

Version : **2023.01**

Dernière mise-à-jour : 2023/11/12 11:47

LDF704 - Gestion de la Configuration des Clients

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Infrastructure

L'infrastructure utilisée dans ce module est la suivante.

Type Machine	FQDN	IP	OS	Version	CPUs	RAM (Mo)	HDD (Go)	User	MdP	MdP root
VM	workstation.ittraining.loc	10.0.2.111	Ubuntu	18.04.6 LTS	8	8192	50	trainee	trainee	S/O
VM	client.ittraining.loc	10.0.2.112	Ubuntu	18.04.6 LTS	4	4096	50	trainee	trainee	S/O
VM	web01.i2tch.loc	10.0.2.54	Debian	9.7	2	256	20	trainee	trainee	fenestros
VM	web02.i2tch.loc	10.0.2.55	Debian	9.7	2	256	20	trainee	trainee	fenestros
VM	web03.i2tch.loc	10.0.2.56	Debian	9.7	2	256	20	trainee	trainee	fenestros
VM	targeta.i2tch.loc	10.0.2.52	Debian	9.7	2	2048	20	trainee	trainee	fenestros
VM	targetb.i2tch.loc	10.0.2.53	CentOS	7.6.1810	2	2048	20	trainee	trainee	fenestros

LAB #1 - La Commande chef-run

1.1 - Présentation

La commande **chef-run** permet d'exécuter des commandes ad-hoc localement ou sur des clients.

Cette commande :

- ne nécessite pas de Chef Infra Server,
- ne nécessite pas de pré-installation de Chef Client sur le(s) client(s),
- peut aussi exécuter une Recette ou un Cookbook,
- peut configurer de multiples clients dans la même commande.

1.2 - Utiliser chef-run sur un Client Unique

Commencez par modifier le fichier **/etc/hosts** de votre VM **workstation.ittraining.loc** :

```
root@workstation:~/chef-repo/cookbooks# vi /etc/hosts
root@workstation:~/chef-repo/cookbooks# cat /etc/hosts
127.0.0.1        localhost
127.0.1.1        workstation
10.0.2.110       chefserver.ittraining.loc  chefserver
```

```
10.0.2.111 workstation.ittraining.loc workstation
10.0.2.112 client.ittraining.loc client
10.0.2.54 web01.i2tch.loc web01
10.0.2.55 web02.i2tch.loc web02
10.0.2.56 web03.i2tch.loc web03
```

The following lines are desirable for IPv6 capable hosts

```
::1 ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
```

Utilisez la commande **chef-run** pour arrêter le service apache2 sur la VM **web01.i2tch.loc** :

```
root@workstation:~/chef-repo/cookbooks# chef-run web01 service apache2 action=stop --password fenestros
Creating config file in /root/.chef-workstation/config.toml.
```

Telemetry has been enabled by default for this beta release of chef-run. The anonymous data we gather is used to determine how we can improve your chef-run experience.

To disable it, add the following entry to /root/.chef-workstation/config.toml:

```
[telemetry]
enable=false
```

For more information about what we data gather and additional opt-out options, visit <https://chef.sh/docs/chef-workstation/privacy/>

```
[✓] Packaging cookbook... done!
[✓] Generating local policyfile... exporting... done!
[✓] Applying service[apache2] from resource to target.
```

```
└─ [✓] [web01] Successfully converged service[apache2].
```

Connectez-vous à la VM **web01.i2tch.loc** à partir de votre VM **workstation.ittraining.loc** :

```
root@workstation:~/chef-repo/cookbooks# ssh -l trainee web01
The authenticity of host 'web01 (10.0.2.54)' can't be established.
ECDSA key fingerprint is SHA256:sEfHBv9azmK60cjQF/aJgUc9jg56slNaZQdAUcvB0vE.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'web01,10.0.2.54' (ECDSA) to the list of known hosts.
Debian GNU/Linux 9
trainee@web01's password: trainee
Linux web01.i2tch.loc 4.9.0-8-amd64 #1 SMP Debian 4.9.130-2 (2018-10-27) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Thu Nov  2 13:35:52 2023 from 10.0.2.1
```

Devenez root :

```
trainee@web01:~$ su -
Mot de passe : fenestros
root@web01:~#
```

Vérifiez le statut du service apache2 :

```
root@web01:~# systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: inactive (dead) since Thu 2023-11-02 13:49:44 CET; 42s ago
   Process: 1946 ExecStop=/usr/sbin/apachectl stop (code=exited, status=0/SUCCESS)
```

```
Process: 449 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
Main PID: 479 (code=exited, status=0/SUCCESS)
```

```
nov. 02 13:29:31 web01.i2tch.loc systemd[1]: Starting The Apache HTTP Server...
nov. 02 13:29:32 web01.i2tch.loc systemd[1]: Started The Apache HTTP Server.
nov. 02 13:49:44 web01.i2tch.loc systemd[1]: Stopping The Apache HTTP Server...
nov. 02 13:49:44 web01.i2tch.loc systemd[1]: Stopped The Apache HTTP Server.
```

Déconnectez-vous de votre VM **web01.i2tch.loc** :

```
root@web01:~# exit
déconnexion
trainee@web01:~$ exit
déconnexion
Connection to web01 closed.
```

La journalisation de l'activité de la commande **chef-run** est consignée dans le fichier **/root/.chef-workstation/logs/default.log**. Pour activer la journalisation, il convient d'éditer le fichier **/root/.chef-workstation/config.toml** :

```
root@workstation:~/chef-repo/cookbooks# vi /root/.chef-workstation/config.toml

root@workstation:~/chef-repo/cookbooks# cat /root/.chef-workstation/config.toml
[log]
level="debug"
```



Important - Il existe 5 niveaux de journalisation : **debug**, **info**, **warn**, **error** et **fatal**. Pour plus d'information concernant la journalisation, consultez [cette page](#).

Utilisez maintenant la commande **chef-run** pour démarrer le service apache2 sur la VM **web01.i2tch.loc** :

```
root@workstation:~/chef-repo/cookbooks# chef-run web01 service apache2 action=start --password fenestros
[✓] Packaging cookbook... done!
[✓] Generating local policyfile... exporting... done!
[✓] Applying service[apache2] from resource to target.
└─ [✓] [web01] Successfully converged service[apache2].
```

Constatez le bon démarrage du service :

```
root@workstation:~/chef-repo/cookbooks# ssh -l trainee web01
Debian GNU/Linux 9
trainee@web01's password: trainee
Linux web01.i2tch.loc 4.9.0-8-amd64 #1 SMP Debian 4.9.130-2 (2018-10-27) x86_64
```

The programs included with the Debian GNU/Linux system are free software; the exact distribution terms for each program are described in the individual files in /usr/share/doc/*/copyright.

