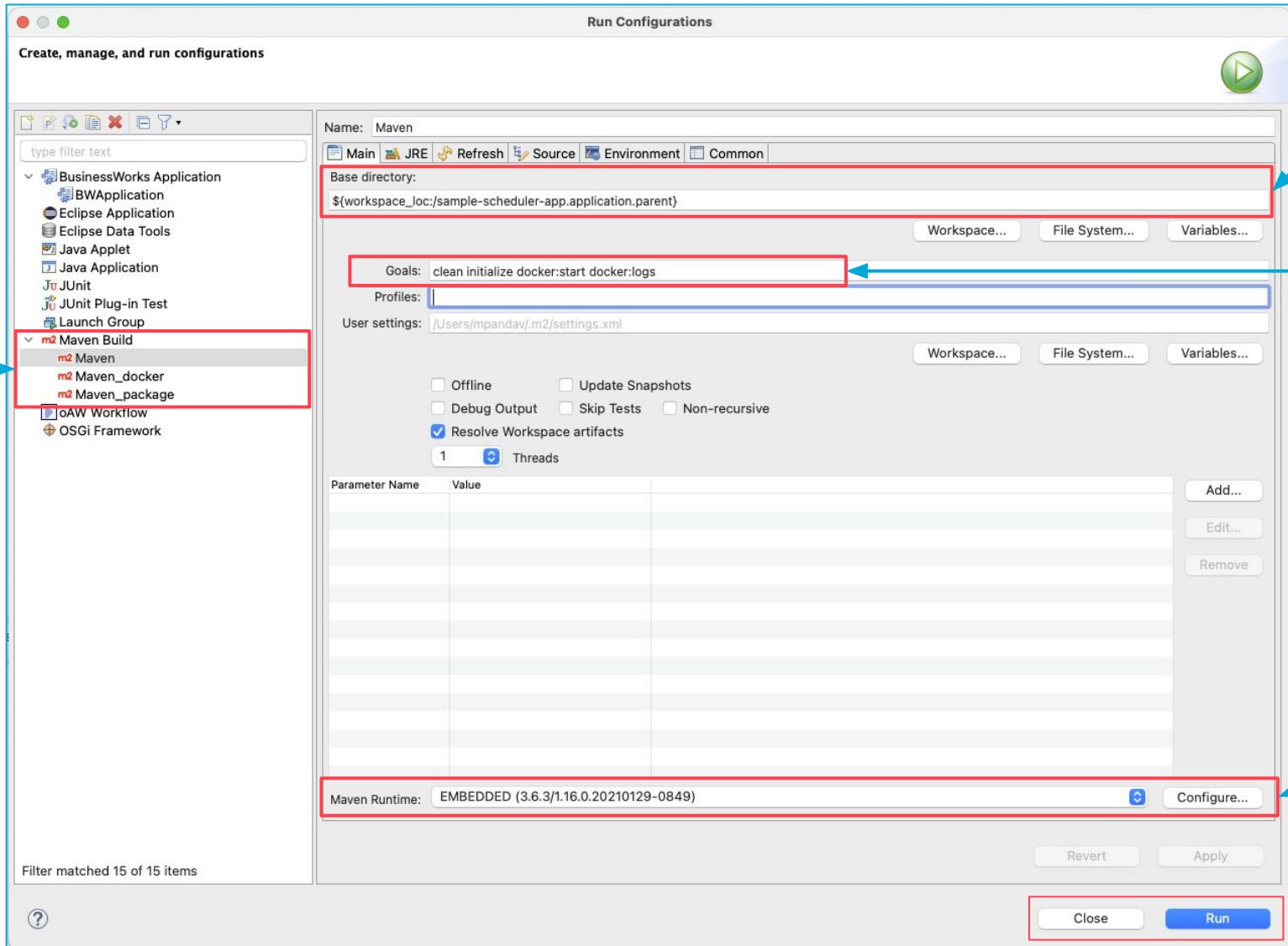
- INFO
- DEBUG
- WARN
- ERROR

Note: There are more Environment Variables available to use for your BWCE application with DOCKER and you can refer to the details here in the [official BWCE documentation](#).

Working with Maven

Prepare Maven Debug/Run Configuration for application testing

Create New Maven Run Configuration

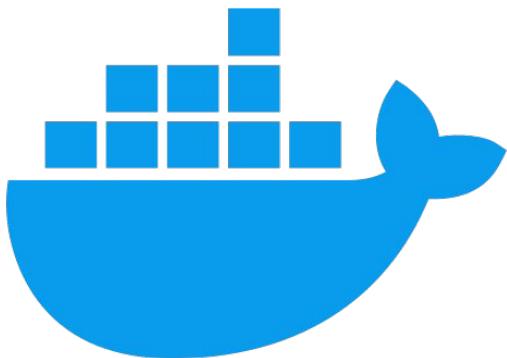


Parent POM location in workspace

Maven goals to be executed against the application

You can configure external or different maven runtime if required

Managing the Runtime



Manage the Runtime

[Create BWCE Base Image](#)

Creating Base BWCE Docker Image

- Download the bwce-runtime-<version>.zip from <https://edelivery.tibco.com>
- Copy the .zip file under /TIBCO_HOME/bwce/<version>/docker/ directory
- You also can copy required plugins files into respective folders (described in next section)

Run docker build command on terminal from /TIBCO_HOME/bwce/<version>/docker/ directory

>docker build -t tag_name .

