Roles

Giving your Nodes a Role

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Objectives

After completing this module, you should be able to:

- Assign roles to nodes so you can better describe them and configure them in a similar manner.

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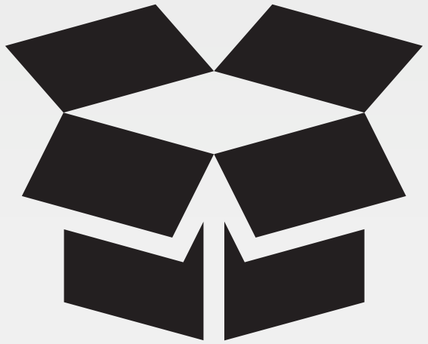
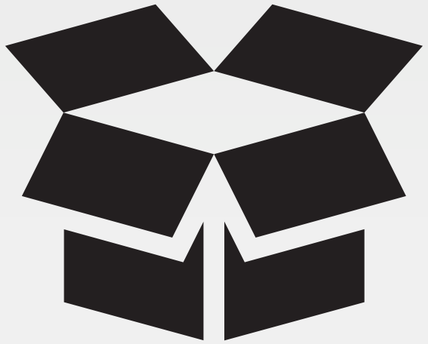
CONCEPT



Roles

A role describes a run list of recipes that are executed on the node. It may also define new attribute defaults or define overrides for existing attribute values.

CONCEPT



Roles

When you assign a role to a node you do so in its run list.

This allows you to configure many nodes in a similar fashion.

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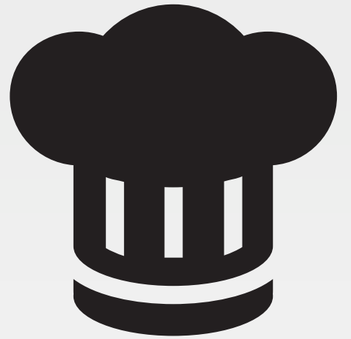

GL: Define a Web Role

*A role would be a better way to describe what are obviously the **web**servers.*

Objective:

- ❑ Create and upload a role named "web" that has the run list "recipe[myiis]"
- ❑ Set node1's run list to be "role[web]"
- ❑ Set node2's run list to be "role[web]"
- ❑ Converge all the nodes that have been assigned the web role

GL: What Can 'knife role' Do?

```
> cd ~\chef-repo
> knife role --help
```

```
** ROLE COMMANDS **
knife role bulk delete REGEX (options)
knife role create ROLE (options)
knife role delete ROLE (options)
knife role edit ROLE (options)
knife role env_run_list add [ROLE] [ENVIRONMENT] [ENTRY[,ENTRY]] (options)
knife role env_run_list clear [ROLE] [ENVIRONMENT]
knife role env_run_list remove [ROLE] [ENVIRONMENT] [ENTRIES]
knife role env_run_list replace [ROLE] [ENVIRONMENT] [OLD_ENTRY] [NEW_ENTRY]
knife role env_run_list set [ROLE] [ENVIRONMENT] [ENTRIES]
knife role from file FILE [FILE..] (options)
```

GL: Run 'knife role list'

```
> knife role list
```

GL: Create a Roles Directory if Necessary

```
> mkdir roles
```

Note: The *roles* directory may already exist.

GL: Create the Web Role

~\chef-repo\roles\web.rb

```
name 'web'
description 'Web Server'
run_list 'recipe[myiis]'
```

GL: Upload the Role to the Chef Server

```
> knife role from file web.rb
```

```
Updated Role web
```


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GL: Verify the Role on the Chef Server

```
> knife role list
```

```
web
```

GL: Verify Specific Information About the Role

```
> knife role show web
```

```
chef_type:            role
default_attributes:
description:          Web Server
env_run_lists:
json_class:           Chef::Role
name:                 web
override_attributes:
run_list:             recipe[myiis]
```


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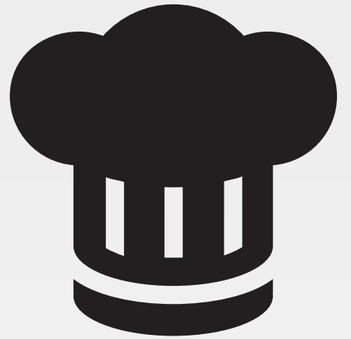

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GL: View node1

```
> knife node show node1
```

```
Node Name:   node1
Environment: _default
FQDN:        WIN-DQFQCUFHDCP.ec2.internal
IP:          174.129.71.79
Run List:    recipe[myiis]
Roles:
Recipes:     myiis, myiis::default, myiis::server
Platform:    windows 6.3.9600
Tags:
```


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GL: Set node1's Run List

```
> knife node run_list set node1 "role[web]"
```

```
node1:
  run_list: role[web]
```

