How to use WaDE with Red Hat OpenShift Online

USER GUIDE

INTRODUCTION

This document serves as a reference for our pilot states as they get started deploying the WaDE infrastructure within their home IT departments. This should serve as an easy guide to getting the WaDE database and web services functional as quickly and as easily as possible. Please be sure to contact Sara Larsen (801-685-2555) if you find that a particular step for deployment is not straightforward or not working as described.

ONE TIME SETUP STEPS.

Only do these steps only once.

1) Signup for OpenShift account
   Navigate to http://openshift.redhat.com and create a free account. You need to use a valid email address, but otherwise you're not going to be asked for personal information.
2) Install on your PC the rubygem RHC. Please follow the instructions here: https://developers.openshift.com/en/getting-started-client-tools.html for your platform.
   To validate, on a command line enter "rhc" - you should get a help screen
3) Setup your local environment
   Run rhc setup
   This command will prompt you for your username and password. It will then validate that other prerequsites like git are present on your system. If not you'll be given instructions on how to install them.

   This will also prompt you to install a ssh key which is required to communicate with OpenShift. If you already have an ssh key you can use the existing public key. You will also be prompted to create a domain - this name has to be unique. I suggest using the organization name plus a project name. The domain name is part of the final URL for the application.

WADE INSTALLATION

For each instance of the application you want to run, do the following:

1) Run the command to create the application (all on one line):

```
rhc app create myappname php-5.4 postgresql-9.2
--from-code
https://github.com/bit4man/tceqwade.git
```

Replace "myappname" with your own application name.

Example:

```
$ rhc app create wade1 php-5.4 postgresql-9.2
--from-code https://github.com/bit4man/tceqwade.git
Password: **********

Application Options
-------------------
Domain:      larsen
Cartridges:  php-5.4, postgresql-9.2
Source Code:
https://github.com/bit4man/tceqwade.git
Gear Size:   default
Scaling:     no

Creating application 'wade1' ... done
```

```
  PostgreSQL 9.2 database added.  Please make note
of these credentials:

   Root User: admin5f4ilbr
   Root Password: XXXXXXXXXXXXXX
   Database Name: wade1

Connection URL: postgresql://
$OPENSHIFT_POSTGRESQL_DB_HOST:
$OPENSHIFT_POSTGRESQL_DB_PORT

Waiting for your DNS name to be available ... done

Cloning into 'wade1'...

Your application 'wade1' is now available.

  URL:        http://wade1-larsen.rhcloud.com/
  SSH to:     545d30df5973cac91b000099@wade1-
larsen.rhcloud.com
  Git remote: ssh://545d30df5973cac91b000099@wade1-
larsen.rhcloud.com/~/git/wade1.git/
  Cloned to:  /home/plarsen/openshift/wade1

Run 'rhc show-app wade1' for more details about
your app.
```

2) This will create a php gear with a PostGRESql database and initialize the database and deploy the code.

3) Access the application:
You'll be told a URL the application as the command exists. Also note the master username/password for the database, albeit the WADE_APP1 user works too. On the welcome screen that you see when you navigate to the application online, you'll have further instructions on accessing the console for the DB etc.

4) To get a command prompt on OpenShift to for instance use postgresql from the command line, enter

```
rhc ssh myappname
```

5) With a free account you can create 3 gears total. This means you can make 3 different instances of this application if you wish.

6) You can delete the application by either using the command line or you can use the http://openshift.redhat.com console and delete the application from there:

```
rhc app delete myappname
```

Since github is a free service, you can chose to clone my github project, and any change you make there will go to the master that you use for future projects. Otherwise, any change you make will have to be done to every gear you have running.

HOW TO MAKE CHANGES

The application you created is fully owned and controled by you. You can access the application and database in several ways – either directly on the server, or through changing code on your computer and pushing it to the server.

Access from your computer

When you create an application using the rhc command, a sub-directory is created under your current current directory, with the name of the application. This directly contains all the code of the database, including the database initialization scripts.

You can change any of the files using your favorite editor. Once changed, use “git” to commit the change and then push the code to the server:

```
$ git commit -am “short description of changes”
$ git push
```

For instance, changing the welcome page (index.php) and pushing the changes to the server looks like this:

```
$ vim index.php
$ git commit -am "Changed welcome text"
[master 08f80bc] Changed welcome text
```

```
 1 file changed, 1 insertion(+), 1 deletion(-)
$ git push
Counting objects: 5, done.
Delta compression using up to 8 threads.
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 304 bytes | 0 bytes/s,
done.
Total 3 (delta 2), reused 0 (delta 0)
remote: Not stopping cartridge php because hot
deploy is enabled
remote: Not stopping cartridge postgresql because
hot deploy is enabled
remote: Building git ref 'master', commit 08f80bc
remote: Checking .openshift/pear.txt for PEAR
dependency...
remote: Preparing build for deployment
remote: Deployment id is 21ef6c3f
remote: Activating deployment
remote: Not starting cartridge postgresql because
hot deploy is enabled
remote: Not starting cartridge php because hot
deploy is enabled
remote: -------------------------
remote: Git Post-Receive Result: success
remote: Activation status: success
remote: Deployment completed with status: success
To ssh://545d30df5973cac91b000099@wade1-
larsen.rhcloud.com/~/git/wade1.git/
   86dd9ec..08f80bc  master -> master
```