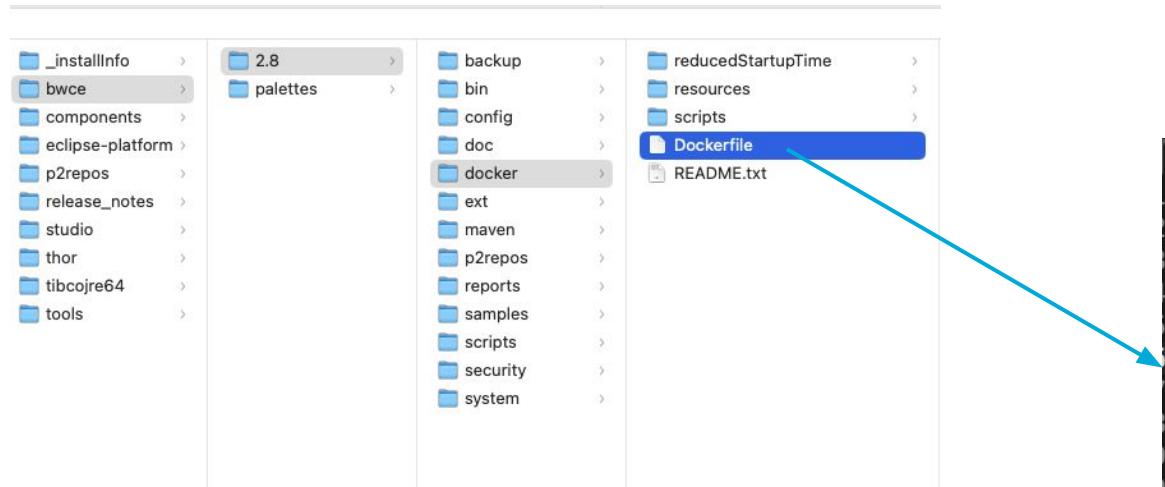
Ex.

>docker build -t mpandav/bwce:base .

Note: The steps are outlined here in the [official BWCE documentation...](#)

Manage the Runtime

Create BWCE Base Image



Run docker build command on terminal from
/TIBCO_HOME/bwce/<version>/docker/ directory

>docker build -t tag_name .

Ex.

>docker build -t mpandav/bwce:base .

```
FROM debian:bullseye-slim
LABEL maintainer="TIBCO Software Inc."
ADD . /
RUN chmod 755 /scripts/*.sh && apt-get update && \
apt-get --no-install-recommends -y install unzip ssh net-tools && \
apt-get -y install xsltproc && apt-get clean && rm -rf /var/lib/apt/lists/*
RUN groupadd -g 2001 bwce \
&& useradd -m -d /home/bwce -r -u 2001 -g bwce bwce
USER bwce
ENV LANG C.UTF-8
ENV LC_ALL C.UTF-8
ENTRYPOINT ["/scripts/start.sh"]
```

Note: You can use various base Operating Systems from Linux or Windows flavours to build your Base BWCE image. The official certified list [available here](#).

Manage the Runtime

Extend BWCE Base Image for additional dependencies (DB drivers, libraries, etc.)

Build Base BWCE Image with all dependencies

- You need to add required java libraries to `/TIBCO_HOME/bwce/<version>/docker/resources/addons/libraries`
- The plugins runtime.zip into `/plugins` folder
- If any monitoring agent needs to be installed then copy it under `/monitor-agents/` folder
- SSL certificates under `/certs` respectively.

Extend Base BWCE Image

- Create new Dockerfile in temporary location
- Copy all required jars, libraries, certificates, monitoring agents, etc. to temporary folder
- Run docker build command on terminal from `/TIBCO_HOME/bwce/<version>/docker/` directory

`>docker build -t tag_name .`

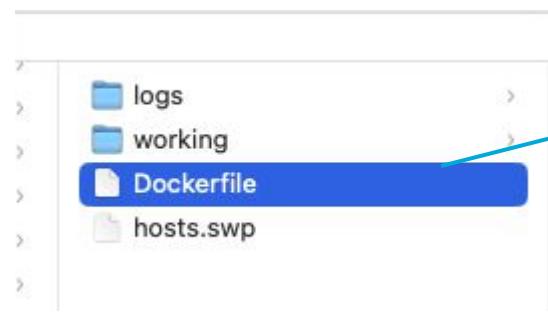
Ex.

`>docker build -t mpandav/bwce: ex_base .`

Note: The steps to extend Base BWCE image are outlined here in the [official BWCE documentation...](#)

Manage the Runtime

Extend BWCE Base Image for additional dependencies (DB drivers, libraries, etc.)



```
FROM mpandav/bwce:base
COPY . /resources/addons/jars
COPY . /resources/addons/certs
COPY *.zip /resources/addons/plugins|
```



Run docker build command on terminal from /tmp/ directory where Dockerfile along with other required dependencies are available

>docker build -t tag_name .

Ex.

>docker build -t mpandav/bwce:extended_base .