GL: View node1 again

```
> knife node show node1
```

```
Node Name:   node1
Environment: _default
FQDN:        WIN-DQFQCUFHDCP.ec2.internal
IP:          174.129.71.79
Run List:    role[web]
Roles:
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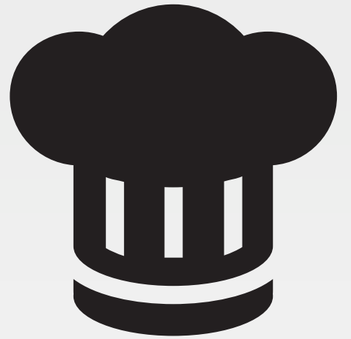

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GL: View node2

```
> knife node show node2
```

```
Node Name:   node2
Environment: _default
FQDN:        WIN-DQFQCUFHDCP.ec2.internal
IP:          54.146.147.44
Run List:    recipe[myiis]
Roles:
Recipes:     myiis, myiis::default, myiis::server
Platform:    windows 6.3.9600
Tags:
```


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GL: Set node2's Run List

```
> knife node run_list set node2 "role[web]"
```

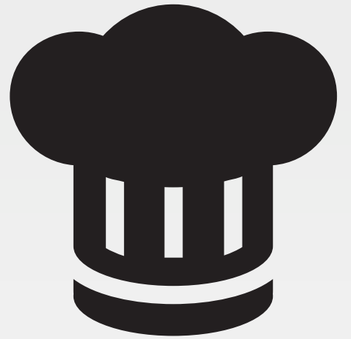
```
node2:
  run_list: role[web]
```

GL: View node2 again

```
> knife node show node2
```

```
Node Name:   node2
Environment: _default
FQDN:        WIN-DQFQCUFHDCP.ec2.internal
IP:          54.146.147.44
Run List:    role[web]
Roles:
Recipes:     myiis, myiis::default, myiis::server
Platform:    windows 6.3.9600
Tags:
```


CHEF



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Nodes' 'ipaddress' attribute

```
> knife node show node1 -a ipaddress
```

```
node1:
  ipaddress: 172.31.0.169
```

```
> knife node show node2 -a ipaddress
```

```
node2:
  ipaddress: 172.31.0.228
```

Issue: The IP Address returned by `node['ipaddress']` is an internal non-routable IP

GL: Capture Node's Public Host Name and IP

```
> knife node show node1 -a cloud
```

```
node1:
  cloud:
    local_hostname:    ip-172-31-0-169.ec2.internal
    local_ipv4:        172.31.0.169
    local_ipv4_addrs:  172.31.0.169
    provider:          ec2
    public_hostname:   ec2-174-129-71-79.compute-1.amazonaws.com
    public_ipv4:       174.129.71.79
    public_ipv4_addrs: 174.129.71.79
```


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GL: Capture Nodes' IP

```
> knife node show node1 -a cloud.public_ipv4
```

```
node1:
  cloud.public_ipv4: 174.129.71.79
```

```
> knife node show node2 -a cloud.public_ipv4
```

```
node2:
  cloud.public_ipv4: 54.146.147.44
```

Issue: We will use the `node['cloud']['public_ipv4']` attribute value

GL: Converge All Web Nodes

```
> knife winrm 'role:web' 'chef-client' -a cloud.public_hostname --winrm-user
administrator --winrm-password 'Training1234'
```

```
54.146.147.44 Starting Chef Client, version 13.4.24
…
54.146.147.44 [2018-09-20T19:01:24+00:00] INFO: Run List is [role[web]]
54.146.147.44 [2018-09-20T19:01:24+00:00] INFO: Run List expands to [myiis]
54.146.147.44 [2018-09-20T19:01:24+00:00] INFO: Starting Chef Run for node2
…
74.129.71.79 Starting Chef Client, version 13.4.24
…
174.129.71.79 [2018-09-20T19:01:33+00:00] INFO: Run List is [role[web]]
174.129.71.79 [2018-09-20T19:01:33+00:00] INFO: Run List expands to [myiis]
174.129.71.79 [2018-09-20T19:01:33+00:00] INFO: Starting Chef Run for node1
174.129.71.79 [2018-09-20T19:01:33+00:00] INFO: Running start handlers
...
```


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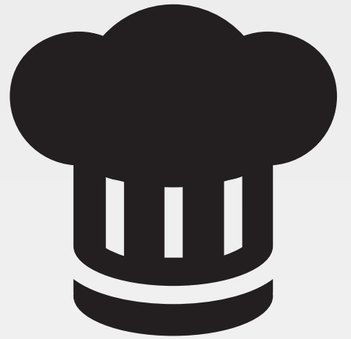

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DISCUSSION

Discussion

What are the benefits of using roles? What are the drawbacks?

Roles can contain roles. How many of these nested roles would make sense?

DISCUSSION

Q&A

What questions can we help you answer?

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