

Objectives:

Store data (passwords/secrets) in data bags by creating a new cookbook

1. Create a new cookbook named 'users'
2. Expected output:

```
Generating cookbook users
- Ensuring correct cookbook content

Your cookbook is ready. Type `cd cookbooks/users` to enter it.

There are several commands you can run to get started locally developing and testing your c
Type `delivery local --help` to see a full list of local testing commands.

Why not start by writing an InSpec test? Tests for the default recipe are stored at:
test/integration/default/default_test.rb

If you'd prefer to dive right in, the default recipe can be found at:
recipes/default.rb
```

3. Use a user resource to create a user.

Update **chef-repo/cookbooks/users/recipes/default.rb** to the following:

```
user '<your name>' do
  comment '<first and last name>'
  uid 2000
  home '/home/<your name>'
  shell '/bin/bash'
  manage_home true
  password 'LEAVE_BLANK_FOR_NOW'
end
```

4. Generating a **hashed password** using the '**openssl**' command to create an **encrypted** user's password.

```
$openssl passwd -1 -salt $(openssl rand -base64 6) hashpassword
```

NOTE: You can use any password you want instead of "hashpassword" as long as you use the same password throughout the labs

5. After executing the command, copy the encrypted password:

```
/home/ubuntu/chef-repo/cookbooks/users $openssl passwd -1 -salt $(openssl rand -base64 6) l  
$1$NLLKU4pn$nCh5VZ7I07A5EZHicFpmu. ← Copy password
```

Note: you will need this hash later in the lab

6. Update the user recipe with the encrypted password created above:

```
user '<your_name>' do  
  comment '<first and last name>'  
  uid 2000  
  home '/home/<your_name>'  
  shell '/bin/bash'  
  manage_home true  
  password '$1$NLLKU4pn$nCh5VZ7I07A5EZHicFpmu.'  
end
```

7. Update the **users/kitchen.yml** file to use the dokken driver and provisioner. This file needs to be able to run in **both** ubuntu and centos platforms.

Note: you could also copy the **apache/kitchen.yml** to the **users** cookbook

8. Update kitchen.yml to the following:

```
---
driver:
  name: dokken
provisioner:
  name: dokken
transport:
  name: dokken
verifier:
  name: inspec
platforms:
  - name: centos-7
    driver:
      image: dokken/centos-7
      privileged: true
      pid_one_command: /usr/lib/systemd/systemd
      volumes:
        - /sys/fs/cgroup:/sys/fs/cgroup:ro
  - name: ubuntu-20.04
    driver:
      image: dokken/ubuntu-20.04
      privileged: true
      pid_one_command: /usr/lib/systemd/systemd
      volumes:
        - /sys/fs/cgroup:/sys/fs/cgroup:ro
suites:
  - name: default
    sudo: true
    verifier:
      inspec_tests:
        - test/integration/default
    attributes:
```

Reminder: '.yml' files **will not** run properly if not formatted **exactly as shown above**. Do not use the tab button for spaces.

9. Execute `$kitchen converge`:

Expected output:

```
resolving cookbooks for run list: ["users::default@0.1.0 (a1c8883)"]
Synchronizing Cookbooks:
- users (0.1.0)
Installing Cookbook Gems:
Compiling Cookbooks...
Converging 1 resources
Recipe: users::default
  * linux_user[your_name] action create
    - create user your_name

Running handlers:
Running handlers complete
Chef Infra Client finished, 1/1 resources updated in 21 seconds
    Finished converging <default-ubuntu-2004> (0m26.00s).
-----> Test Kitchen is finished. (0m53.01s)
```

10. To check our username and password created by the cookbook use the below commands to fetch instance name to login into it.

`$kitchen list`

11. Expected output:

| Instance | Driver | Provisioner | Verifier | Transport | Last Action | Last |
|---------------------|--------|-------------|----------|-----------|-------------|-------|
| default-centos-7 | Dokken | Dokken | Inspect | Dokken | Converged | <None |
| default-ubuntu-2004 | Dokken | Dokken | Inspect | Dokken | Converged | <None |

12. Log into the centos kitchen:

`$kitchen login default-centos-7`

13. Expected output:

```
/home/ubuntu/chef-repo/cookbooks/users $kitchen login default-centos-7
[root@dokken /]#
```

14. Execute `# su your_name`,

15. Execute `$ su your_name` again and then appears a prompt asking for the password of the user because the user is not the root user:

```
[root@dokken /]# su your_name
[your_name@dokken /]$ su your_name
Password: █
```

16. Enter the exact string '**hashpassword**' as the password and press enter.

Do not enter the actual hashed password. This will point to the hashed password in the **default recipe** of the **user** resource. **The cursor does not move when entering a password.** Expected output is shown below:

```
[root@dokken /]# su your_name
[your_name@dokken /]$ su your_name
Password:
[your_name@dokken /]$ █
```