It's also possible to connect to the running database from your own system. Normally, the database is behind a firewall, but using the rhc command, you can setup a port forwarding to the database which makes it available from your workstation.

```
$ rhc port-forward
```

This command will not complete until you hit ctrl-c which will then terminate the connection. To use the port forward, open another terminal window and use your postgresql commands from there:

```
$ rhc port-forward
Password: **********
Checking available ports ... done
Forwarding ports ...

To connect to a service running on OpenShift, use
the Local address

Service    Local               OpenShift
---------- -------------- ---- -----------------
httpd      127.0.0.1:8080  =>  127.4.25.129:8080
postgresql 127.0.0.1:5432  =>  127.4.25.130:5432

Press CTRL-C to terminate port forwarding
```

Please take note of the local ports. If you already have an existing postgresql database running locally, the local port-number will be different, and you need to take into account when you connect to the database in Openshift.

To access the database, use your usual tools, and use “localhost” as the hostname, and remember the database name (the -d value) is the name of your application. In this example, wade1.

```
$ psql -d wade1 -h localhost -U admin5f4ilbr
Password for user admin5f4ilbr:
psql (9.3.5, server 9.2.8)
Type "help" for help.

wade1=# \dt *.*
                         List of relations
       Schema        |           Name            |
Type  |  Owner
--------------------+--------------------------
+-------+----------
 WADE                | DATA_SOURCES              |
table | WADE
 WADE                | DBVERSION                 |
table | WADE
 WADE                | DETAIL_ALLOCATION         |
table | WADE
 WADE                | DETAIL_DIVERSION          |
table | WADE
 WADE                | DETAIL_RETURN_FLOW        |
table | WADE
 WADE                | DETAIL_USE                |
table | WADE
 WADE                | D_ALLOCATION_ACTUAL       |
table | WADE
 WADE                | D_ALLOCATION_FLOW         |
table | WADE
```

Access the database via the web

You can also access and use the database without needing any software on your computer. By going to the application URL you are given when you create your application, and adding /pgAdmin after the URL, you'll get the web administration interface to PostGresql that allows you to login to the database and do changes both to data and structure.

For instance, in this example the URL is: http://wade1-larsen.rhcloud.com/pgAdmin/

Access directly on the host

Finally, you can always access the host itself and run mysql commands there:

```
$ rhc ssh
Password: **********
Connecting to 545d30df5973cac91b000099@wade1-
larsen.rhcloud.com ...

    Welcome to OpenShift shell

    This shell will assist you in managing
OpenShift applications.

[wade1-larsen.rhcloud.com
545d30df5973cac91b000099]\> psql
psql (9.2.8)
Type "help" for help.

wade1=# \dt *.*
                         List of relations
       Schema       |           Name            |
Type  |  Owner
--------------------+---------------------------
+-------+----------
 WADE               | DATA_SOURCES              |
table | WADE
 WADE               | DBVERSION                 |
table | WADE
 WADE               | DETAIL_ALLOCATION         |
table | WADE
```

Do keep in mind, that directly changing the database means that if you delete your application you lose the changes you've made. A better solution is to create insert scripts that you run – these scripts can be part of the code you save.

EXPOSED WEB SERVICES

The WaDE application exposes the following web services under /Postgres/v0.2/:

GetCatalog: loctype, loctxt, orgid, state

GetDetail: reportid, loctype, loctxt, datatype

GetMethod: reportid, loctype, loctxt, datatype

GetSummary: loctype, loctxt, orgid, reportid, datatype

These links are easily found on the welcome page of the application upon creation.

CREATING YOUR OWN GITHUB (SHARED SOURCE)

This guide's instructions uses a global template on github to start from. As each application is created, it is completely independent of this global template, and any changes made will only affect the one application it's made for.

If you want to create your own template to avoid making the same changes over and over again, you can do so by simply cloning your project to github (http://github.com). Github is a huge repository of open source projects used by private individuals, companies and government agencies to share open applications. It's a free service. You control your own projects, determining who can modify and accept changes to it. But anyone can clone (copy) your project and make their own version.

In WaDE the project consists both of PHP code and data for Postgres. Any github project based on the Wade application will contain both.

To create a fork/clone of the published github. Simply go to the project page: https://github.com/bit4man/tceqwade and click on the "fork" button in the upper right corner. This will create a copy of the project under your own user (you must have a github account to make this work).

To create a copy from the changes made in OpenShift – it's important to first ensure that all changes were made on your PC in the repo – and not directly from the command prompt. To clone the copy on your PC:

1) Create empty github project – do NOT add README.md or other files when prompted.
2) Copy the clone link from the empty github project.
3) Cd into the directory on your workstation that has the code
4) Run the following git commands:

```
git remote add github <clone url>
git push github master
```