

# System Configuration Guides

## Openshift

Service Engineering Lab

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Updated: 16/07/14

## Dependencies

1	PuttyGen, Putty
2	WinSCP
3	Ruby
4	Red Hat Client tool

## Environment Setup

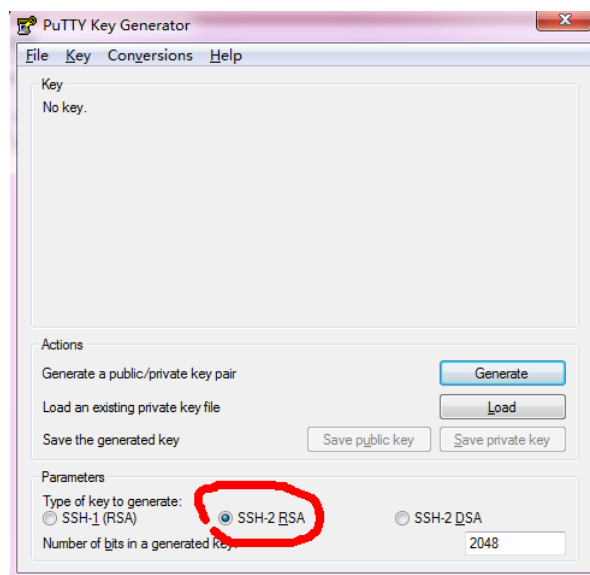
Openshift is a PaaS (Platform as a Service) cloud space provided by RedHat. Each account has 3 application gears and each gear has free 512M memory space and 1G hard disk space. Openshift supports JAVA, PHP, Tomcat, PostgreSQL and MongoDB.

### Generate pubkey by PuttyGen

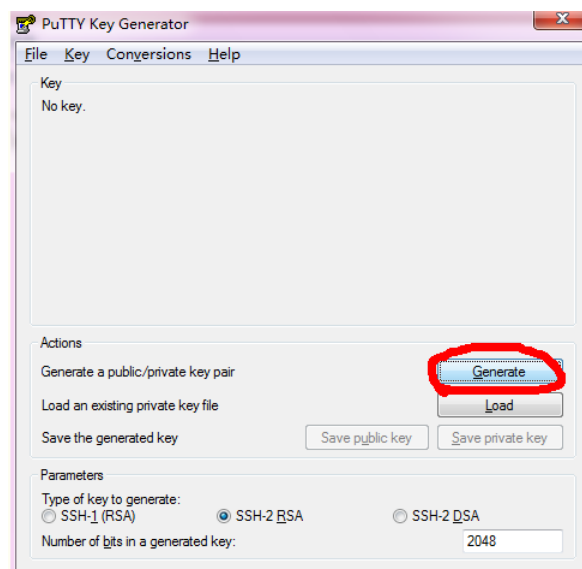
1. Download PuttyGen: <http://the.earth.li/~sgtatham/putty/latest/x86/puttygen.exe>

PuttyGen will be used for generating pubkey. Pubkey is used for uploading your project to Openshift.

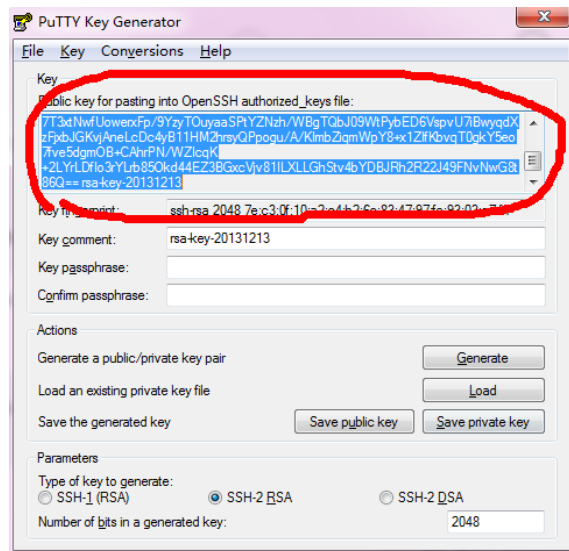
Open PuttyGen and select **SSH-2 RSA**



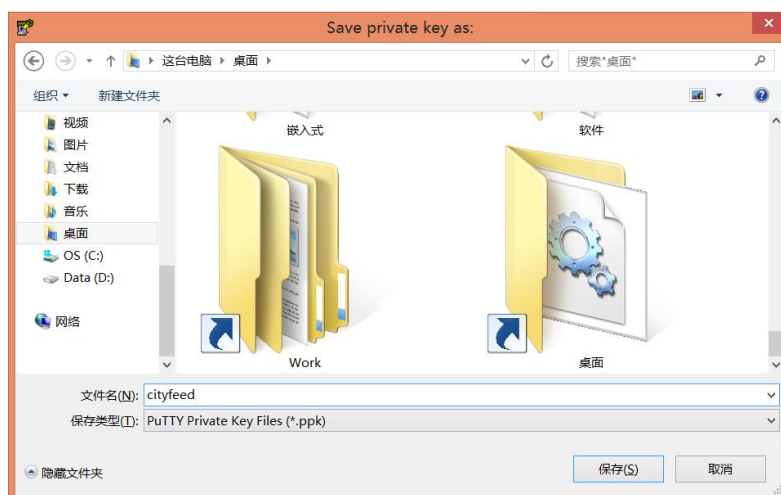
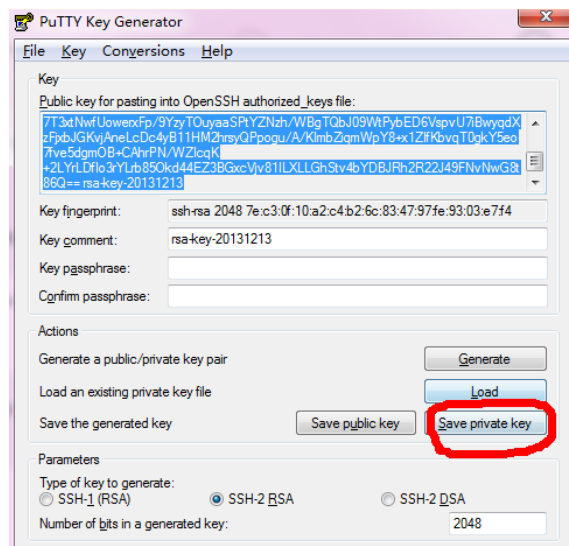
2. Click **Generate** button to generate pubkey, after clicking please **moving your mouse randomly** as requested by PuttyGen:



3. Generated pubkey: please copy the key string, we will use it later.

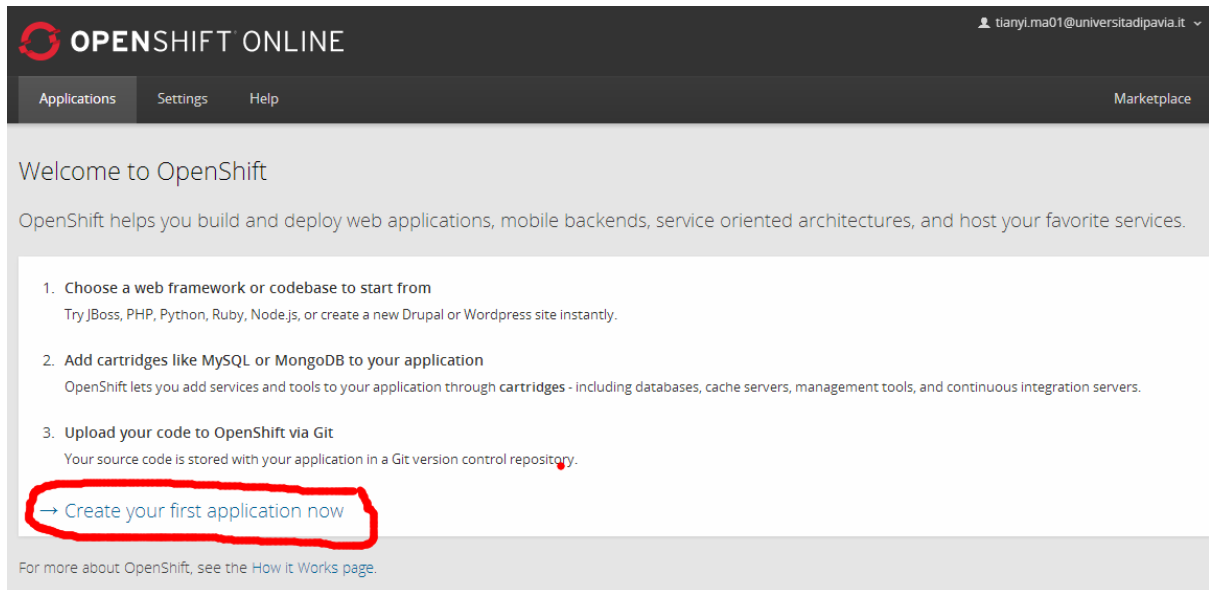


4. Click **save private key** and give it a name.

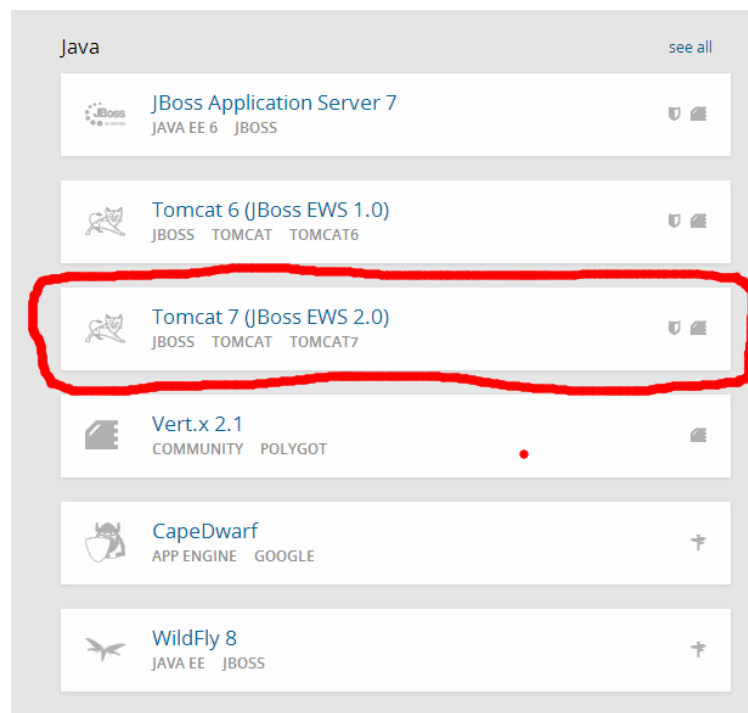


## Create your application on Openshift

1. Login Openshift, click **Create your first application now**.



2. Drag down the page and find **Java** -> **Tomcat 7**, click it.



3. Fill in your **application name** and **domain group name**, select **Scale with web traffic**, click **Create Application**:

Based On **Tomcat 7 (JBoss EWS 2.0) Cartridge**

JBoss Enterprise Web Server is the enterprise-class Java web container for large-scale lightweight web applications based on Tomcat 7. Build and deploy JSPs and Servlets in the cloud.

<http://www.redhat.com/products/jbossenterprisemiddleware/web-server/>

☆ OpenShift maintained

🔒 Receives automatic security updates

Public URL   -  .rhcloud.com

Because this is your first application, you need to provide a domain under which your applications will be grouped.