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Last login: Thu Nov 2 13:50:12 2023 from 10.0.2.111

trainee@web01:~\$ su -

Mot de passe : fenestros

```
root@web01:~# systemctl status apache2
```

```
● apache2.service - The Apache HTTP Server
```

```
Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
```

```
Active: active (running) since Thu 2023-11-02 13:52:27 CET; 1min 29s ago
```

```
Process: 1946 ExecStop=/usr/sbin/apachectl stop (code=exited, status=0/SUCCESS)
```

```
Process: 2134 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
```

```
Main PID: 2138 (apache2)
```

```
Tasks: 55 (limit: 4915)
```

```
CGroup: /system.slice/apache2.service
```

```
└─2138 /usr/sbin/apache2 -k start
```

```
└─2139 /usr/sbin/apache2 -k start
```

```
└─2140 /usr/sbin/apache2 -k start
```

```
nov. 02 13:52:27 web01.i2tch.loc systemd[1]: Starting The Apache HTTP Server...
```

```
nov. 02 13:52:27 web01.i2tch.loc systemd[1]: Started The Apache HTTP Server.
```

Visualisez ensuite le contenu du fichier **/root/.chef-workstation/logs/default.log** :

```
root@workstation:~/chef-repo/cookbooks# more /root/.chef-workstation/logs/default.log
[2023-11-02T14:30:35+01:00] DEBUG: No chefireignore file found. No files will be ignored!
[2023-11-02T14:30:35+01:00] DEBUG: No chefireignore file found. No files will be ignored!
[2023-11-02T14:30:35+01:00] DEBUG: No chefireignore file found. No files will be ignored!
[2023-11-02T14:30:35+01:00] DEBUG: No chefireignore file found. No files will be ignored!
oot/.chef-workstation/telemetry/telemetry-payload-1.yml
[2023-11-02T14:30:32+01:00] INFO: Submitting telemetry entry 1/5: {:event=>:run,
:properties=>{:installation_id=>"6f4cafea-73a3-4058-8c01-c0212fcaa97f", :run_timestamp=>"2023-11-02T13:29:02Z",
:host_platfor
m=>"linux", :event_data=>{:arguments=>[:redacted], :duration=>8.209635892999358}}}}
[2023-11-02T14:30:33+01:00] INFO: Entry 1/5 submitted.
[2023-11-02T14:30:33+01:00] INFO: Submitting telemetry entry 2/5: {:event=>:action,
:properties=>{:installation_id=>"6f4cafea-73a3-4058-8c01-c0212fcaa97f", :run_timestamp=>"2023-11-02T13:29:02Z",
:host_plat
form=>"linux", :event_data=>{:action=>"ConvergeTarget", :target=>{:platform=>{:name=>:linux, :version=>"9.7",
:architecture=>"x86_64"}, :hostname_shal=>"7f1f968061faac1f2881018c5bbb473f498af24a", :transport
_type=>"ssh"}, :duration=>5.424575929995626}}}}
[2023-11-02T14:30:33+01:00] INFO: Entry 2/5 submitted.
[2023-11-02T14:30:33+01:00] INFO: Submitting telemetry entry 3/5: {:event=>:action,
:properties=>{:installation_id=>"6f4cafea-73a3-4058-8c01-c0212fcaa97f", :run_timestamp=>"2023-11-02T13:29:02Z",
:host_plat
form=>"linux", :event_data=>{:action=>"InstallChef", :target=>{:platform=>{:name=>:linux, :version=>"9.7",
:architecture=>"x86_64"}, :hostname_shal=>"7f1f968061faac1f2881018c5bbb473f498af24a", :transport_ty
pe=>"ssh"}, :duration=>0.15079596400028095}}}}
[2023-11-02T14:30:33+01:00] DEBUG: [ChefApply::Action::GenerateCookbookFromResource] Action: generating, Action
Data: []
[2023-11-02T14:30:33+01:00] DEBUG: Generating cookbook for ad-hoc resource service[apache2]
```

```
[2023-11-02T14:30:33+01:00] DEBUG: Generating cookbook for single resource 'service[apache2]'  
[2023-11-02T14:30:33+01:00] DEBUG: [ChefApply::Action::GenerateCookbookFromResource] Action: success, Action  
Data: []  
[2023-11-02T14:30:33+01:00] DEBUG: [ChefApply::Action::GenerateLocalPolicy] Action: generating, Action Data: []  
[2023-11-02T14:30:33+01:00] INFO: Entry 3/5 submitted.  
[2023-11-02T14:30:33+01:00] INFO: Submitting telemetry entry 4/5: {:event=>:action,  
:properties=>{:installation_id=>"6f4cafea-73a3-4058-8c01-c0212fcaa97f", :run_timestamp=>"2023-11-02T13:29:02Z",  
:host_plat  
form=>"linux", :event_data=>{:action=>"GenerateLocalPolicy", :target=>{:platform=>{}}, :hostname_sha1=>nil,  
:transport_type=>nil}, :duration=>1.7424296090030111}}  
[2023-11-02T14:30:33+01:00] INFO: Entry 4/5 submitted.  
[2023-11-02T14:30:33+01:00] INFO: Submitting telemetry entry 5/5: {:event=>:action,  
:properties=>{:installation_id=>"6f4cafea-73a3-4058-8c01-c0212fcaa97f", :run_timestamp=>"2023-11-02T13:29:02Z",  
:host_plat  
form=>"linux", :event_data=>{:action=>"GenerateCookbookFromResource", :target=>{:platform=>{}},  
:hostname_sha1=>nil, :transport_type=>nil}, :duration=>0.0006251430022530258}}  
[2023-11-02T14:30:33+01:00] INFO: Entry 5/5 submitted.  
[2023-11-02T14:30:33+01:00] INFO: Terminating, nothing more to do.  
[2023-11-02T14:30:35+01:00] DEBUG: [ChefApply::Action::GenerateLocalPolicy] Action: exporting, Action Data: []  
[2023-11-02T14:30:35+01:00] DEBUG: [ChefApply::Action::GenerateLocalPolicy] Action: success, Action Data: []  
[2023-11-02T14:30:35+01:00] DEBUG: [SSH] root@web01<{:user_known_hosts_file=>"/dev/null", :port=>22,  
:compression=>false, :compression_level=>0, :keepalive=>true, :keepalive_interval=>60, :timeout=>15, :aut  
h_methods=>["none", "password", "keyboard-interactive"], :keys_only=>nil, :keys=>nil, :password=>"<hidden>",  
:forward_agent=>nil, :non_interactive=>true, :verify_host_key=>:never}> (cmd.exe /c ver)  
[2023-11-02T14:30:35+01:00] DEBUG: [SSH] opening connection to root@web01<{:user_known_hosts_file=>"/dev/null",  
:port=>22, :compression=>false, :compression_level=>0, :keepalive=>true, :keepalive_interval=>  
60, :timeout=>15, :auth_methods=>["none", "password", "keyboard-interactive"], :keys_only=>nil, :keys=>nil,  
:password=>"<hidden>", :forward_agent=>nil, :non_interactive=>true, :verify_host_key=>:never}>  
[2023-11-02T14:30:35+01:00] DEBUG: [SSH] root@web01<{:user_known_hosts_file=>"/dev/null", :port=>22,  
:compression=>false, :compression_level=>0, :keepalive=>true, :keepalive_interval=>60, :timeout=>15, :aut  
h_methods=>["none", "password", "keyboard-interactive"], :keys_only=>nil, :keys=>nil, :password=>"<hidden>",  
:forward_agent=>nil, :non_interactive=>true, :verify_host_key=>:never}> (Get-WmiObject Win32_Oper  
atingSystem | Select Caption,Version | ConvertTo-Json)  
[2023-11-02T14:30:35+01:00] DEBUG: [SSH] root@web01<{:user_known_hosts_file=>"/dev/null", :port=>22,
```

```
:compression=>false, :compression_level=>0, :keepalive=>true, :keepalive_interval=>60, :timeout=>15, :auth_methods=>["none", "password", "keyboard-interactive"], :keys_only=>nil, :keys=>nil, :password=>"<hidden>", :forward_agent=>nil, :non_interactive=>true, :verify_host_key=>:never}> (uname -s)
[2023-11-02T14:30:35+01:00] DEBUG: [SSH] root@web01<{:user_known_hosts_file=>"/dev/null", :port=>22, :compression=>false, :compression_level=>0, :keepalive=>true, :keepalive_interval=>60, :timeout=>15, :auth_methods=>["none", "password", "keyboard-interactive"], :keys_only=>nil, :keys=>nil, :password=>"<hidden>", :forward_agent=>nil, :non_interactive=>true, :verify_host_key=>:never}> (uname -m)
[2023-11-02T14:30:35+01:00] DEBUG: [SSH] root@web01<{:user_known_hosts_file=>"/dev/null", :port=>22, :compression=>false, :compression_level=>0, :keepalive=>true, :keepalive_interval=>60, :timeout=>15, :auth_methods=>["none", "password", "keyboard-interactive"], :keys_only=>nil, :keys=>nil, :password=>"<hidden>", :forward_agent=>nil, :non_interactive=>true, :verify_host_key=>:never}> (test -f /etc/debian_version && cat /etc/debian_version)
[2023-11-02T14:30:35+01:00] DEBUG: [SSH] root@web01<{:user_known_hosts_file=>"/dev/null", :port=>22, :compression=>false, :compression_level=>0, :keepalive=>true, :keepalive_interval=>60, :timeout=>15, :auth_methods=>["none", "password", "keyboard-interactive"], :keys_only=>nil, :keys=>nil, :password=>"<hidden>", :forward_agent=>nil, :non_interactive=>true, :verify_host_key=>:never}> (test -f /etc/lsb-release && cat /etc/lsb-release)
[2023-11-02T14:30:35+01:00] DEBUG: [SSH] root@web01<{:user_known_hosts_file=>"/dev/null", :port=>22, :compression=>false, :compression_level=>0, :keepalive=>true, :keepalive_interval=>60, :timeout=>15, :auth_methods=>["none", "password", "keyboard-interactive"], :keys_only=>nil, :keys=>nil, :password=>"<hidden>", :forward_agent=>nil, :non_interactive=>true, :verify_host_key=>:never}> (test -f /usr/bin/lsb-release && cat /usr/bin/lsb-release)
[2023-11-02T14:30:36+01:00] DEBUG: [SSH] root@web01<{:user_known_hosts_file=>"/dev/null", :port=>22, :compression=>false, :compression_level=>0, :keepalive=>true, :keepalive_interval=>60, :timeout=>15, :auth_methods=>["none", "password", "keyboard-interactive"], :keys_only=>nil, :keys=>nil, :password=>"<hidden>", :forward_agent=>nil, :non_interactive=>true, :verify_host_key=>:never}> (test -f /etc/os-release && cat /etc/os-release)
[2023-11-02T14:30:36+01:00] DEBUG: [SSH] root@web01<{:user_known_hosts_file=>"/dev/null", :port=>22, :compression=>false, :compression_level=>0, :keepalive=>true, :keepalive_interval=>60, :timeout=>15, :auth_methods=>["none", "password", "keyboard-interactive"], :keys_only=>nil, :keys=>nil, :password=>"<hidden>", :forward_agent=>nil, :non_interactive=>true, :verify_host_key=>:never}> (test -f /usr/bin/raspi-c
--More-- (55%)
```