Note: The detailed steps on how to extend Base BWCE image are outlined here in the [official BWCE documentation...](#)

Manage the Runtime

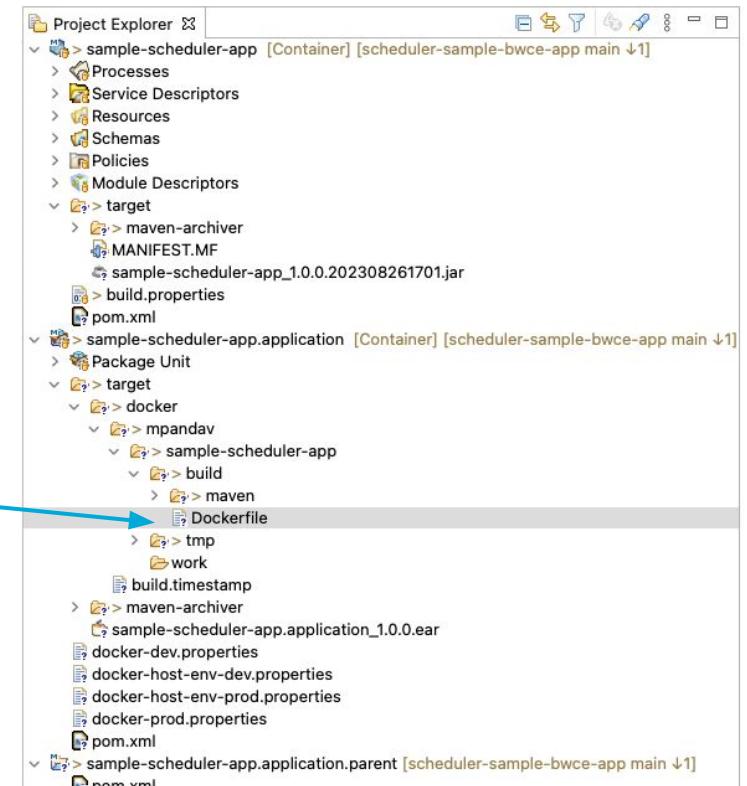
[Create BWCE Application Image](#)

Build App Image to deploy it in Container

- Create an application EAR (enterprise archive) file for deployment.
- Copy it into /tmp/ folder
- Create empty Dockerfile in /tmp/ folder along with Application EAR file.
- Copy this content to the Dockerfile
- Or you can copy the content from Dockerfile when you ran it maven test.

The file will available under
/ <application>.application/target/docker/
<user>/<appName>/build/Dockerfile

```
FROM mpandav/bwce:base
MAINTAINER mpandav@tibco.com
ADD sample-scheduler-app.ear /
EXPOSE 8080
```



Note: The steps to build application image are outlined here in the [official BWCE documentation...](#)

Manage the Runtime

[Create BWCE Application Image](#)



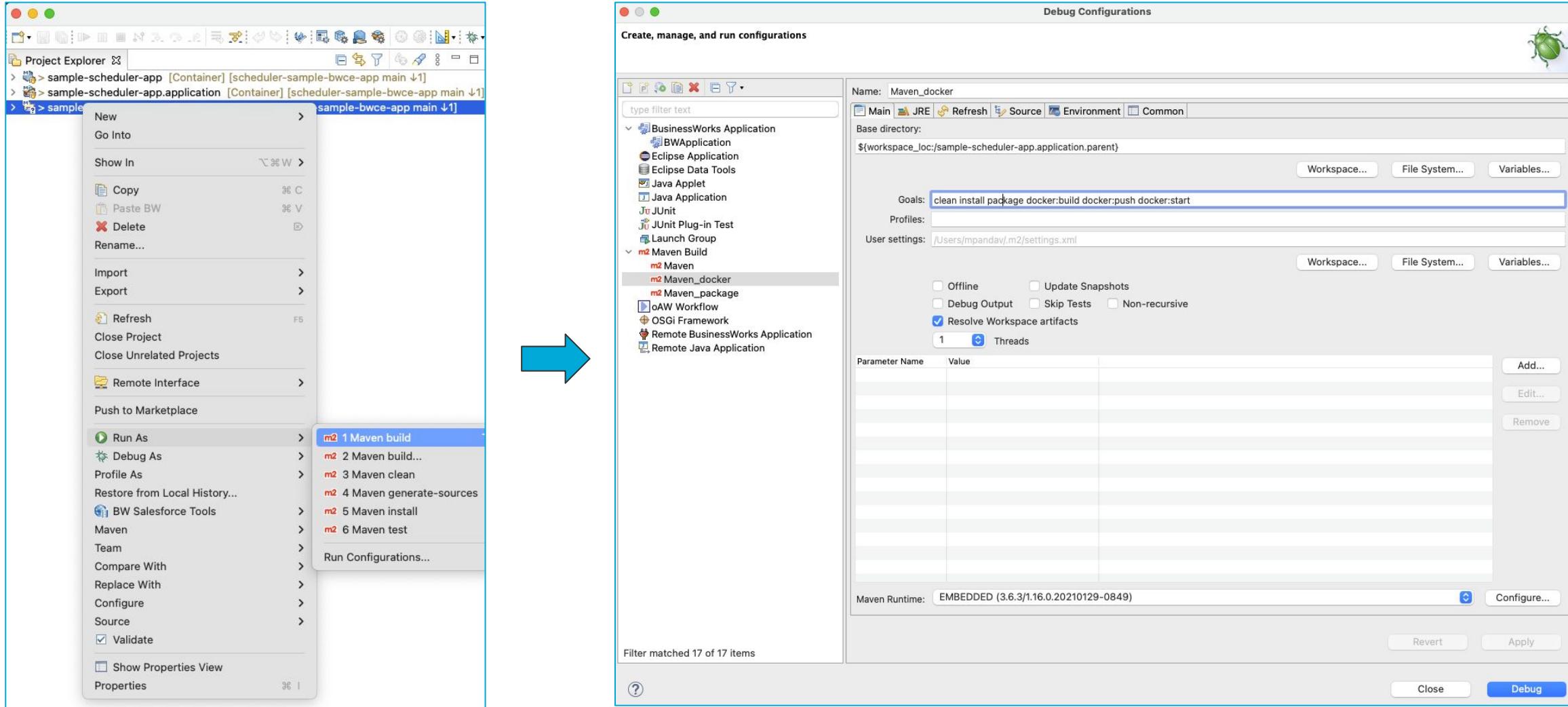
Note: The steps to build application image are outlined here in the [official BWCE documentation...](#)