OpenShift will automatically register this domain name for your application. You can add your own domain name later.

Source Code

We'll create a Git code repository in the cloud, and populate it with a set of reasonable defaults. If you provide a Git URL, your application will start with an exact copy of the code and configuration provided in this Git repository.

Gears **Small**

Gears are the application containers running your code. For most applications, the small gear size provides plenty of resources. You can also [upgrade your plan](#) to get access to more gear sizes.

Cartridges **Tomcat 7 (JBoss EWS 2.0)**

Applications are composed of cartridges - each of which exposes a service or capability to your code. All applications must have a web cartridge.

Scaling

OpenShift automatically routes web requests to your web gear. If you allow your application to scale, we'll set up a load balancer and allocate more gears to handle traffic as you need it.

+1 @

4. Click **Yes, help me get started**, paste your **pubkey** string generated before, click **save**.

1 Choose a type of application 2 Configure the application 3 Next steps

Will you be changing the code of this application?

☒ **Yes, help me get started**

OpenShift uses the [Git version control system](#) for your source code, and grants you access to it via the Secure Shell (SSH) protocol. In order to upload and download code to your application you need to give us your [public SSH key](#).

Paste the contents of your public key file (.pub)

```
ssh-rsa
AAAAB3NzaC1yc2EAAAABJQAAAQEA54RavboSVPUgLoED1VpsvKq+kPCetwZeW
KfarT3IAz7p4OZ1TRoTezY9JoIsnGKTnTqj+NN+a8/stYLCUvngwFb/p3GcImpqXF
6DkKZ8p/sQ83b86vMbmVtcOfzvzCZOIGu+zdYneYAPhO4H/GpMHPgDWDIMy+
SdtWB1TWLcng6pYB4XXoizByHFzpwrtVQ4oIVL9j3rsvUWq0icOGZ+errQg91LjD9
```

Note: You can also install the RHC command line tool and run `rhc setup` to generate and upload your key automatically.

[Not now, continue](#)

[Or visit app in the browser](#)

5. Visit your web site: <http://cityfeed-irma.rhcloud.com/>, you will see following page:

## Welcome to your JBossEWS (Apache/Tomcat) application on OpenShift

### Deploying code changes

OpenShift uses the [Git version control system](#) for your source code, and grants you access to it via the Secure Shell (SSH) protocol. In order to upload and download code to your application you need to give us your [public SSH key](#). You can upload it within the web console or install the [RHC command line tool](#) and run `|xhc setup|` to generate and upload your key automatically.

### Working in your local Git repository

If you created your application from the command line and uploaded your SSH key, rhc will automatically download a copy of that source code repository (Git calls this 'cloning') to your local system.

If you created the application from the web console, you'll need to manually clone the repository to your local system. Copy the application's source code Git URL and then run:

```
$ git clone <git_url> <directory_to_create>

# Within your project directory
# Commit your changes and push to OpenShift

$ git commit -a -m 'Some commit message'
$ git push
```

- [Learn more about deploying and building your application](#)
- See the README file in your local application Git repository for more information on the options for deploying applications.

### Managing your application

#### Web Console

You can use the OpenShift web console to enable additional capabilities via cartridges, add collaborator access authorizations, designate custom domain aliases, and manage domain memberships.

#### Command Line Tools

Installing the [OpenShift RHC client tools](#) allows you complete control of your cloud environment. Read more on how to manage your application from the command line in our [User Guide](#).

### Development Resources

#### JBoss Developer Studio

The JBoss Developer Studio is a full featured IDE with OpenShift integration built in. It gives you the ability to create, edit and deploy applications without having to leave the IDE. Links to download, install and use the JBoss Developer Studio for Linux, Mac OS X, or Windows can be found on the [JBoss Developer Studio tools page](#).

#### Debugging

[View debugging information](#) about the server environment including memory pools.

- [Developer Center](#)
- [User Guide](#)
- [OpenShift Support](#)
- [Stack Overflow questions for OpenShift](#)
- [IRC channel at #openshift on freenode.net](#)
- [Git documentation](#)