Visualisez la fin de ce fichier :

```
root@workstation:~/chef-repo/cookbooks# tail /root/.chef-workstation/logs/default.log
Recipe: cw_service::default
  * service[apache2] action start
    - start service service[apache2]

Running handlers:
  - ChefApply::Reporter
Running handlers complete
Infra Phase complete, 1/1 resources updated in 02 seconds

[2023-11-02T14:30:41+01:00] DEBUG: [ChefApply::Action::ConvergeTarget] Action: success, Action Data: []
```

1.3 - Utiliser chef-run avec la Commande sudo

La commande **chef-run** peut être utilisée pour configurer plusieurs clients dans la même ligne de commande. Utilisez la commande pour arrêter le service apache2 sur les deux clients **web02.i2tch.loc** et **web03.i2tch.loc** :

```
root@workstation:~/chef-repo/cookbooks# chef-run web0[2:3] service apache2 action=stop --sudo --user trainee --
password trainee
[✓] Packaging cookbook... done!
[✓] Generating local policyfile... exporting... done!
[✓] Applying service[apache2] from resource to targets.
└─ [✓] [web02] Successfully converged service[apache2].
└─ [✓] [web03] Successfully converged service[apache2].
```



Important - Notez l'utilisation de l'utilisateur **trainee** à la place de l'utilisateur **root** grâce à l'exécution de la commande **sudo**, préalablement configurée sur les clients concernés.

Vérifiez ensuite le statut du service apache2 sur les deux clients **web02.i2tch.loc** et **web03.i2tch.loc** :

```
root@workstation:~/chef-repo/cookbooks# ssh -l trainee web02
The authenticity of host 'web02 (10.0.2.55)' can't be established.
ECDSA key fingerprint is SHA256:sEfHBv9azmK60cjQF/aJgUc9jg56slNaZQdAUcvB0vE.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'web02,10.0.2.55' (ECDSA) to the list of known hosts.
Debian GNU/Linux 9
trainee@web02's password: trainee
Linux web02.i2tch.loc 4.9.0-8-amd64 #1 SMP Debian 4.9.130-2 (2018-10-27) x86_64
```

```
The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.
```

```
Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
```

```
Last login: Thu Nov  2 13:56:42 2023 from 10.0.2.1
```

```
trainee@web02:~$ su -
Mot de passe : fenestros
```

```
root@web02:~# systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: inactive (dead) since Thu 2023-11-02 14:12:37 CET; 57s ago
     Process: 1406 ExecStop=/usr/sbin/apachectl stop (code=exited, status=0/SUCCESS)
     Process: 445 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
    Main PID: 473 (code=exited, status=0/SUCCESS)
```

```
nov. 02 13:59:22 web02.i2tch.loc systemd[1]: Starting The Apache HTTP Server...
nov. 02 13:59:22 web02.i2tch.loc systemd[1]: Started The Apache HTTP Server.
nov. 02 14:12:37 web02.i2tch.loc systemd[1]: Stopping The Apache HTTP Server...
nov. 02 14:12:37 web02.i2tch.loc systemd[1]: Stopped The Apache HTTP Server.
```

```
root@web02:~# exit
```

déconnexion

```
trainee@web02:~$ exit
déconnexion
Connection to web02 closed.
```

```
root@workstation:~/chef-repo/cookbooks# ssh -l trainee web03
The authenticity of host 'web03 (10.0.2.56)' can't be established.
ECDSA key fingerprint is SHA256:sEfHBv9azmK60cjqF/aJgUc9jg56slNaZQdAUcvB0vE.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'web03,10.0.2.56' (ECDSA) to the list of known hosts.
Debian GNU/Linux 9
trainee@web03's password: trainee
Linux web03.i2tch.loc 4.9.0-8-amd64 #1 SMP Debian 4.9.130-2 (2018-10-27) x86_64
```

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Thu Nov 2 13:57:50 2023 from 10.0.2.1

```
trainee@web03:~$ su -
Mot de passe : fenestros
```

```
root@web03:~# systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: inactive (dead) since Thu 2023-11-02 14:12:37 CET; 2min 59s ago
     Process: 1390 ExecStop=/usr/sbin/apachectl stop (code=exited, status=0/SUCCESS)
     Process: 463 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
    Main PID: 497 (code=exited, status=0/SUCCESS)
```

```
nov. 02 13:59:37 web03.i2tch.loc systemd[1]: Starting The Apache HTTP Server...
nov. 02 13:59:38 web03.i2tch.loc systemd[1]: Started The Apache HTTP Server.
nov. 02 14:12:36 web03.i2tch.loc systemd[1]: Stopping The Apache HTTP Server...
nov. 02 14:12:37 web03.i2tch.loc systemd[1]: Stopped The Apache HTTP Server.
```

Déconnectez-vous de la VM **web03.i2tch.loc** :

```
root@web03:~# exit
déconnexion
trainee@web03:~$ exit
déconnexion
Connection to web03 closed.
root@workstation:~/chef-repo/cookbooks#
```

Dans le cas d'une erreur de l'exécution, des traces sont générées dans le fichier **/root/.chef-workstation/logs/errors.txt** :

```
root@workstation:~/chef-repo/cookbooks# chef-run web0[2:3] service apache2 action=disbale --sudo --user trainee -
-password trainee
[✓] Packaging cookbook... done!
[✓] Generating local policyfile... exporting... done!
[*] Applying service[apache2] from resource to targets.
└─ [*] [web02] Failed to converge service[apache2].
└─ [*] [web03] Failed to converge service[apache2].
```

One or more actions has failed.