Verification and Validation



Verify BWCE Application

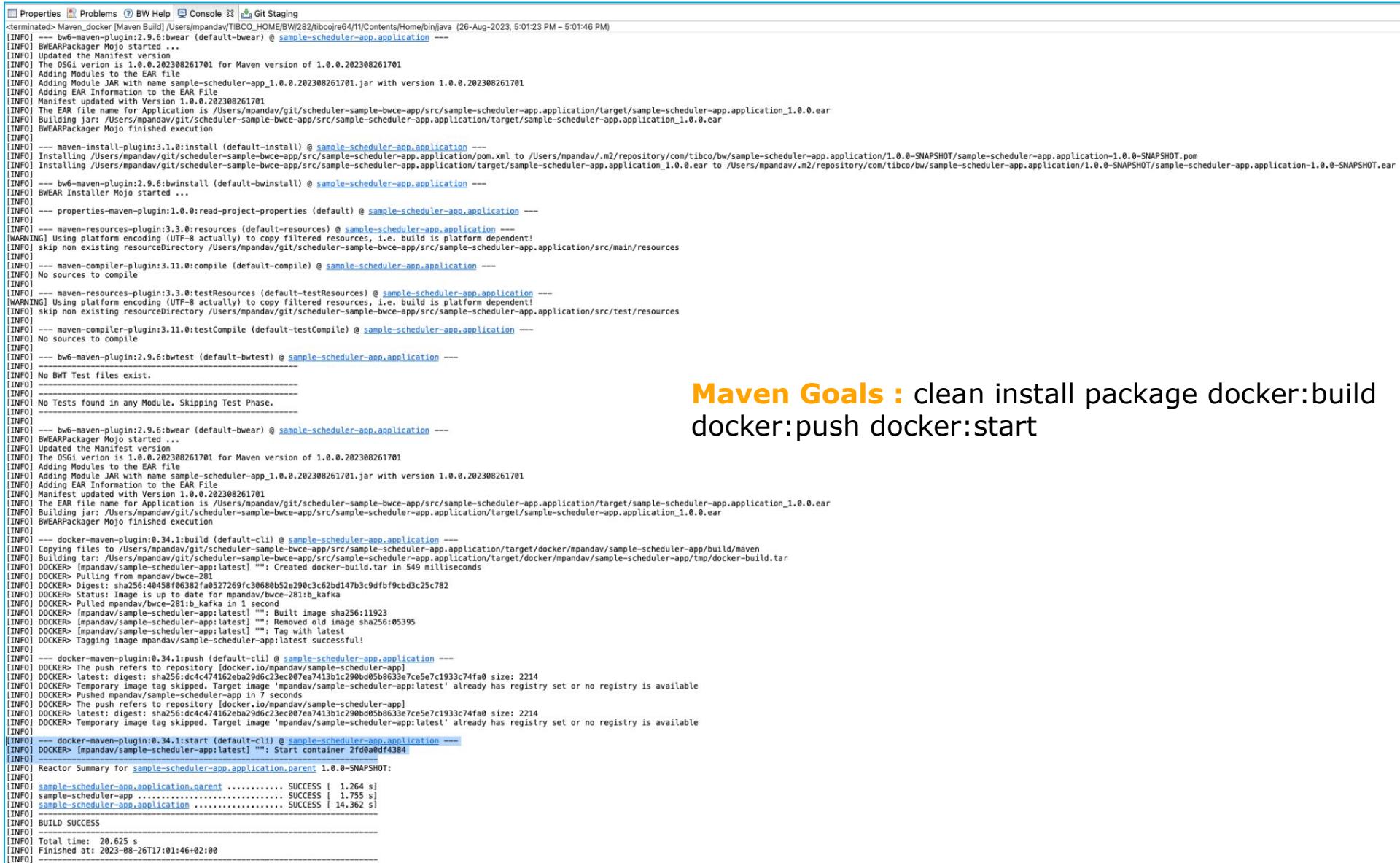
Create Maven Run/Debug Configuration



Maven Goals : clean install package docker:build docker:push docker:start

Verify BWCE Application

Run the application using Maven configuration from Studio



The screenshot shows the Eclipse IDE interface with the 'Console' tab selected, displaying the Maven build logs for a 'sample-scheduler-app' application. The logs show the execution of various Maven goals, including 'clean', 'install', 'package', 'docker:build', 'docker:push', and 'docker:start'. The logs indicate successful builds and Docker operations, such as pulling Kafka images and pushing the application image to a registry.

```
<terminated> Maven_docker [Maven Build] /Users/mpandav/TIBCO_HOME/BW/282/tibcoje64/11/Contents/Home/bin/java (26-Aug-2023, 5:01:23 PM - 5:01:46 PM)
[INFO] --- bw6-maven-plugin:2.9.6:bwear (default-bwear) @ sample-scheduler-app.application ---
[INFO] BWEARPackager Mojo started ...
[INFO] Updated the Manifest version
[INFO] The OSGi verion is 1.0.0.202308261701 for Maven version of 1.0.0.202308261701
[INFO] Adding file to the EAR file
[INFO] Adding Module JAR with name sample-scheduler-app_1.0.0.202308261701.jar with version 1.0.0.202308261701
[INFO] Adding EAR Information to the EAR File
[INFO] Manifest updated with Version 1.0.0.202308261701
[INFO] The EAR file name for Application is /Users/mpandav/git/scheduler-sample-bwce-app/src/sample-scheduler-app.application/target/sample-scheduler-app.application_1.0.0.ear
[INFO] Building jar: /Users/mpandav/git/scheduler-sample-bwce-app/src/sample-scheduler-app.application/target/sample-scheduler-app.application_1.0.0.ear
[INFO] BWEARPackager Mojo finished execution
[INFO] --- maven-install-plugin:3.1.0:install (default-install) @ sample-scheduler-app.application ---
[INFO] Installing /Users/mpandav/git/scheduler-sample-bwce-app/src/sample-scheduler-app.application/pom.xml to /Users/mpandav/.m2/repository/com/tibco/bw/sample-scheduler-app.application/1.0.0-SNAPSHOT/sample-scheduler-app.application-1.0.0-SNAPSHOT.pom
[INFO] Installing /Users/mpandav/git/scheduler-sample-bwce-app/src/sample-scheduler-app.application/target/sample-scheduler-app.application_1.0.0.ear to /Users/mpandav/.m2/repository/com/tibco/bw/sample-scheduler-app.application/1.0.0-SNAPSHOT/sample-scheduler-app.application-1.0.0-SNAPSHOT.ear
[INFO] --- bw6-maven-plugin:2.9.6:bwinstall (default-bwinstall) @ sample-scheduler-app.application ---
[INFO] BWInstall Installer Mojo started ...
[INFO] --- properties-maven-plugin:1.0.0:read-project-properties (default) @ sample-scheduler-app.application ---
[INFO] --- maven-resources-plugin:3.3.0:resources (default-resources) @ sample-scheduler-app.application ---
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i.e. build is platform dependent!
[INFO] skip non existing resourceDirectory /Users/mpandav/git/scheduler-sample-bwce-app/src/sample-scheduler-app.application/src/main/resources
[INFO] --- maven-compiler-plugin:3.11.0:compile (default-compile) @ sample-scheduler-app.application ---
[INFO] No sources to compile
[INFO] --- maven-resources-plugin:3.3.0:testResources (default-testResources) @ sample-scheduler-app.application ---
[WARNING] Using platform encoding (UTF-8 actually) to copy filtered resources, i.e. build is platform dependent!
[INFO] skip non existing resourceDirectory /Users/mpandav/git/scheduler-sample-bwce-app/src/sample-scheduler-app.application/src/test/resources
[INFO] --- maven-compiler-plugin:3.11.0:testCompile (default-testCompile) @ sample-scheduler-app.application ---
