

Chef Workshop

Awesome Appliance Repair



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Agenda

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

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

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 - TIMTOWTDI

- 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!

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?

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

In this workshop we will not

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

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

```
#!/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.
```

AARinstall.py

```
# 1. wget https://github.com/colinca/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
```

AARinstall.py

```
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()
```

AARinstall.py

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

AARinstall.py

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

AARinstall.py

```
# 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()
```

AARinstall.py

```
# 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()
```


AARinstall.py


```
# Create DB, user, and permissions
import MySQLdb
db = MySQLdb.connect(host='localhost', user='root', passwd=root_dbpasswd)
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",
(aappdbpw,))
cur.execute("GRANT CREATE,INSERT,DELETE,UPDATE,SELECT on AARdb.* to
aarapp@localhost")
cur.close()
db.close()
```

Exercise: Create GitHub Repo

Owner

 nathenharvey ▾

 /

Repository name

aar ✓

Description (optional)

☒  **Public**

Anyone can see this repository. You choose who can commit.

☐  **Private**

You choose who can see and commit to this repository.

☐ **Initialize this repository with a README**

This will allow you to `git clone` the repository immediately. Skip this step if you have already run `git init` locally.

Add .gitignore: **None** ▾

 |

Add a license: **None** ▾ 

Create repository

Exercise: Create aar cookbook using knife

```
$ knife cookbook create aar
```

```
** Creating cookbook aar
```

```
** Creating README for cookbook: aar
```

```
** Creating CHANGELOG for cookbook: aar
```

```
** Creating metadata for cookbook: aar
```

Exercise: add cookbook to git

```
$ cd cookbooks/aar
```

Exercise: add cookbook to git

```
$ git init .
```

```
Initialized empty Git repository  
in /Users/henry/chef-repo/cookbooks/  
aar/.git/
```

Exercise: add cookbook to git

```
$ git add .
```

Exercise: add cookbook to git

```
$ git commit -m "Scaffold of the cookbook created by knife"
```

```
[master (root-commit) b3d606c]  
Scaffold of the cookbook created by  
knife  
 4 files changed, 96 insertions(+)  
create mode 100644 CHANGELOG.md  
create mode 100644 README.md  
create mode 100644 metadata.rb  
create mode 100644 recipes/default.rb
```

Exercise: Upload cookbook to GitHub repo

```
$ git remote add origin git@github.com:henrythecow/aar.git
```


Exercise: Upload cookbook to GitHub repo

```
$ git push -u origin master
```

```
Counting objects: 7, done.
```

```
Delta compression using up to 8 threads.
```

```
Compressing objects: 100% (6/6), done.
```

```
Writing objects: 100% (7/7), 1.63 KiB, done.
```

```
Total 7 (delta 0), reused 0 (delta 0)
```

```
To git@github.com:henrythecow/aar.git
```

```
* [new branch]      master -> master
```

```
Branch master set up to track remote branch master from  
origin.
```

Exercise: View your cookbook in GitHub

aar — Edit

1 commit

1 branch

0 releases

1 contributor



branch: master ▾

aar / +



Scaffold of the cookbook created by knife



nathenharvey authored 6 minutes ago

latest commit b3d606c445

recipes

Scaffold of the cookbook created by knife

6 minutes ago

CHANGELOG.md

Scaffold of the cookbook created by knife

6 minutes ago

README.md

Scaffold of the cookbook created by knife

6 minutes ago

metadata.rb

Scaffold of the cookbook created by knife

6 minutes ago

README.md

Exercise: Create aar cookbook using ChefDK

```
$ chef generate cookbook aar
```

```
Compiling Cookbooks...
```

```
Recipe: code_generator::cookbook
```

```
  * directory[/Users/YOU/Documents/Awesome-Appliance-Repair/aar/aar] action create
    - create new directory /Users/YOU/Documents/Awesome-Appliance-Repair/aar/aar
  * template[/Users/YOU/Documents/Awesome-Appliance-Repair/aar/aar/metadata.rb] action
  create
    - create new file /Users/YOU/Documents/Awesome-Appliance-Repair/aar/aar/metadata.rb
    - update content in file /Users/YOU/Documents/Awesome-Appliance-Repair/aar/aar/
  metadata.rb from none to f4bd5e
    (diff output suppressed by config)
  * template[/Users/YOU/Documents/Awesome-Appliance-Repair/aar/aar/README.md] action
  create
    - create new file /Users/YOU/Documents/Awesome-Appliance-Repair/aar/aar/README.md
    - update content in file /Users/YOU/Documents/Awesome-Appliance-Repair/aar/aar/
  README.md from none to 1666ef
  ...
```