A complete list of failures and possible resolutions can be found in the file below:

```
/root/.chef-workstation/logs/errors.txt
```

```
root@workstation:~/chef-repo/cookbooks# cat /root/.chef-workstation/logs/errors.txt
Host: web02 Error: CHEFCCR003: The action 'disbale' is not valid. Valid actions are: :nothing, :enable, :disable,
:start, :stop, :restart, :reload, :mask, :unmask For more information, please consult the documentation for this
```

```
resource: https://docs.chef.io/resource_reference.html
Host: web03 Error: CHEFCCR003: The action 'disbale' is not valid. Valid actions are: :nothing, :enable, :disable,
:start, :stop, :restart, :reload, :mask, :unmask For more information, please consult the documentation for this
resource: https://docs.chef.io/resource_reference.html
```

Corrigez l'erreur et désactivez le service **apache2** :

```
root@workstation:~/chef-repo/cookbooks# chef-run web0[2:3] service apache2 action=disable --sudo --user trainee -
-passwd trainee
[✓] Packaging cookbook... done!
[✓] Generating local policyfile... exporting... done!
[✓] Applying service[apache2] from resource to targets.
├─ [✓] [web02] Successfully converged service[apache2].
└─ [✓] [web03] Successfully converged service[apache2].
```

1.4 - Utiliser chef-run avec un Cookbook

Installez le paquet **git** :

```
root@workstation:~/chef-repo/cookbooks# apt install git
```

Utilisez la commande **git init** pour initialiser le répertoire **/root/chef-repo/cookbooks** en tant que **repository** git :

```
root@workstation:~/chef-repo/cookbooks# git init
```

Utilisez maintenant la commande **chef-run** pour exécuter la Recette **default** du Cookbook **apache2** dans la VM **web01.i2tch.loc** :

```
root@workstation:~/chef-repo/cookbooks# chef-run web01 apache2::default --password fenestros
[✓] Packaging cookbook... done!
[✓] Generating local policyfile... exporting... done!
[✓] Applying apache2::default from /root/chef-repo/cookbooks/apache2 to target.
└─ [✓] [web01] Successfully converged apache2::default.
```

Le service apache2 ayant été arrêté précédemment, vérifiez que celui-ci a été re-démarré :

```
root@workstation:~/chef-repo/cookbooks# ssh -l trainee web01
Debian GNU/Linux 9
trainee@web01's password: trainee
Linux web01.i2tch.loc 4.9.0-8-amd64 #1 SMP Debian 4.9.130-2 (2018-10-27) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Thu Nov  2 14:08:53 2023 from 10.0.2.1

trainee@web01:~$ su -
Mot de passe : fenestros

root@web01:~# systemctl status apache2
● apache2.service - The Apache HTTP Server
   Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor preset: enabled)
   Active: active (running) since Thu 2023-11-02 14:40:59 CET; 32s ago
     Process: 4208 ExecStop=/usr/sbin/apachectl stop (code=exited, status=0/SUCCESS)
     Process: 4360 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
  Main PID: 4364 (apache2)
    Tasks: 55 (limit: 4915)
   CGroup: /system.slice/apache2.service
           └─4364 /usr/sbin/apache2 -k start
             └─4365 /usr/sbin/apache2 -k start
               └─4366 /usr/sbin/apache2 -k start

nov. 02 14:40:59 web01.i2tch.loc systemd[1]: Starting The Apache HTTP Server...
nov. 02 14:40:59 web01.i2tch.loc systemd[1]: Started The Apache HTTP Server.
```

Déconnectez-vous de la VM **web01.i2tch.loc** :

```
root@web01:~# exit
déconnexion

trainee@web01:~$ exit
déconnexion
Connection to web01 closed.
```

LAB #2 - Configuration des Clients en utilisant des Rôles

2.1 - Présentation

Un **Rôle** est une façon logique de regrouper des clients ou **noeuds**. Chaque Rôle possède des **run-lists** pour pouvoir configurer les noeuds associés avec le Rôle. Une Run-List est un groupement de Cookbooks ou de Recettes. Pour associer un noeud à un Rôle, Chef utilise des **tags**. La manipulation des Rôles s'effectue grâce à l'utilisation de la commande **knife**.

2.2 - Création de Rôles

Commencez par définir l'éditeur par défaut dans la VM **workstation.ittraining.loc** :

```
root@workstation:~/chef-repo/cookbooks# export EDITOR=$(which vi)
```

Placez-vous dans le répertoire **/root/chef-repo/** créez un Rôle dénommé **web** en utilisant la commande **knife role create** :

```
root@workstation:~/chef-repo/cookbooks# cd ..

root@workstation:~/chef-repo# knife role create web
```

L'éditeur VI est lancé. Editez la section **run_list** en y ajoutant **"recipe[apache2]"**. Sauvegardez et quittez le fichier :

```
{
  "name": "web",
  "description": "",
  "json_class": "Chef::Role",
  "default_attributes": {

  },
  "override_attributes": {

  },
  "chef_type": "role",
  "run_list": [
    "recipe[apache2]"
  ],
  "env_run_lists": {

  }
}
```

Vous obtiendrez :

```
root@workstation:~/chef-repo# knife role create web
Created role[web]
```