[INFO] No sources to compile
[INFO] --- bw6-maven-plugin:2.9.6:bwtest (default-bwtest) @ sample-scheduler-app.application ---
[INFO] No BWT Test files exist.
[INFO] -----
[INFO] No Tests found in any Module. Skipping Test Phase.
[INFO] -----
[INFO] --- bw6-maven-plugin:2.9.6:bwear (default-bwear) @ sample-scheduler-app.application ---
[INFO] BWEARPackager Mojo started ...
[INFO] Updated the Manifest version
[INFO] The OSGi verion is 1.0.0.202308261701 for Maven version of 1.0.0.202308261701
[INFO] Adding file to the EAR file
[INFO] Adding Module JAR with name sample-scheduler-app_1.0.0.202308261701.jar with version 1.0.0.202308261701
[INFO] Adding EAR Information to the EAR File
[INFO] Manifest updated with Version 1.0.0.202308261701
[INFO] The EAR file name for Application is /Users/mpandav/git/scheduler-sample-bwce-app/src/sample-scheduler-app.application/target/sample-scheduler-app.application_1.0.0.ear
[INFO] Building jar: /Users/mpandav/git/scheduler-sample-bwce-app/src/sample-scheduler-app.application/target/sample-scheduler-app.application_1.0.0.ear
[INFO] BWEARPackager Mojo finished execution
[INFO] --- docker-maven-plugin:0.34.1:build (default-cli) @ sample-scheduler-app.application ---
[INFO] Copying files to /Users/mpandav/git/scheduler-sample-bwce-app/src/sample-scheduler-app.application/target/docker/mpandav/sample-scheduler-app/build/maven
[INFO] Building tar: /Users/mpandav/git/scheduler-sample-bwce-app/src/sample-scheduler-app.application/target/docker/mpandav/sample-scheduler-app/tmp/docker-build.tar
[INFO] DOCKER[ mpandav/sample-scheduler-app:latest ] "": Created docker-build.tar in 549 milliseconds
[INFO] DOCKER[> Pulling from mpandav/bwce-281 ]
[INFO] DOCKER[> Digest: sha256:0458f86382f15527269c38680b2e290c3c62bd147b3c9dfbf9cbd3c25c782
[INFO] DOCKER[> Status: Image is up to date for mpandav/bwce-281:b_kafka
[INFO] DOCKER[> Pulled mpandav/bwce-281:b_kafka in 1 second
[INFO] DOCKER[> mpandav/sample-scheduler-app:latest ] "": Built image sha256:1923
[INFO] DOCKER[> mpandav/sample-scheduler-app:latest ] "": Removed old image sha256:05395
[INFO] DOCKER[> mpandav/sample-scheduler-app:latest ] "": Tag with latest
[INFO] DOCKER[> Tagging image mpandav/sample-scheduler-app:latest successful!
[INFO] --- docker-maven-plugin:0.34.1:push (default-cli) @ sample-scheduler-app.application ---
[INFO] DOCKER[> push refers to repository [ mpandav/sample-scheduler-app ]
[INFO] DOCKER[> latest: digest: sha256:d4c474162ebab29d6c23e090ea413b1c290bd05b6633e7ce5e7c1933c74fa0 size: 2214
[INFO] DOCKER[> Temporary image tag skipped. Target image 'mpandav/sample-scheduler-app:latest' already has registry set or no registry is available
[INFO] DOCKER[> Pushed mpandav/sample-scheduler-app in 7 seconds
[INFO] DOCKER[> The push refers to repository [ docker.io/mpandav/sample-scheduler-app ]
[INFO] DOCKER[> latest: digest: sha256:474162ebab29d6c23e090ea413b1c290bd05b6633e7ce5e7c1933c74fa0 size: 2214
[INFO] DOCKER[> Temporary image tag skipped. Target image 'mpandav/sample-scheduler-app:latest' already has registry set or no registry is available
[INFO] --- docker-maven-plugin:0.34.1:restart (default-cli) @ sample-scheduler-app.application ---
[INFO] DOCKER[> mpandav/sample-scheduler-app:latest ] "": Start container 2fd0a9dfa384
[INFO] -----
[INFO] Reactor Summary for sample-scheduler-app.application.parent 1.0.0-SNAPSHOT:
[INFO] sample-scheduler-app.application.parent ..... SUCCESS [ 1.264 s]
[INFO] sample-scheduler-app ..... SUCCESS [ 1.755 s]
[INFO] sample-scheduler-app ..... SUCCESS [ 14.362 s]
[INFO] BUILD SUCCESS
[INFO] Total time: 20.625 s
[INFO] Finished at: 2023-08-26T17:01:46+02:00
[INFO]
```