Exercise: Add cookbook to git

```
$ cd aar
```

Exercise: Add cookbook to git

```
$ git add .
```

Exercise: Add cookbook to git

```
$ git commit -m "Scaffold of the cookbook created by chef"
```

```
[master (root-commit) b1db9ac] Scaffold of the cookbook created by chef
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
```

Exercise: Upload cookbook to GitHub repo

```
$ git remote add origin git@github.com:henrythecow/aar.git
```

Exercise: Upload cookbook to GitHub repo

```
$ git push -u origin master
```

```
Counting objects: 7, done.
```

```
Delta compression using up to 8 threads.
```

```
Compressing objects: 100% (6/6), done.
```

```
Writing objects: 100% (7/7), 1.63 KiB, done.
```

```
Total 7 (delta 0), reused 0 (delta 0)
```

```
To git@github.com:henrythecow/aar.git
```

```
* [new branch]      master -> master
```

```
Branch master set up to track remote branch master from  
origin.
```


Exercise: View your cookbook in GitHub

aar — Edit

1 commit

1 branch

0 releases

1 contributor



branch: master

aar / +



Scaffold of the cookbook created by chef



nathenharvey authored 3 minutes ago

latest commit c4349e3ee5

recipes	Scaffold of the cookbook created by chef	3 minutes ago
.gitignore	Scaffold of the cookbook created by chef	3 minutes ago
.kitchen.yml	Scaffold of the cookbook created by chef	3 minutes ago
Berksfile	Scaffold of the cookbook created by chef	3 minutes ago
README.md	Scaffold of the cookbook created by chef	3 minutes ago
chefignore	Scaffold of the cookbook created by chef	3 minutes ago
metadata.rb	Scaffold of the cookbook created by chef	3 minutes ago

README.md

<> Code

Issues 0

Pull Requests 0

Wiki

Pulse

Graphs

Settings

SSH clone URL

git@github.com:nath



You can clone with [HTTPS](#), [SSH](#), or [Subversion](#).

Clone in Desktop



Getting started tips...

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

- Backup to GitHub regularly

```
$ git commit -am "commit message here"
```

```
$ git push
```

Time to hack!




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

Demo Time!

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

dem·on·stra·tion

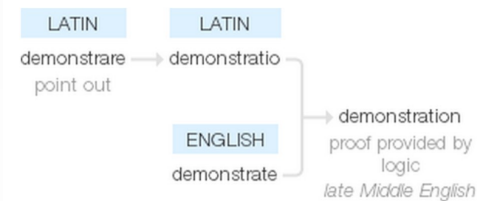
/ˌdemənˈstrāSHən/ 

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



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.

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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dem·on·stra·tion

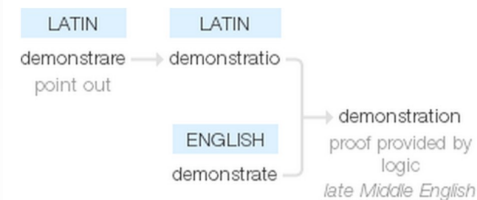
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Hints

```
# 1. wget https://github.com/colinca/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?

Time to hack!



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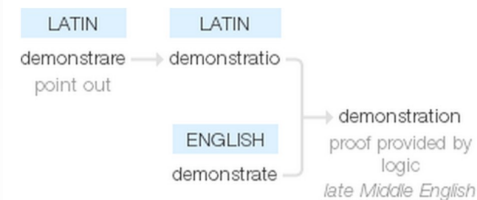
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cur = db.cursor()
cur.execute(sql_script)
cur.close()

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()
```

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

Time to hack!



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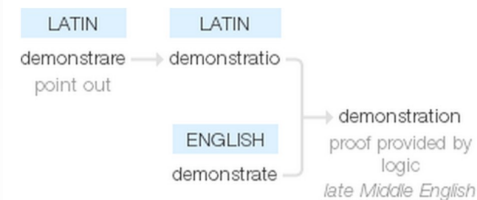
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Next steps

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

Time to hack!



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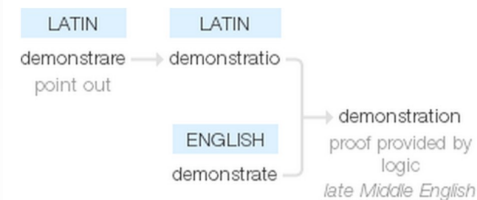
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Objectives

- 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

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.

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>