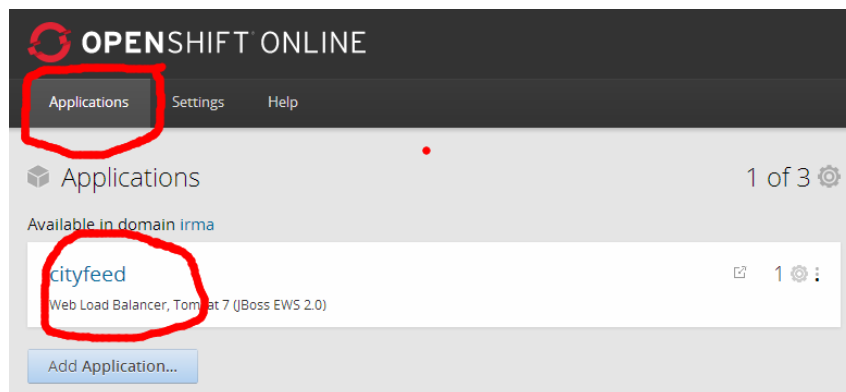
Built on



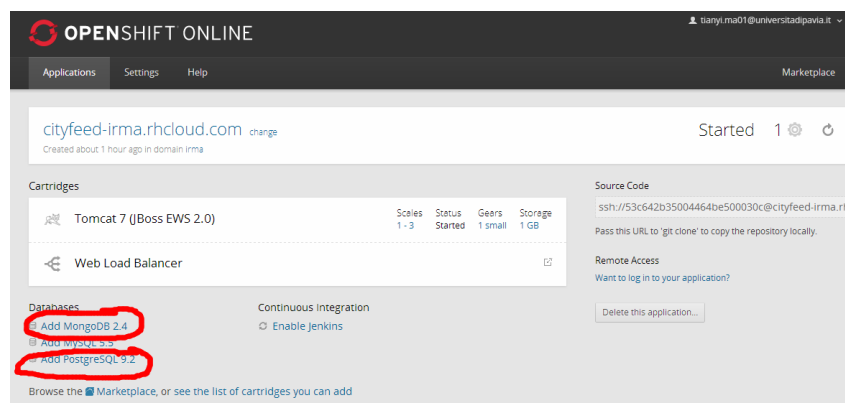
**OPENSHIFT**  
by Red Hat

## Add database to your Openshift gear

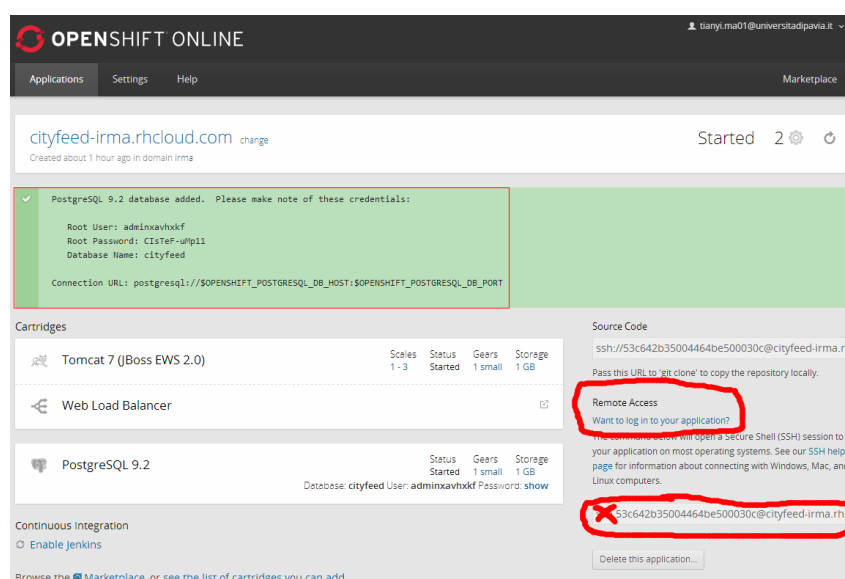
1. Click **Applications** -> Click your application



2. Choose your database:



3. Remember your database information. You will use it in your database connection configuration files. Click **Want to log in to your application** to get your SSH address, copy the address string (**the part without "ssh"!**). The SSH address is used for controlling this remote machine from your computer (see next chapter).





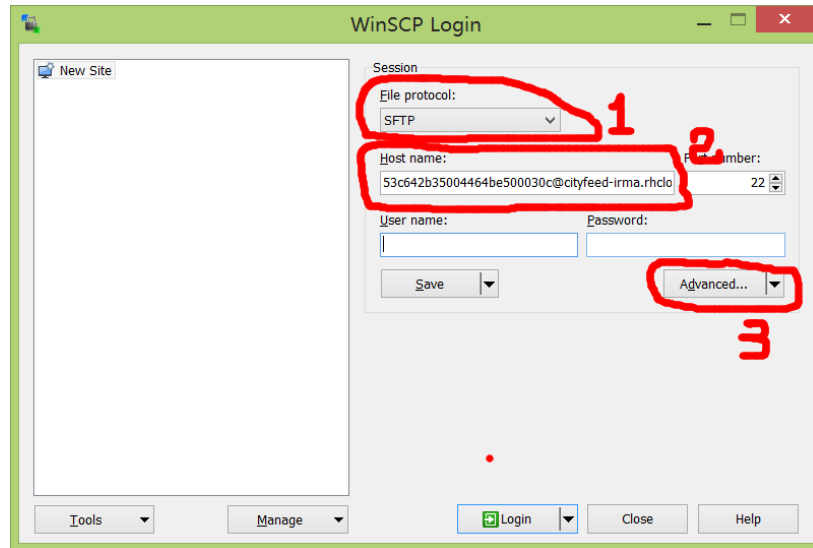
Remote control


File management

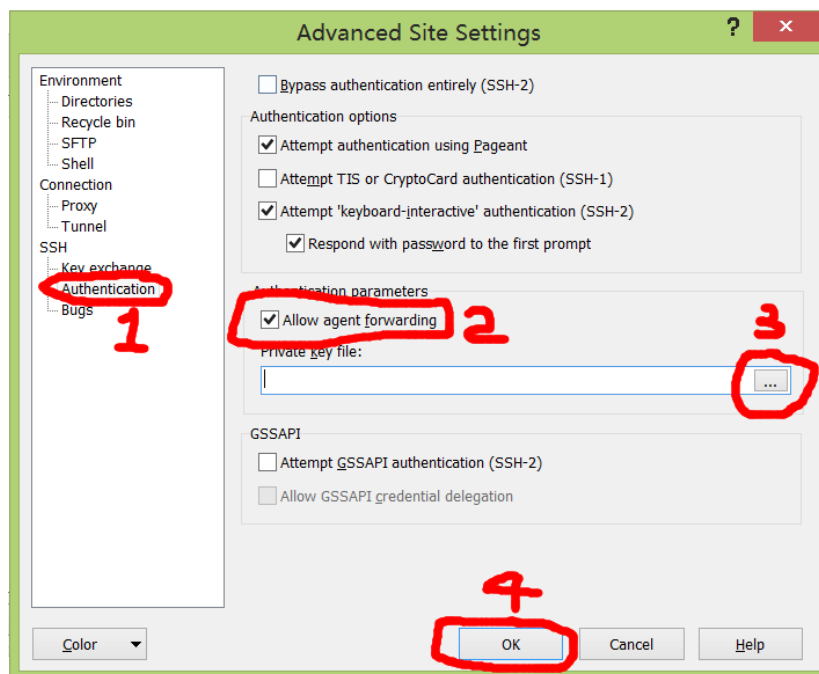
You can access files on your Openshift space.