Maven Goals : clean install package docker:build
docker:push docker:start

Verify BWCE Application

Verify Running Application Container Logs

```
mpandav@mpandav-m1 sample-scheduler-app.application.parent % docker logs -f 2fd0a0df4384
/opt/java/openjdk
chmod: cannot access '/tmp/tibco.home/tibcojre64/*/bin/java': No such file or directory
chmod: cannot access '/tmp/tibco.home/tibcojre64/*/bin/javac': No such file or directory
Adding Plug-in Jars
The loglevel is set to INFO level
cat: /sys/fs/cgroup/memory/memory.limit_in_bytes: No such file or directory
./scripts/setup.sh: line 308: [: -ne: unary operator expected
BW_PROFILE is set to 'default.substvar'
Appended ADDONS_HOME/lib in bwappnode.tra file
Appended ADDONS_HOME/lib in bwappnode file
Appended -Xmx1024M -Xms128M --add-opens java.management/sun.management=ALL-UNNAMED to java.extend.properties
TIBCO BusinessWorks version 2.8.1, build V47, 2023-02-15
2023-08-26T14:54:23,606 INFO [main] com.tibco.thor.fwk - bwappnode TIBCO BusinessWorks version 2.8.1, build V47, 2023-02-15 initialized using logging config
/tmp/tibco.home/bwce/2.8/config/logback.xml
2023-08-26T14:54:25,155 INFO [main] c.t.b.t.m.s.i.BW6ExtensionRepositoryHandler - Installing extension addons
2023-08-26T14:54:25,206 INFO [main] c.t.b.t.m.s.i.BW6LocalRepositoryHandler - installing sample-scheduler-app.application/1.0
-----
Starting AppNode framework
-----
2023-08-26T14:54:25,628 INFO [main] org.osgi.impl.service.jndi.Activator - Initializing JNDI Factory Manager Bundle
2023-08-26T14:54:25,629 INFO [main] org.osgi.impl.service.jndi.Activator - Installing JNDI Static Singletons
2023-08-26T14:54:30,940 INFO [EventAdminThread #8] com.tibco.thor.fwk.Application - TIBCO-THOR-FRWK-300006: Started BW Application
[sample-scheduler-app.application:1.0]
2023-08-26T14:54:30,940 INFO [Thread-81] c.t.b.t.m.c.l.ApplicationStateListner - State for the application : {sample-scheduler-app.application: 1.0 } changed to state :Running
2023-08-26T14:54:30,984 INFO [pool-17-thread-1] c.t.bw.fwk.BWApplicationModuleImpl - TIBCO-BW-FRWK-300012: Started BW Application Module
[sample-scheduler-app:1.0.0.202308261653]
2023-08-26T14:54:57,693 INFO [QuartzScheduler_Worker-1] c.t.b.t.o.TelemetryHelper - OpenTelemetry Status while initializing : false
2023-08-26T14:54:58,096 INFO [bwEngThread:In-Memory Process Worker-2] c.t.b.p.g.L.sample-scheduler-app.Log -
{"Items": [{"itemName": "string", "itemNumber": "string", "orderId": "string", "price": "string", "quantity": "string"}], "billing": {"city": "string", "company": "string", "countryId": "string", "firstName": "string", "lastName": "string", "salutation": "string", "stateId": "string", "street": "string", "zipCode": "string"}, "currency": "string", "customerId": "string", "invoiceAmount": "string", "invoiceAmountNet": "string", "orderTime": "string", "partnerId": "string", "remoteAddress": "string", "shipping": {"city": "string", "company": "string", "countryId": "string", "firstName": "string", "lastName": "string", "salutation": "string", "stateId": "string", "street": "string", "zipCode": "string"}, "shopId": "string"}}
```