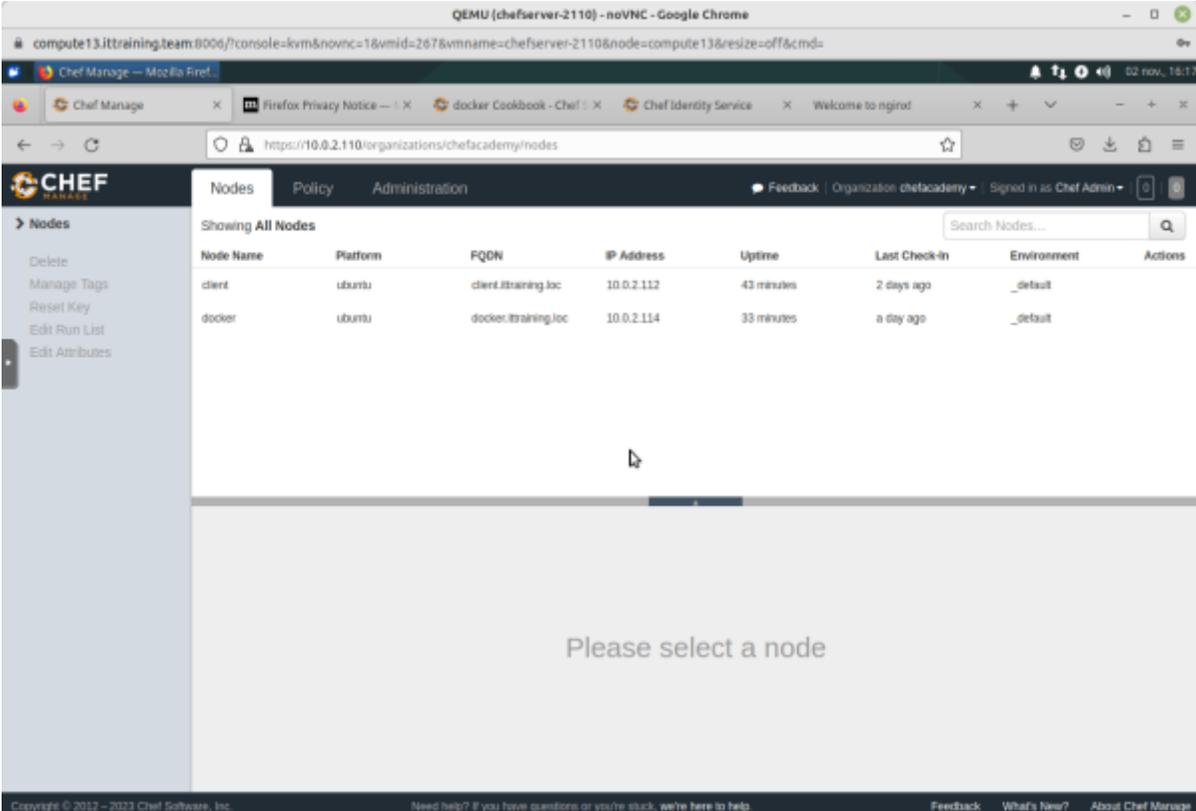
Visualisez le Rôle que vous avez créé grâce à la commande **knife role show** :

```
root@workstation:~/chef-repo# knife role show web
chef_type:          role
default_attributes:
description:
env_run_lists:
json_class:         Chef::Role
name:               web
override_attributes:
```

```
run_list: recipe[apache2]
```

Connectez-vous ensuite à votre VM **ChefServer_10.0.2.110_VNC**.

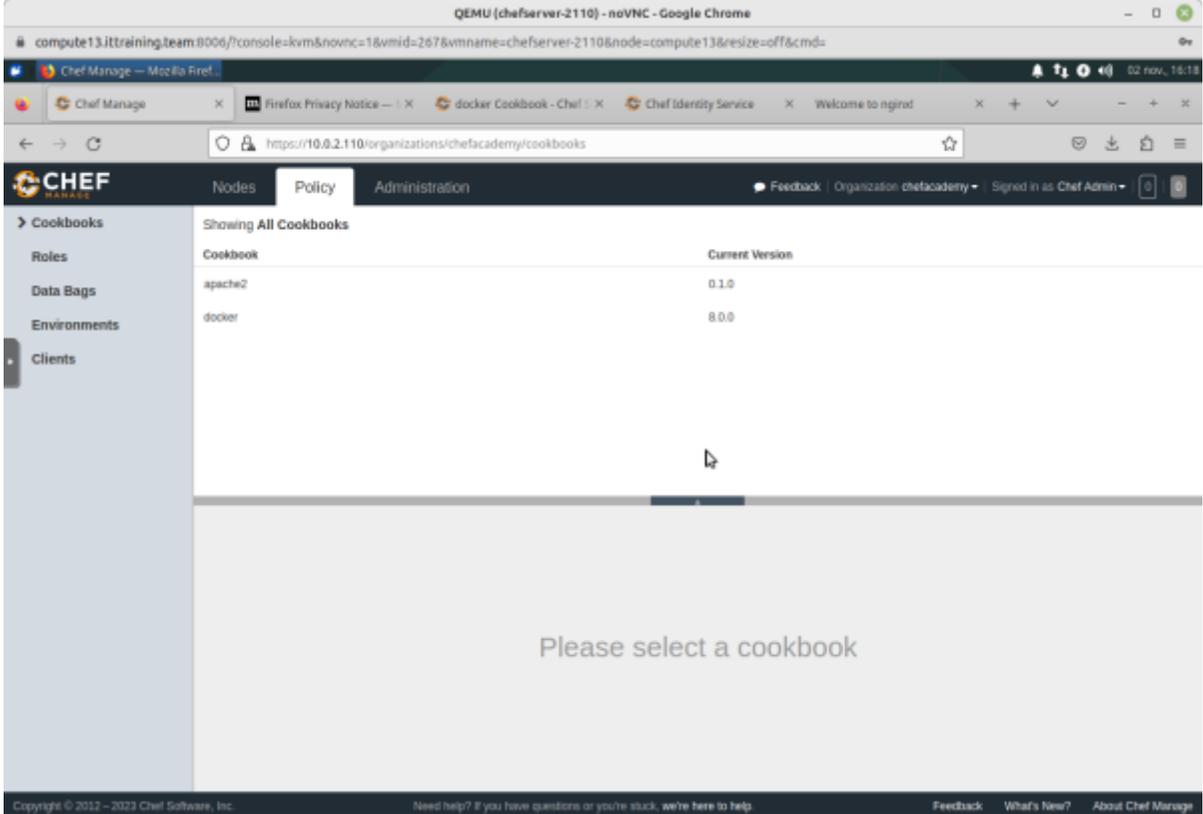
Ouvrez le navigateur Web et naviguez à l'adresse **10.0.2.110** :



The screenshot shows the Chef Manage web interface in a browser window. The browser address bar displays the URL `https://10.0.2.110/organizations/chefacademy/nodes`. The interface includes a navigation menu on the left with options like 'Delete', 'Manage Tags', 'Reset Key', 'Edit Run List', and 'Edit Attributes'. The main content area shows a table of nodes under the 'Nodes' tab. The table has columns for Node Name, Platform, FQDN, IP Address, Uptime, Last Check-in, Environment, and Actions. Two nodes are listed: 'client' and 'docker'. Below the table, a large grey area contains the text 'Please select a node'. The footer of the page includes copyright information and links for 'Feedback', 'What's New?', and 'About Chef Manage'.

Node Name	Platform	FQDN	IP Address	Uptime	Last Check-in	Environment	Actions
client	ubuntu	client.ittraining.loc	10.0.2.112	43 minutes	2 days ago	_default	
docker	ubuntu	docker.ittraining.loc	10.0.2.114	33 minutes	a day ago	_default	

Cliquez sur l'onglet **Policy** :