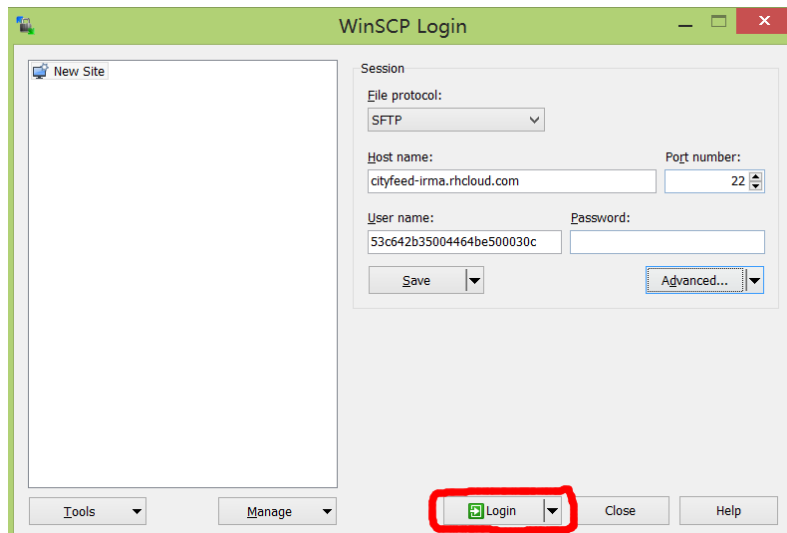
1. Download WinSCP: <http://winscp.net/download/winscp554setup.exe>

2. Install WinSCP and open it. Select **SFTP** in **File protocol**, paste ssh string in host name. Click **Advanced** to import pubkey generated before.

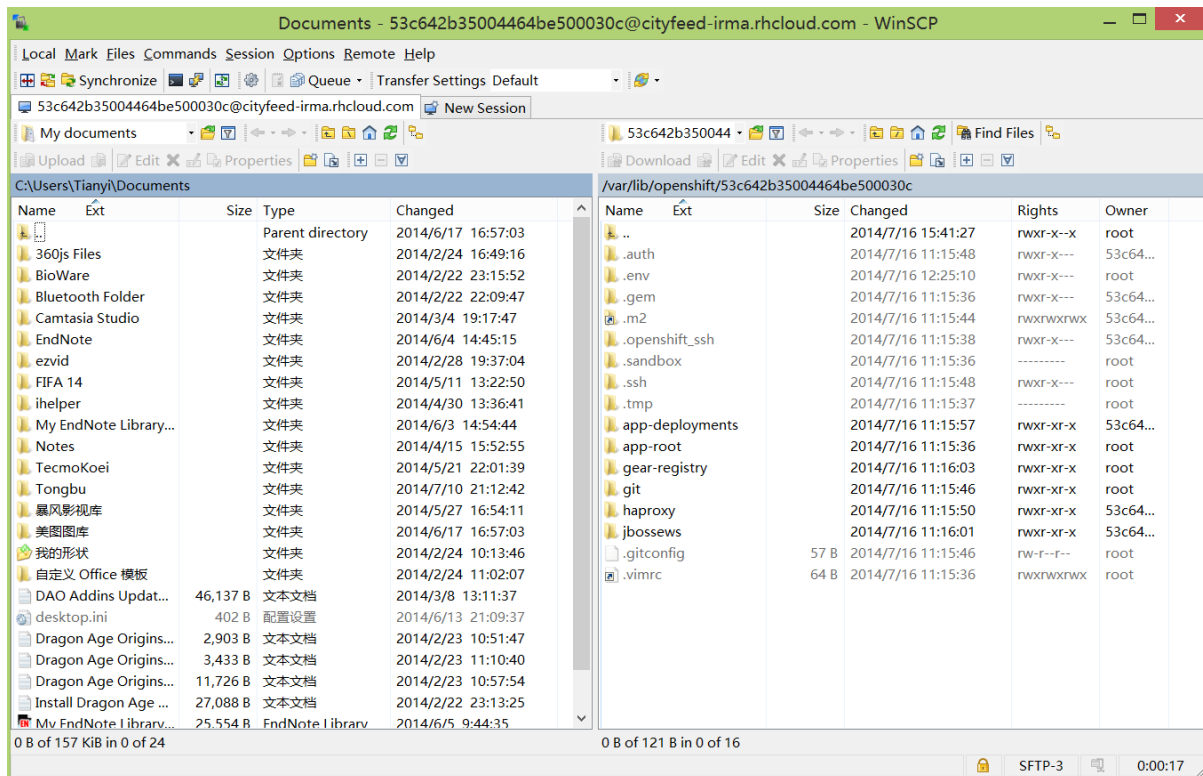
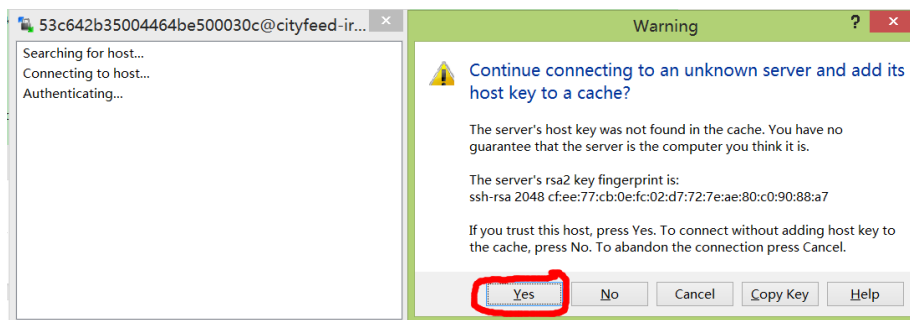


3. Click **Authentication** in SSH, check **Allow agent forwarding**, click  to select pubkey file. Click **OK** → Click **Login** button.





