Chef Workshop

Awesome Appliance Repair

Agenda

- Introduce the project
- Discuss learning objectives
- Hacking!
- Regular check-ins, Q & A, and hints
- Demos
- Next Steps

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Objectives

- Build something in Chef with very little guidance
- Write custom Chef recipes
- Use the Chef Documentation to identify and use resources that will help you model the desired state of your infrastructure
- Include guards in Chef resources

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Awesome Appliance Repair

https://github.com/learnchef/Awesome-Appliance-Repair

- Simple python application
- Uses Apache and MySQL
- Has an install script

http://awesome.modeled-computation.com/

Defining Success - TISMTOWTDI

- There are no right solutions for this workshop
  - If it works & doesn't throw an error, then its right
  - Best practices can be implemented in subsequent steps

  - This is a totally open-ended exercise
    - No matter how far you get, there will be more you can do
    - Get as far as you can at the pace that's right for you
    - Take it away and hack in your own time!

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What is Your Objective?

- You determine, define, and describe what success means for you.
  - Know where to start
  - Confidence to experiment
  - Deploy Awesome Appliance Repair with Chef
- What is your objective?

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In this workshop we will

- Work as individuals or pairs to find a solution
- Value the process more than the solution
- Demo work in progress, bad ideas, and solutions
- Make mistakes

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In this workshop we will not

- Guide you through the project step-by-step
- Give you THE answer

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Getting started

- AARinstall.py
  - Describes the pre-requisites
  - Includes python code to implement many of the steps
    - Install some packages
    - Write a few configuration files
    - Execute some `.sql` files to manipulate the database
  - Is incomplete
  - Is inaccurate in parts

AARinstall.py

```python
#!/usr/bin/python
# -*- coding: utf-8 -*-
from subprocess import Popen
import os, sys, getpass, binascii


# The following script assumes that
apache2, mysql, and unzip have been
installed.
```

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AARinstall.py

```
# 1. wget https://github.com/colincam/
Awesome-Appliance-Repair/archive/
master.zip
# 2. unzip master.zip
# 3. cd into Awesome-Appliance-Repair
# 4. sudo mv AAR to /var/www/
# 5. sudo su root
# 6. run script: python AARinstall.py
# 7. manually execute: apachectl
graceful
```

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AARinstall.py

```python
if __name__ == '__main__':
    root_dbpswd = getpass.getpass('enter the mysql root user password: ')

    Popen(['chown', '-R', 'www-data:www-data', '/var/www/AAR'], shell=False).wait()
```

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AARinstall.py

```python
# apt-get the stuff we need
    proc = Popen([
        'apt-get', 'install', '-y',
        'libapache2-mod-wsgi',
        'python-pip',
        'python-mysqldb'], shell=False)
    proc.wait()
```

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AARinstall.py

```python
# pip install flask
    Popen(['pip', 'install', 'flask'], shell=False).wait()
```

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AARinstall.py

```python
# Generate the apache config file in sites-enabled
    Popen(['apachectl', 'stop'], shell=False).wait()

    pth = '/etc/apache2/sites-enabled/'
    for f in os.listdir(pth):
        os.remove(pth + f)

    f = open('/etc/apache2/sites-enabled/AAR-apache.conf', 'w')
    f.write("""
<VirtualHost *:80>
  ServerName /
  WSGIDaemonProcess /AAR user=www-data group=www-data threads=5
  WSGIProcessGroup /AAR
  WSGIScriptAlias / /var/www/AAR/awesomeapp.wsgi

  <Directory /var/www/AAR>
    WSGIApplicationGroup %{GLOBAL}
    WSGIScriptReloading On
    Order deny,allow
    Allow from all
  </Directory>

  CustomLog ${APACHE_LOG_DIR}/access.log combined
  ServerAdmin ops@example.com
</VirtualHost>
""")
    f.close()
```

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AARinstall.py

```python
# Generate AAR_config.py with secrets
    f = open('/var/www/AAR/AAR_config.py', 'w')
    appdbpw = binascii.b2a_base64(os.urandom(6)).strip('\n')
    secretkey = binascii.b2a_base64(os.urandom(12)).strip('\n')

    conn_args_string = """CONNECTION_ARGS = {"host":"localhost",
"user":"aarapp", "passwd":"%s", "db":"AARdb"}\n\n""" % appdbpw

    secret_key_string = """SECRET_KEY = "%s"\n\n""" % secretkey

    database_values_string = """DB_VALUES = [(3,'Maytag','Washer',…")]
    """

    f.write(conn_args_string + secret_key_string + database_values_string)
    f.close()
```