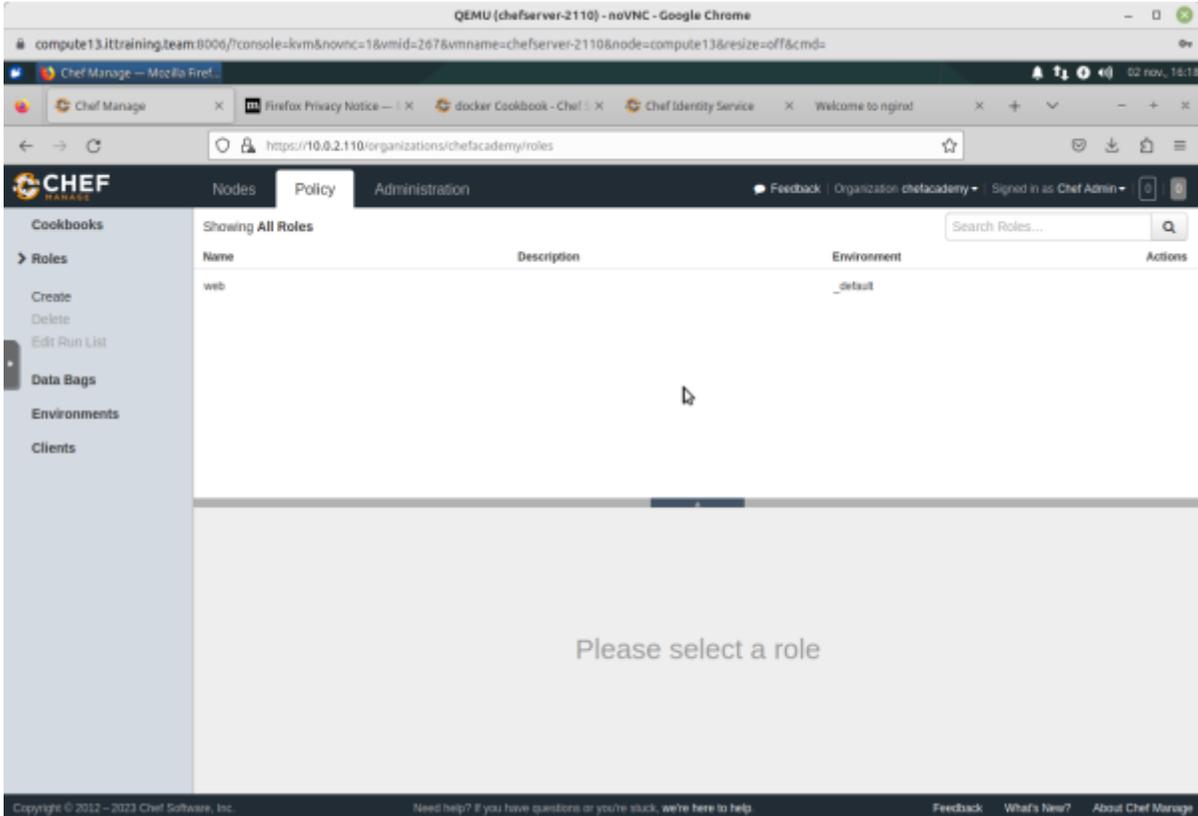


The screenshot shows the Chef Management interface in a browser window. The URL is <https://10.0.2.110/organizations/chefacademy/cookbooks>. The page title is "Showing All Cookbooks". The table below shows the following data:

Cookbook	Current Version
apache2	0.1.0
docker	8.0.0

A large grey box at the bottom of the table area contains the text "Please select a cookbook".

Cliquez sur **Roles** pour visualiser le Rôle **web** :

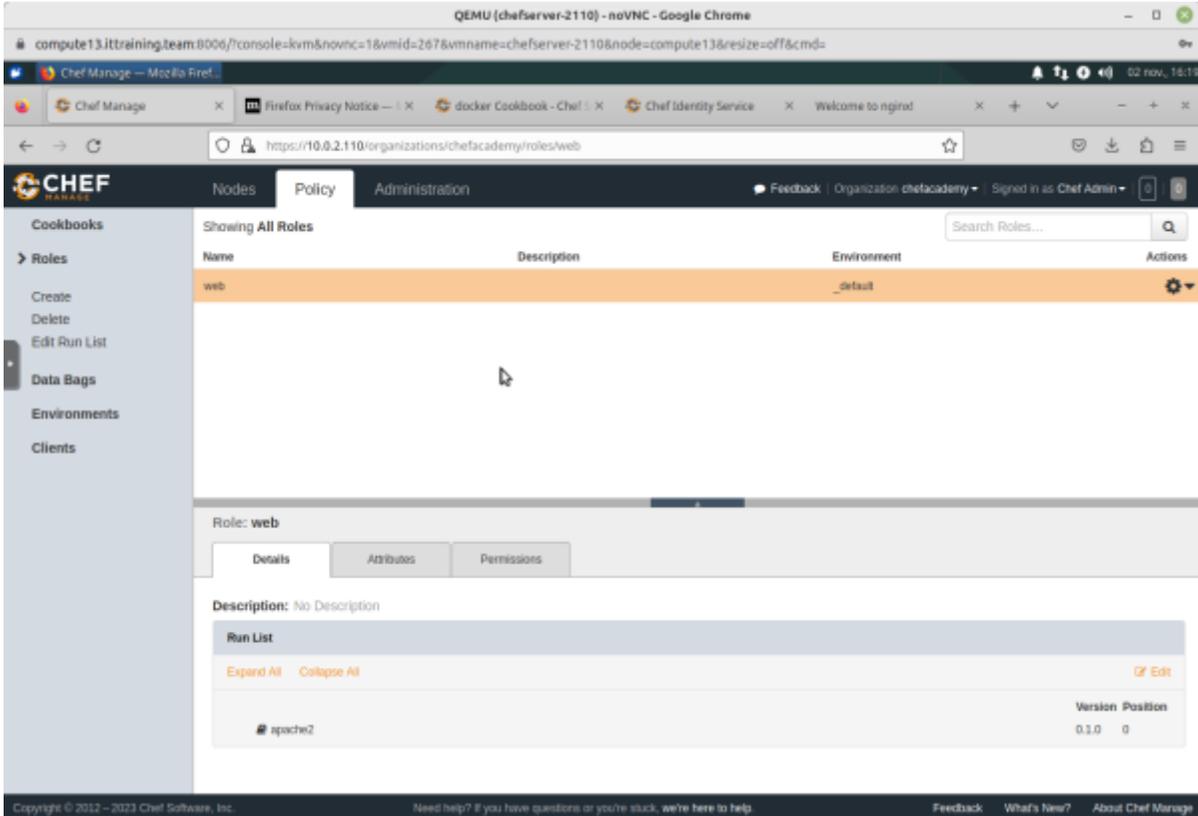


The screenshot shows the Chef Management interface in a browser window. The URL is <https://10.0.2.110/organizations/chefacademy/roles>. The page title is "Showing All Roles". The table below shows the following data:

Name	Description	Environment	Actions
web		_default	

Below the table, there is a large grey area with the text "Please select a role".

Sélectionnez le Rôle **web** pour voir le contenu de la **Run List** :



The screenshot shows the Chef Management interface in a browser window. The main content area displays a table of roles. The 'web' role is selected and highlighted in orange. Below the table, the details for the 'web' role are shown, including a 'Run List' section. The 'Run List' contains one entry: 'apache2' with version '0.1.0' and position '0'.

Name	Description	Environment	Actions
web		_default	

Version	Position
0.1.0	0

Cliquez sur l'onglet **Nodes**, puis sur le client **client**. Constatez la présence du Rôle **web** dans la **Run List** :

The screenshot shows the Chef Management interface in a browser window. The main content area displays a table of nodes and a detailed view for the 'client' node.