4. Click **Yes**.



5. Deploy your **war** file in **jbosssews** -> **webapps**

Name	Ext	Size	Changed	Rights	Owner
..			2014/7/16 15:41:27	rw-r-xr-x	root
.auth			2014/7/16 11:15:48	rw-r-xr-x	53c64...
.env			2014/7/16 12:25:10	rw-r-xr-x	root
.gem			2014/7/16 11:15:36	rw-r-xr-x	53c64...
.m2			2014/7/16 11:15:44	rw-rwxrwx	53c64...
.openshift_ssh			2014/7/16 11:15:38	rw-r-xr-x	53c64...
.sandbox			2014/7/16 11:15:36	-----	root
.ssh			2014/7/16 11:15:48	rw-r-xr-x	root
.tmp			2014/7/16 11:15:37	-----	root
app-deployments			2014/7/16 11:15:57	rw-r-xr-x	53c64...
app-root			2014/7/16 11:15:36	rw-r-xr-x	root
gear-registry			2014/7/16 11:16:03	rw-r-xr-x	root
git			2014/7/16 11:15:46	rw-r-xr-x	root
haproxy			2014/7/16 11:15:50	rw-r-xr-x	53c64...
<b>jbosssews</b>			2014/7/16 11:16:01	rw-r-xr-x	53c64...
.gitconfig		57 B	2014/7/16 11:15:46	rw-r--r--	root
.vimrc		64 B	2014/7/16 11:15:36	rw-rwxrwx	root

Name	Ext	Size	Changed	Rights	Owner
..			2014/7/16 11:15:49	rw-r-xr-x	root
bin			2014/7/16 11:15:44	rw-r-xr-x	root
conf			2014/7/16 11:16:01	rw-r-xr-x	53c64...
env			2014/7/16 11:15:45	rw-r-xr-x	root
hooks			2014/7/16 11:15:44	rw-r-xr-x	root
lib			2014/7/16 11:15:44	rw-rwxrwx	53c64...
metadata			2014/7/16 11:15:45	rw-r-xr-x	root
run			2014/7/16 11:15:58	rw-r-xr-x	53c64...
template			2014/7/16 11:15:45	rw-r-xr-x	53c64...
tmp			2014/7/16 11:15:44	rw-r-xr-x	53c64...
usr			2014/7/16 11:15:43	rw-rwxrwx	53c64...
<b>webapps</b>			2014/7/16 11:15:44	rw-rwxrwx	53c64...
work			2014/7/16 11:16:01	rw-r-xr-x	53c64...
COPYRIGHT		52 B	2014/6/26 23:25:23	rw-r--r--	53c64...
LICENSE		523 B	2014/6/26 23:25:23	rw-r--r--	53c64...
README.md		168 B	2014/6/26 23:25:23	rw-r--r--	53c64...

6. Rename your application war as **ROOT.war**. Drag war file into this directory to upload this file.

Changed

2014/6/17 16:57:03

2014/2/24 16:49:16

../53c642b35004464be500030c/app-root/runtime

Name	Ext	Size	Changed
..			2014/7/16
ROOT.war		20,461 B	2014/7/16

Upload

Upload file 'ROOT.war' to remote directory:

enshift/53c642b35004464be500030c/app-root/runtime/dependencies/jbosssews/webapps/\*.\*

Transfer settings

Transfer type: Binary

☐ Transfer on background (add to transfer queue)

Transfer settings...