Accessing Container Logs

Verify BWCE Application

Run the application using Maven configuration from Terminal

```
mpandav@mpandav-m1 src %  
mpandav@mpandav-m1 src % cd sample-scheduler-app.application.parent  
mpandav@mpandav-m1 sample-scheduler-app.application.parent % mvn clean install package docker:build docker:push  
[INFO] Scanning for projects...  
[INFO] Starting Maven Build for BW6 Project.....  
[INFO] Checking for In-Project JAR dependencies if any and Pushing them to Local Maven Repository  
[INFO] -----  
[INFO] Reactor Build Order:  
[INFO]  
[INFO] sample-scheduler-app.application.parent [pom]  
[INFO] sample-scheduler-app [bwmodule]  
[INFO] sample-scheduler-app.application [bwear]  
[INFO]  
[INFO] -----< com.tibco.bw:sample-scheduler-app.application.parent >-----  
[INFO] Building sample-scheduler-app.application.parent 1.0.0-SNAPSHOT [1/3]  
[INFO] ----- [ pom ] -----  
[INFO] Reactor Summary for sample-scheduler-app.application.parent 1.0.0-SNAPSHOT:  
[INFO]  
[INFO] sample-scheduler-app.application.parent ..... SUCCESS [ 1.364 s]  
[INFO] sample-scheduler-app ..... SUCCESS [ 1.200 s]  
[INFO] sample-scheduler-app.application ..... SUCCESS [ 12.491 s]  
[INFO]  
[INFO] BUILD SUCCESS  
[INFO]  
[INFO] -----  
[INFO] Total time: 18.497 s  
[INFO] Finished at: 2023-08-26T16:35:24+02:00  
[INFO] -----  
mpandav@mpandav-m1 sample-scheduler-app.application.parent %
```

Running it from Terminal

```
mpandav@mpandav-m1 src % cd sample-scheduler-app.application.parent  
mpandav@mpandav-m1 sample-scheduler-app.application.parent % mvn clean install package docker:build docker:push
```

Verify BWCE Application

Run the application using Maven configuration from Terminal

```
mpandav@mpandav-m1 sample-scheduler-app.application.parent %
mpandav@mpandav-m1 sample-scheduler-app.application.parent % mvn clean initialize docker:start

[INFO] Scanning for projects...
[INFO] Starting Maven Build for BW6 Project.....
[INFO] Checking for In-Project JAR dependencies if any and Pushing them to Local Maven Repository
[INFO] -----
[INFO] Reactor Build Order:
[INFO]
[INFO] sample-scheduler-app.application.parent           [pom]
[INFO] sample-scheduler-app                            [bwmodule]
[INFO] sample-scheduler-app.application                 [bwear]
[INFO] -----
[INFO] Reactor Summary for sample-scheduler-app.application.parent 1.0.0-SNAPSHOT:
[INFO]
[INFO] sample-scheduler-app.application.parent ..... SUCCESS [ 1.134 s]
[INFO] sample-scheduler-app ..... SUCCESS [ 0.259 s]
[INFO] sample-scheduler-app.application ..... SUCCESS [ 0.782 s]
[INFO] -----
[INFO] BUILD SUCCESS
[INFO] -----
[INFO] Total time: 5.036 s
[INFO] Finished at: 2023-08-26T16:38:14+02:00
[INFO] -----
```

Running it from Terminal

```
mpandav@mpandav-m1 sample-scheduler-app.application.parent %
mpandav@mpandav-m1 sample-scheduler-app.application.parent % mvn clean initialize docker:start
```