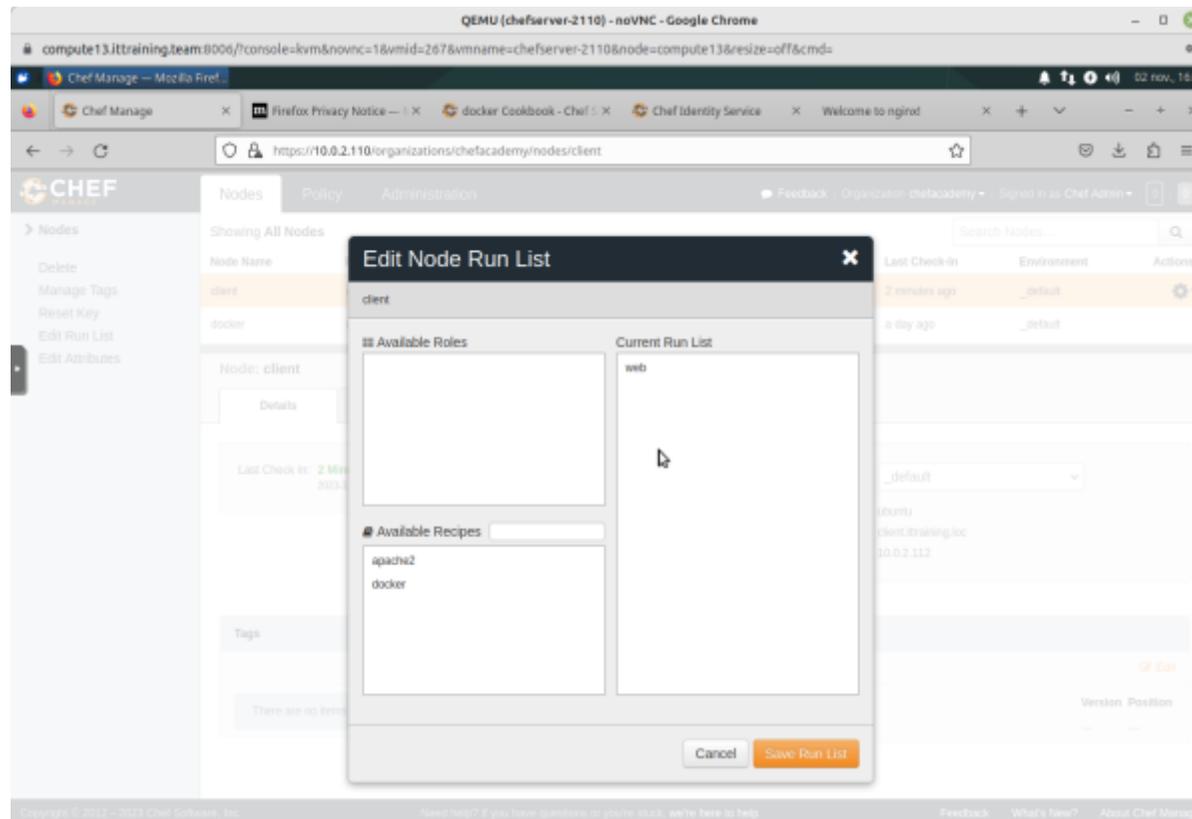
Node Name	Platform	FQDN	IP Address	Uptime	Last Check-in	Environment	Actions
client	ubuntu	client.training.loc	10.0.2.112	15 minutes	2 minutes ago	_default	⚙️
docker	ubuntu	docker.training.loc	10.0.2.114	33 minutes	a day ago	_default	

The 'Node: client' details section includes:

- Details** (selected), Attributes, Permissions
- Last Check In: **2 Minutes Ago** (2023-11-02 15:36:45 UTC)
- Uptime: **15 Minutes** (Since 2023-11-02 15:17:50 UTC)
- Environment: **_default** (dropdown menu)
- Platforms: **ubuntu**
- FQDN: **client.training.loc**
- IP Address: **10.0.2.112**

The **Run List** section shows a list of runs with columns for **Version** and **Position**. A run for **web** is visible.

Cliquez sur le lien **Edit Run List** dans le menu de gauche et constatez la présence de **web** dans la **Current Run List** :



Connectez-vous ensuite à votre VM **ChefServer_10.0.2.110_SSH**.

Modifiez maintenant la configuration du client **client.ittraining.loc** en référant le Rôle dans le **run_list**. Sauvegardez et quittez le fichier :

```
root@workstation:~/chef-repo# knife node edit client
```

```
{
  "name": "client",
  "chef_environment": "_default",
  "normal": {
    "tags": [
```

```
]
},
"policy_name": null,
"policy_group": null,
"run_list": [
    "role[web]"
]
}
```

Vous obtiendrez :

```
root@workstation:~/chef-repo# knife node edit client
Saving updated run_list on node client
```

Appliquez le Rôle grâce à la commande **knife ssh** :

```
root@workstation:~/chef-repo# knife ssh 'role:web' 'chef-client' --ssh-user root --ssh-password fenestros
client.ittraining.loc Starting Chef Infra Client, version 15.17.4
client.ittraining.loc resolving cookbooks for run list: ["apache2"]
client.ittraining.loc Synchronizing Cookbooks:
client.ittraining.loc   - apache2 (0.1.0)
client.ittraining.loc Installing Cookbook Gems:
client.ittraining.loc Compiling Cookbooks...
client.ittraining.loc Converging 3 resources
client.ittraining.loc Recipe: apache2::default
client.ittraining.loc   * apt_package[apache2] action install (up to date)
client.ittraining.loc   * service[apache2] action enable (up to date)
client.ittraining.loc   * service[apache2] action start (up to date)
client.ittraining.loc   * template[/var/www/html/index.html] action create (up to date)
client.ittraining.loc
client.ittraining.loc Running handlers:
client.ittraining.loc Running handlers complete
client.ittraining.loc Chef Infra Client finished, 0/4 resources updated in 01 seconds
```

```
client.ittraining.loc [2023-11-02T16:30:46+01:00] WARN: This release of Chef Infra Client became end of life (EOL) on May 1st 2021. Please update to a supported release to receive new features, bug fixes, and security updates.
```

LAB #3 - Configuration des Clients en fonction de l'Environnement

3.1 - Présentation

La gestion des **Environnements** est similaire à la gestion des Rôles. Un environnement est une phase de développement telle **Développement** ou **Production**. Tous les clients font partis de l'environnement par défaut, appelé **_default**. Il est possible d'appliquer des Recettes ou des Cookbooks différents en fonction de l'environnement.

3.2 - Création des Cookbooks

Téléchargez le fichier **nginx.tar** :

```
root@workstation:~/chef-repo/cookbooks# wget
https://files-accl.zohoexternal.com/public/workdrive-external/download/p9zfo77176af8ccf44e4a9cff3dc316a00cf0
--2023-11-03 13:37:07--
https://files-accl.zohoexternal.com/public/workdrive-external/download/p9zfo77176af8ccf44e4a9cff3dc316a00cf0
Resolving files-accl.zohoexternal.com (files-accl.zohoexternal.com)... 169.148.154.32, 169.62.46.83,
169.148.154.31, ...
Connecting to files-accl.zohoexternal.com (files-accl.zohoexternal.com)|169.148.154.32|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 30720 (30K) [application/x-unknown]
Saving to: 'p9zfo77176af8ccf44e4a9cff3dc316a00cf0'

p9zfo77176af8ccf44e4a9cff3dc316a00cf0
100%[=====]
=====>] 30,00K  --.-KB/s   in 0,08s
```

2023-11-03 13:37:08 (372 KB/s) - 'p9zfo77176af8ccf44e4a9cff3dc316a00cf0' saved [30720/30720]