17. Enter the word 'exit' a total of three times to navigate back to the workstation :

```
[your_name@dokken /]$ su your_name
Password:
[your_name@dokken /]$ exit
exit
[your_name@dokken /]$ exit
exit
[root@dokken /]# exit
logout
/home/ubuntu/chef-repo/cookbooks/users $ █
```

From the root of the chef-repo directory, create a data bag

18. Execute:

```
$knife data bag create passwords --local-mode
```

Note: you can use -z as a shortcut for --local-mode, like this:

```
$ knife data bag create passwords -z
```

Expected output:

```
/home/ubuntu/chef-repo $knife data bag create passwords --local-mode
WARNING: No knife configuration file found. See https://docs.chef.io/config_rb/ for details.
Created data_bag[passwords]
/home/ubuntu/chef-repo $
```

19. Create a **your_name.json** file in `~/chef-repo/data_bags/passwords` with the info shown below:

```
{
  "id" : "your_name",
  "password" : "$1$NLLKU4pn$nCh5VZ7I07A5EZHicFpmu."
}
```

NOTE:

Databags generally reside on a remote Chef Server.

Because our databag is stored locally on the VM (and not in Chef Server, where they are usually stored) kitchen.yml instructs Test Kitchen where to find the databags locally.

Verify the passwords in the databag

20. Execute:

```
$knife data bag show passwords your_name --local-mode
```

21. Expected output:

```
WARNING: No knife configuration file found. See https://docs.chef.io/config_rb/ for details
id: your_name
password: $1$NLLKU4pn$nCh5VZ7I07A5EZHicFpmu.
/home/ubuntu/chef-repo $
```

22. Update kitchen.yml to provide the file path to data_bags:

- Add data_bags_path key to: /chef-repo/cookbooks/users/kitchen.yml as shown below:

```
suites:
  - name: default
    data_bags_path: '../..//data_bags'
    sudo: true
    verifier:
      inspec_tests:
        - test/integration/default
    attributes:
```

23. Add access to data bags in the default recipe

Update the default recipe in the users cookbook to the following:

Note the variable assignment AND the use of the variable are being updated

```
your_name_password = data_bag_item('passwords', 'your_name')

user 'your_name' do
  comment 'first and last name'
  uid 2001
  home '/home/your_name'
  shell '/bin/bash'
  manage_home true
  password your_name_password['password']
end
```

Verify the password using kitchen commands :

24. From the root of the users directory, execute

```
$kitchen destroy
```

```
-----> Starting Test Kitchen (v2.10.0)
-----> Destroying <default-centos-7>...
    Deleting kitchen sandbox at /home/ubuntu/.dokken/kitchen_sandbox/4862ac974c-default-centos-7
    Deleting verifier sandbox at /home/ubuntu/.dokken/verifier_sandbox/4862ac974c-default-centos-7
    Finished destroying <default-centos-7> (0m10.78s).
-----> Destroying <default-ubuntu-2004>...
    Deleting kitchen sandbox at /home/ubuntu/.dokken/kitchen_sandbox/4862ac974c-default-ubuntu-2004
    Deleting verifier sandbox at /home/ubuntu/.dokken/verifier_sandbox/4862ac974c-default-ubuntu-2004
    Finished destroying <default-ubuntu-2004> (0m10.40s).
-----> Test Kitchen is finished. (0m22.40s)
```

25. Execute

```
$kitchen converge
```

```
Synchronizing Cookbooks:
  - users (0.1.0)
Installing Cookbook Gems:
Compiling Cookbooks...
Converging 1 resources
Recipe: users::default
  * linux_user[your_name] action create
    - create user your_name

Running handlers:
Running handlers complete
Chef Infra Client finished, 1/1 resources updated in 21 seconds
    Finished converging <default-ubuntu-2004> (0m27.84s).
-----> Test Kitchen is finished. (1m8.61s)
```

26. Execute

```
$kitchen list
```

| Instance | Driver | Provisioner | Verifier | Transport | Last Action | Last Error |
|---------------------|--------|-------------|----------|-----------|-------------|------------|
| default-centos-7 | Dokken | Dokken | Inspec | Dokken | Converged | <None> |
| default-ubuntu-2004 | Dokken | Dokken | Inspec | Dokken | Converged | <None> |

27. Execute

```
$kitchen login default-centos-7
```

```
/home/ubuntu/chef-repo/cookbooks/users $kitchen login default-centos-7  
[root@dokken /]#
```

28. Execute

```
# su your_name
```

TWICE and use 'hashpassword' when prompted to enter a password:

```
[root@dokken /]# su your_name  
[your_name@dokken /]$ su your_name  
Password:
```

Expected output:

```
[root@dokken /]# su your_name  
[your_name@dokken /]$ su your_name  
Password:  
[your_name@dokken /]$
```

29. Test that it will fail with the wrong password. Exit one level out, and try to su to your username again, but this time enter an **incorrect** password:

```
[your_name@dokken /]$ su your_name  
Password:  
su: Authentication failure
```

30. This shows that you are using a value stored in a databag for authentication

31. Exit out of the kitchen, back to the workstation:

Notify your instructor that you are done with the lab

END OF LAB