Verify BWCE Application

Verify Running Application Container Logs

```
mpandav@mpandav-m1 sample-scheduler-app.application.parent % docker logs -f 1a0
/opt/java/openjdk
chmod: cannot access '/tmp/tibco.home/tibcojre64/*bin/java': No such file or directory
chmod: cannot access '/tmp/tibco.home/tibcojre64/*bin/javac': No such file or directory
Adding Plug-in Jars
The loglevel is set to INFO level
cat: /sys/fs/cgroup/memory/memory.limit_in_bytes: No such file or directory
./scripts/setup.sh: line 308: [: -ne: unary operator expected

BW_PROFILE is set to 'default.substvar'
Appended ADDONS_HOME/lib in bwappnode.tra file
Appended ADDONS_HOME/lib in bwappnode file
Appended -Xmx1024M -Xms128M --add-opens java.management/sun.management=ALL-UNNAMED to java.extend.properties

TIBCO BusinessWorks version 2.8.1, build V47, 2023-02-15
2023-08-26T14:54:23,606 INFO [main] com.tibco.thor.fwk - bwappnode TIBCO BusinessWorks version 2.8.1, build V47, 2023-02-15 initialized using logging config /tmp/tibco.home/bwce/2.8/config/logback.xml
2023-08-26T14:54:25,155 INFO [main] c.t.b.t.m.s.i.BW6ExtensionRepositoryHandler - Installing extension addons
2023-08-26T14:54:25,206 INFO [main] c.t.b.t.m.s.i.BW6LocalRepositoryHandler - installing sample-scheduler-app.application/1.0
-----
Starting AppNode framework
-----
2023-08-26T14:54:25,628 INFO [main] org.osgi.impl.service.jndi.Activator - Initializing JNDI Factory Manager Bundle
2023-08-26T14:54:25,629 INFO [main] org.osgi.impl.service.jndi.Activator - Installing JNDI Static Singletons
2023-08-26T14:54:25,629 INFO [main] org.osgi.impl.service.jndi.Activator - Registering URL Context Factory for 'osgi' URL scheme
2023-08-26T14:54:25,629 INFO [main] org.osgi.impl.service.jndi.Activator - Registering Default Runtime Builder for JRE-provided factories
2023-08-26T14:54:25,630 INFO [main] org.osgi.impl.service.jndi.Activator - Registering JNDIContextManager service
2023-08-26T14:54:25,630 INFO [main] org.osgi.impl.service.jndi.Activator - Registering JNDIProviderAdmin service
duler-app[1.0.0.202308261653]
2023-08-26T14:54:30,940 INFO [EventAdminThread #8] com.tibco.thor.fwk.Application - TIBCO-THOR-FRWK-300006: Started BW Application [sample-scheduler-app.application:1.0]
2023-08-26T14:54:30,940 INFO [Thread-81] c.t.b.t.m.c.l.ApplicationStateListner - State for the application : {sample-scheduler-app.application: 1.0 } changed to state :Running
2023-08-26T14:54:30,984 INFO [pool-17-thread-1] c.t.bw.fwk.BWApplicationModuleImpl - TIBCO-BW-FRWK-300012: Started BW Application Module [sample-scheduler-app:1.0.0.202308261653]
2023-08-26T14:54:57,693 INFO [QuartzScheduler_Worker-1] c.t.b.t.o.TelemetryHelper - OpenTelemetry Status while initializing : false
2023-08-26T14:54:58,096 INFO [bwEngThread:In-Memory Process Worker-2] c.t.b.p.g.L.sample-scheduler-app.Log - {"Items": [{"itemName": "string", "itemNumber": "string", "orderId": "string", "price": "string", "quantity": "string", "countryId": "string", "firstName": "string", "lastName": "string", "salutation": "string", "stateId": "string", "street": "string", "zipCode": "string"}, {"currency": "string", "customerId": "string", "invoiceTime": "string", "partnerId": "string", "remoteAddress": "string", "shipping": {"city": "string", "company": "string", "countryId": "string", "firstName": "string", "lastName": "string", "salutation": "string", "stateId": "string"}]}
```

Accessing Container Logs:

```
mpandav@mpandav-m1 sample-scheduler-app.application.parent % docker logs -f <container_id>
```

Appendix



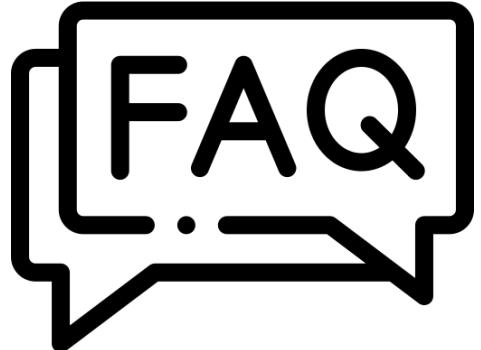
Appendix

.gitignore

- There are two main aspects for using gitignore files:
 - A gitignore file specifies intentionally untracked files that Git should ignore.
 - If there is an empty directory – it will be ignored by GIT as per default. If you place an empty gitignore file into an empty directory this directory will be tracked by GIT as well.

Type	Files
OS-specific	.DS_Store
Editor swapfiles	.*.sw?*~
Documentation	_site/* .yardoc/ doc/
IDE junk	.idea/* *.iml .project .settings/ .classpath
Maven	log/ target/
BusinessWorks Workspace	.bsProject/ .com.tibco.bw.rad/ .metadata/

Frequently Asked Qs



FAQ

Frequently occurred errors while using Maven with Docker

#	Description	Error Stacktrace	Solution
1	ERROR while Building an APP Image using MAVEN	[ERROR] DOCKER> Error getting the credentials for https://index.docker.io/v1/ from the configured credential helper [Failed to start 'docker-credential-osxkeychain get' : Cannot run program "docker-credential-osxkeychain"]	Check your ~/.docker/config.json and replace "credsStore" by "credStore" dckr_pat_XMxSgfmzGnIjkoMa0c-2Y95D_vM. Best use personal accessToken to avoid this issue.
2	ERROR while docker PUSH Image to DOCKERHUB Registry using Maven	[ERROR] DOCKER> Unable to push " " : denied: requested access to the resource is denied [denied: requested access to the resource is denied]	To use DockerHub as a docker registry use personal access token instead User/Password auth mechanism

An aerial photograph of a suburban area during sunset. The sky is a warm orange and yellow. In the distance, a large body of water and a range of mountains are visible. The foreground shows a mix of residential houses, commercial buildings, and green trees. A major road or highway cuts through the middle of the scene.

Thank you
#BETTERTOGETHER