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AARinstall.py

```python
# Create DB, user, and permissions
    import MySQLdb
    db = MySQLdb.connect(host='localhost', user='root', passwd=root_dbpswd)
    sql_script = open('make_AARdb.sql', 'r').read()


    cur = db.cursor()
    cur.execute(sql_script)
    cur.close()


    cur = db.cursor()
    cur.execute('use AARdb')
    cur.execute("CREATE USER 'aarapp'@'localhost' IDENTIFIED BY %s",
(appdbpw,))
    cur.execute("GRANT CREATE,INSERT,DELETE,UPDATE,SELECT on AARdb.* to
aarapp@localhost")
    cur.close()
    db.close()
```

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Exercise: Create GitHub Repo

Exercise: Create AAR cookbook

```
$ chef generate cookbook AAR
```

```
Compiling Cookbooks...
Recipe: code_generator::cookbook
  * directory[/Users/YOU/Documents/Scratch/AAR-temp/Awesome-Appliance-Repair/AAR/AAR] action create
    - create new directory /Users/YOU/Documents/Scratch/AAR-temp/Awesome-Appliance-Repair/AAR/AAR
  * template[/Users/YOU/Documents/Scratch/AAR-temp/Awesome-Appliance-Repair/AAR/AAR/metadata.rb] action create
    - create new file /Users/YOU/Documents/Scratch/AAR-temp/Awesome-Appliance-Repair/AAR/AAR/metadata.rb
    - update content in file /Users/YOU/Documents/Scratch/AAR-temp/Awesome-Appliance-Repair/AAR/AAR/
metadata.rb from none to f4bd5e
    (diff output suppressed by config)
  * template[/Users/YOU/Documents/Scratch/AAR-temp/Awesome-Appliance-Repair/AAR/AAR/README.md] action create
    - create new file /Users/YOU/Documents/Scratch/AAR-temp/Awesome-Appliance-Repair/AAR/AAR/README.md
    - update content in file /Users/YOU/Documents/Scratch/AAR-temp/Awesome-Appliance-Repair/AAR/AAR/README.md
from none to 1666ef
...
```

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Exercise: Add cookbook to git

```
$ cd AAR
$ git add .
$ git commit -m "first commit of AAR cookbook"
[master (root-commit) 5c162aa] first commit
 7 files changed, 151 insertions(+)
 create mode 100644 .gitignore
 create mode 100644 .kitchen.yml
 create mode 100644 Berksfile
 create mode 100644 README.md
 create mode 100644 chefignore
 create mode 100644 metadata.rb
 create mode 100644 recipes/default.rb
```

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Exercise: Upload cookbook to GitHub repo

```
$ git remote add origin git@github.com:YOU/my-aar.git
$ git push —u origin master
Counting objects: 10, done.
Delta compression using up to 8 threads.
Compressing objects: 100% (8/8), done.
Writing objects: 100% (10/10), 1.51 KiB | 0 bytes/s, done.
Total 10 (delta 0), reused 0 (delta 0)
To git@github.com:YOU/my-aar.git
 * [new branch]      master -> master
Branch master set up to track remote branch master from origin.
```

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Exercise: View your cookbook in GitHub

Getting started tips…

- You can start with the default recipe, `default.rb`

- Backup to GitHub regularly
  ```
  $ git commit -am "commit message here"
  $ git push
  ```

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Time to hack!

https://www.flickr.com/photos/peterpearson/424047087

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Demo Time!

- Show your work
- Discuss your choices
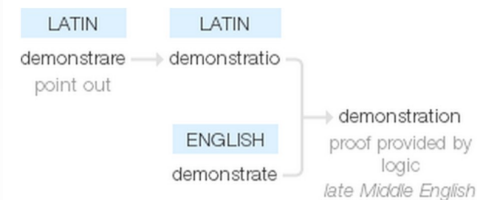- Gather feedback and ideas

dem·on·stra·tion
/ˌdemənˈstrāSHən/ 🔊

noun
noun: **demonstration**; plural noun: **demonstrations**

1. the action or process of showing the existence or truth of something by giving proof or evidence.
   "it is not capable of mathematical demonstration"
   synonyms: proof, substantiation, confirmation, affirmation, corroboration, verification, validation; More
   - the outward showing of feeling.
     "physical demonstrations of affection"
     synonyms: manifestation, indication, sign, mark, token, embodiment; More
   - a practical exhibition and explanation of how something works or is performed.
     "a microwave cooking demonstration"
     synonyms: exhibition, presentation, display, exposition, teach-in, expo; More
2. a public meeting or march protesting against something or expressing views on a political issue.
   synonyms: protest, march, rally, lobby, sit-in, counterdemonstration; More