OK

Cancel

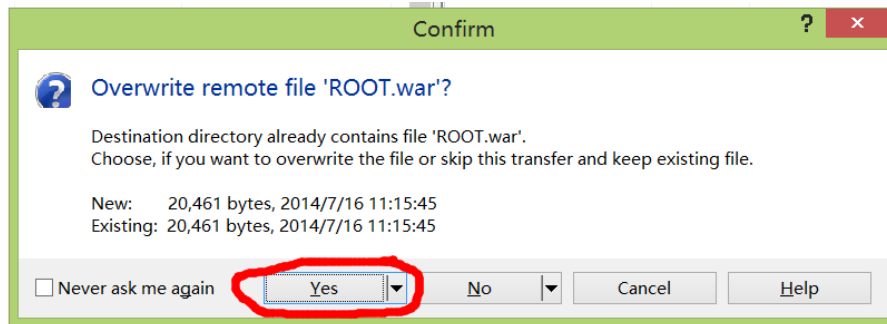
Help


☒ Do not show this dialog box again

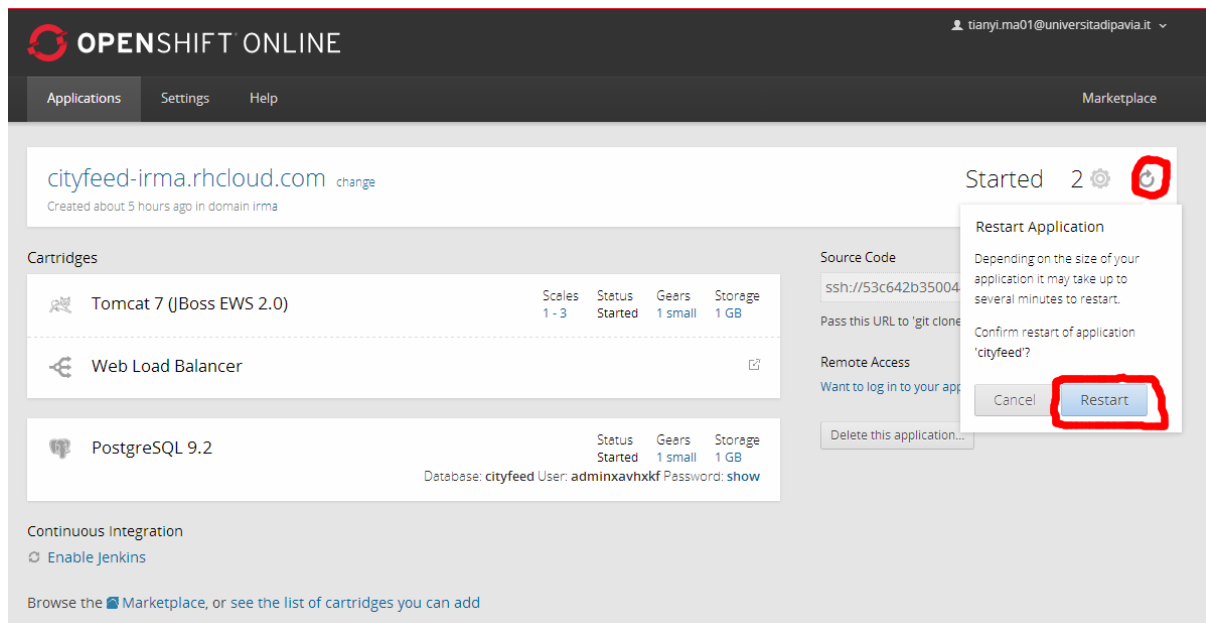
2014/6/17 16:57:03

2014/2/24 10:13:46

2014/2/24 11:02:07

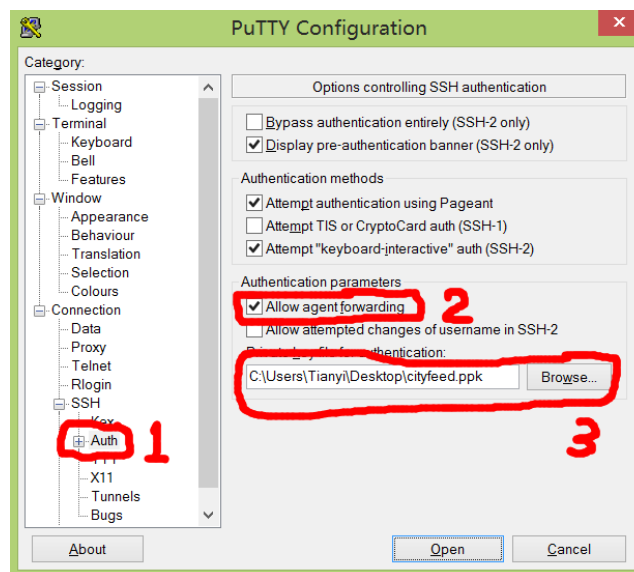
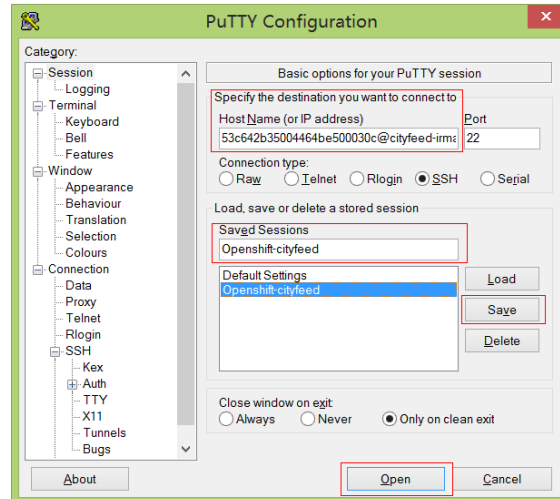