Origin

LATIN	LATIN
demonstrare	demonstratio
point out	

ENGLISH
demonstrate

→ demonstration
proof provided by logic
late Middle English

late Middle English (also in the senses 'proof provided by logic' and 'sign, indication'): from Latin demonstratio(n-), from demonstrare 'point out' (see demonstrate). Sense 2 dates from the mid 19th century.

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Hints

```
# The following script assumes that apache2, mysql,
and unzip have been installed.
```

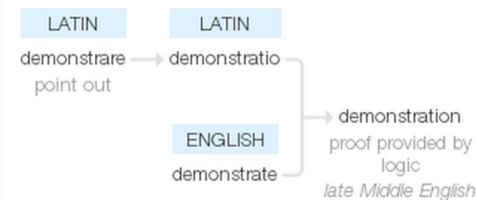- `mysql-server` is probably the package you're looking for.

Time to hack!

https://www.flickr.com/photos/peterpearson/424047087

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Demo Time!

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Hints

```
# 1. wget https://github.com/colincam/Awesome-
Appliance-Repair/archive/master.zip
# 2. unzip master.zip
# 3. cd into Awesome-Appliance-Repair
# 4. sudo mv AAR to /var/www/
```

- Do you need to download every time the chef-client runs?
- What are the pros and cons of doing so?

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Time to hack!

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Demo Time!

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- Discuss your choices
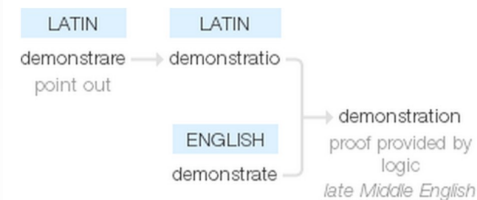- Gather feedback and ideas

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https://www.google.com/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=demonstration

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Hints

```python
# Create DB, user, and permissions
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sql_script = open('make_AARdb.sql', 'r').read()


cur = db.cursor()
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cur.execute("CREATE USER 'aarapp'@'localhost' IDENTIFIED BY %s", (appdbpw,))
cur.execute("GRANT CREATE,INSERT,DELETE,UPDATE,SELECT on AARdb.* to aarapp@localhost")
cur.close()
db.close()
```

- Should you do this every time the chef-client runs?
- How would you prevent that from happening?

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Time to hack!

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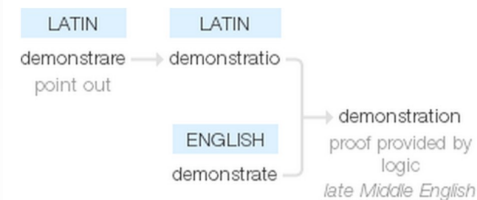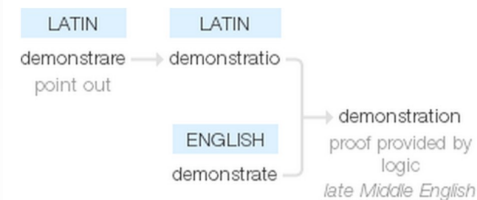
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Next steps

- Refactor
- Testing
- Multi-tier implementation
- Community Cookbooks
- Multi-OS Support
- Cloud deployment
- Operationalize
  - Monitoring
  - Central logging
- Application deployments

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Time to hack!

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- Show your work
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Objectives

- Build something in Chef with very little guidance
- Write custom Chef recipes
- Use the Chef Documentation to identify and use resources that will help you model the desired state of your infrastructure
- Include guards in Chef resources

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Your Objectives

- Review the objectives you set for yourself at the beginning of the workshop.
- Have you met them?
- Take a few minutes to reflect on what you've learned today.

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Thank you!

- What did you learn?

- What questions do you have?

- What are you going to do next?

- Share your solutions – http://github.com/learnchef/workshops

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