7. Restart your application to confirm the change: go to main panel, click  to restart application.

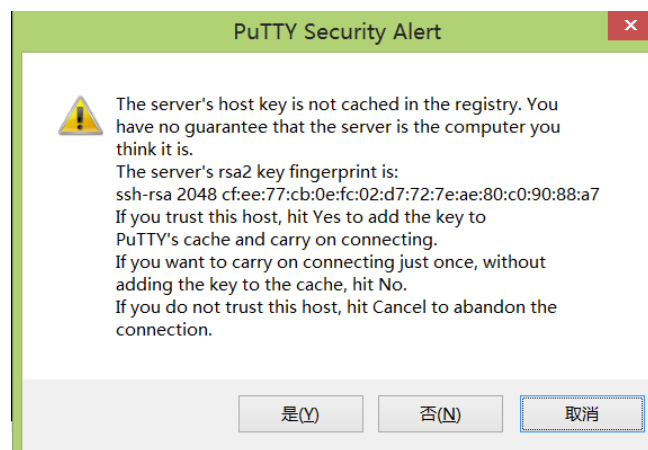


Use command line to control remote machine

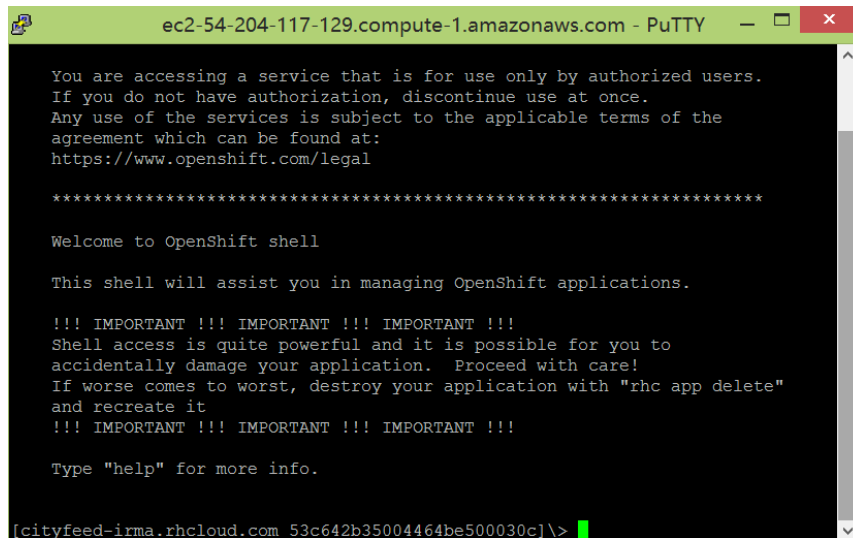
1. Download Putty: <http://the.earth.li/~sgtatham/putty/latest/x86/putty.exe>
2. Open Putty, input SSH string to **Host Name**, then click **Connection** -> **SSH** -> **Auth** -> **check Allow agent forwarding** -> **Browse** -> select pubkey generated from first chapter -> Click **Save** (next time you can double click sessions that you saved to access shell command) -> Click **Open**:



3. Click **Yes**



4. If successfully login, you can see this shell command window. You can use LINUX command from this command window.



The image shows a PuTTY terminal window titled "ec2-54-204-117-129.compute-1.amazonaws.com - PuTTY". The terminal output is as follows:

```
You are accessing a service that is for use only by authorized users.  
If you do not have authorization, discontinue use at once.  
Any use of the services is subject to the applicable terms of the  
agreement which can be found at:  
https://www.openshift.com/legal  
  
*****  
  
Welcome to OpenShift shell  
  
This shell will assist you in managing OpenShift applications.  
  
!!! IMPORTANT !!! IMPORTANT !!! IMPORTANT !!!  
Shell access is quite powerful and it is possible for you to  
accidentally damage your application.  Proceed with care!  
If worse comes to worst, destroy your application with "rhc app delete"  
and recreate it  
!!! IMPORTANT !!! IMPORTANT !!! IMPORTANT !!!  
  
Type "help" for more info.  
  
[cityfeed-irma.rhcloud.com 53c642b35004464be500030c]\>
```

Use Red Hat Client tool to create tunnel link between local machine to Openshift

1. You need to use Red Hat Client tool to open a remote access to database on Openshift.
2. Before installing RHC tool, you must install Ruby on your computer. Download Ruby here: <http://rubyinstaller.org/downloads/>
3. When you finish installing Ruby, open a CMD window, type following command to test your Ruby environment:

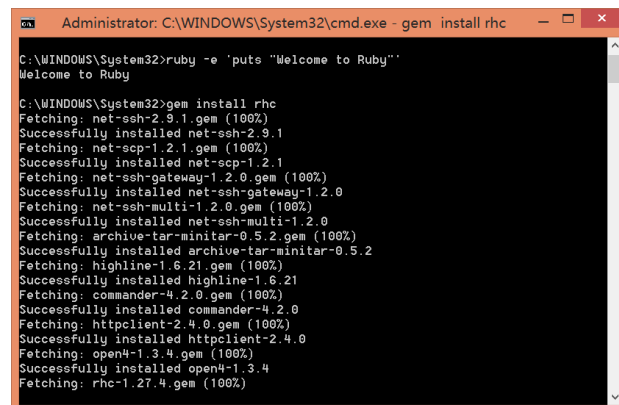
```
ruby -e 'puts "Welcome to Ruby"'
```

If it shows *Welcome to Ruby*, means you have successfully installed Ruby.

Then install RHC by typing following command:

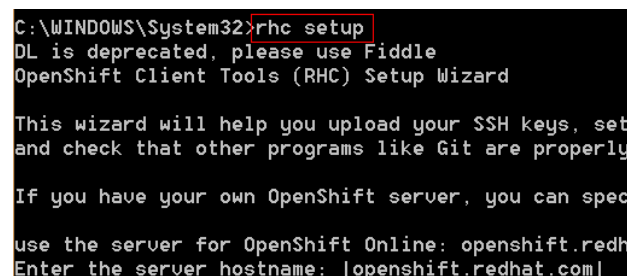
```
gem install rhc
```

It will install RHC tool automatically on your computer.



4. Setup RHC by typing following command:

```
rhc setup
```



Directly press “Enter” button -> enter your **username** and **password** of Openshift -> “Yes” to generate a private key for RHC tool (so that you don’t have to re-login next time) -> “Yes” to upload the key.

5. After setup, type following command to create a tunnel between your computer to your application gear on Openshift:

```
rhc port-forward cityfeed
```

You can see the bridges between your computer to Openshift.

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

Service	Local	OpenShift
haproxy	127.0.0.1:8081	=> 127.8.108.130:8080
haproxy	127.0.0.1:8082	=> 127.8.108.131:8080
java	127.0.0.1:8083	=> 127.8.108.129:8080
postgresql	127.0.0.1:50996	=> 53c652f150044612130000c6-irma.rhcloud.com:50996

Press CTRL-C to terminate port forwarding

You can visit your database (take PostgreSQL for example) from local address (don't close above CMD!):

Then you can restore your database on Openshift server.

If you can't find your database parameters, please login from Putty, enter command "env", find following parameters (please copy them on your computer!):

`OPENSIFT_POSTGRES_DB_HOST` your database address, not useful here.

`OPENSIFT_POSTGRES_DB_USERNAME` username of PostgreSQL

`OPENSIFT_POSTGRES_DB_URL` database connection string used in JDBC

`OPENSIFT_POSTGRES_DB_PORT` port number of database

`PGPASSWORD` password of your database