Renommez le fichier téléchargé et désarchivez-le :

```
root@workstation:~/chef-repo/cookbooks# mv p9zfo77176af8ccf44e4a9cff3dc316a00cf0 nginx.tar
root@workstation:~/chef-repo/cookbooks# tar xvf nginx.tar
nginx/
nginx/.gitignore
nginx/.delivery/
nginx/.delivery/project.toml
nginx/Policyfile.rb
nginx/kitchen.yml
nginx/chefignore
nginx/recipes/
nginx/recipes/default.rb
nginx/CHANGELOG.md
nginx/spec/
nginx/spec/spec_helper.rb
nginx/spec/unit/
nginx/spec/unit/recipes/
nginx/spec/unit/recipes/default_spec.rb
nginx/metadata.rb
nginx/files/
nginx/files/default/
nginx/files/default/index.html
nginx/LICENSE
nginx/test/
nginx/test/integration/
nginx/test/integration/default/
nginx/test/integration/default/default_test.rb
nginx/README.md
```

Modifiez le fichier **/root/chef-repo/cookbooks/nginx/files/default/index.html** :

```
root@workstation:~/chef-repo/cookbooks# vi nginx/files/default/index.html
root@workstation:~/chef-repo/cookbooks# cat nginx/files/default/index.html
<html>
  <head>
    <title>Hello from chef</title>
  </head>
  <body>
    <h1>This is a nginx server</h1>
    <p>Happy Production!</p>
  </body>
</html>
```

Téléversez maintenant le Cookbook vers le Chef Infra Server :

```
root@workstation:~/chef-repo/cookbooks# knife cookbook upload nginx
Uploading nginx          [0.1.0]
Uploaded 1 cookbook.
```

Modifiez de nouveau le fichier **/root/chef-repo/cookbooks/nginx/files/default/index.html** :

```
root@workstation:~/chef-repo/cookbooks# vi nginx/files/default/index.html
root@workstation:~/chef-repo/cookbooks# cat nginx/files/default/index.html
<html>
  <head>
    <title>Hello from chef</title>
  </head>
  <body>
    <h1>This is a nginx server</h1>
    <p>Happy Development!</p>
  </body>
</html>
```

Afin de ne pas écraser le Cookbook déjà téléversé, créez une nouvelle version de celui-ci en éditant le fichier **/root/chef-**

repo/cookbooks/metadat.rb :

```
root@workstation:~/chef-repo/cookbooks# vi nginx/metadata.rb
root@workstation:~/chef-repo/cookbooks# cat nginx/metadata.rb
name 'nginx'
maintainer 'The Authors'
maintainer_email 'you@example.com'
license 'All Rights Reserved'
description 'Installs/Configures nginx'
version '0.1.1'
chef_version '>= 14.0'

# The `issues_url` points to the location where issues for this cookbook are
# tracked. A `View Issues` link will be displayed on this cookbook's page when
# uploaded to a Supermarket.
#
# issues_url 'https://github.com/<insert_org_here>/nginx/issues'

# The `source_url` points to the development repository for this cookbook. A
# `View Source` link will be displayed on this cookbook's page when uploaded to
# a Supermarket.
#
# source_url 'https://github.com/<insert_org_here>/nginx'
```

Téléversez ensuite le nouveau Cookbook vers le Chef Infra Server :

```
root@workstation:~/chef-repo/cookbooks# knife cookbook upload nginx
Uploading nginx          [0.1.1]
Uploaded 1 cookbook.
```

3.3 - Ajout de Clients au Chef Infra Server

Configurez deux nouveaux clients **targeta** et **targetb** :

```
root@workstation:~/chef-repo/cookbooks# ssh -l trainee 10.0.2.52
The authenticity of host '10.0.2.52 (10.0.2.52)' can't be established.
ECDSA key fingerprint is SHA256:sEfHBv9azmK60cjQF/aJgUc9jg56slNaZQdAUcvB0vE.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '10.0.2.52' (ECDSA) to the list of known hosts.
Debian GNU/Linux 9
trainee@10.0.2.52's password: trainee
Linux targeta.i2tch.loc 4.9.0-8-amd64 #1 SMP Debian 4.9.130-2 (2018-10-27) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Sun Mar 21 08:47:45 2021 from 10.0.2.10

trainee@targeta:~$ su -
Mot de passe : fenestros
```

Editez la directive **PermitRootLogin** du fichier **/etc/ssh/sshd_config** afin de permettre l'utilisateur **root** de se connecter au client :

```
root@targeta:~# vi /etc/ssh/sshd_config

root@targeta:~# cat /etc/ssh/sshd_config
...
PermitRootLogin yes
...

root@targeta:~# systemctl restart ssh
```

Editez ensuite le fichier **/etc/hosts** :

```
root@targeta:~# vi /etc/hosts
```

```
root@targeta:~# cat /etc/hosts
127.0.0.1      localhost
10.0.2.110    chefserver.ittraining.loc  chefserver
10.0.2.111    workstation.ittraining.loc workstation
10.0.2.52     web02.i2tch.loc   web02
10.0.2.53     web03.i2tch.loc   web03

# The following lines are desirable for IPv6 capable hosts
::1          localhost ip6-localhost ip6-loopback
ff02::1     ip6-allnodes
ff02::2     ip6-allrouters
```

Modifiez le FQDN de la VM :

```
root@targeta:~# hostnamectl set-hostname web02.i2tch.loc
```

Mettez à jour les dépôts des paquets :

```
root@targeta:~# sed -i s/ftp.fr.debian.org/archive.debian.org/g /etc/apt/sources.list

root@targeta:~# sed -i '/debian-security/d' /etc/apt/sources.list

root@targeta:~# sed -i '/stretch-updates/d' /etc/apt/sources.list

root@targeta:~# apt update
Ign:1 http://archive.debian.org/debian stretch InRelease
Réception de:2 http://archive.debian.org/debian stretch Release [118 kB]
Réception de:3 http://archive.debian.org/debian stretch Release.gpg [3 177 B]
Réception de:4 http://archive.debian.org/debian stretch/main Sources [6 736 kB]
Réception de:5 http://archive.debian.org/debian stretch/main amd64 Packages [7 080 kB]
Réception de:6 http://archive.debian.org/debian stretch/main Translation-fr [1 894 kB]
Réception de:7 http://archive.debian.org/debian stretch/main Translation-en [5 377 kB]
21,2 Mo réceptionnés en 6s (3 302 ko/s)
```

```
Lecture des listes de paquets... Fait
Construction de l'arbre des dépendances
Lecture des informations d'état... Fait
226 packages can be upgraded. Run 'apt list --upgradable' to see them.
```

Créez le répertoire **/var/www/html** :

```
root@targeta:~# mkdir -p /var/www/html
```

Quittez la VM **targeta** :

```
root@targeta:~# exit
déconnexion
trainee@targeta:~$ exit
déconnexion
Connection to 10.0.2.52 closed.
```

Utilisez la commande **knife bootstrap** pour référencer le client avec le Chef Infra Server :

```
root@workstation:~/chef-repo/cookbooks# knife bootstrap 10.0.2.52 --ssh-user root --ssh-password fenestros --
node-name web02
Connecting to 10.0.2.52
The authenticity of host '10.0.2.52 ()' can't be established.
fingerprint is SHA256:Tk/PXJFmWnE96DhFsYAaFqgHQXPJhw+ArPP/GG9IJTw.

Are you sure you want to continue connecting
? (Y/N) Y
Connecting to 10.0.2.52
Creating new client for web02
Creating new node for web02
Bootstrapping 10.0.2.52
 [10.0.2.52] -----> Installing Chef Omnibus (stable/15)
downloading https://omnitruck.chef.io/chef/install.sh
to file /tmp/install.sh.1340/install.sh
```

```
trying wget...
[10.0.2.52] debian 9 x86_64
Getting information for chef stable 15 for debian...
downloading https://omnitruck.chef.io/stable/chef/metadata?v=15&p=debian&pv=9&m=x86_64
  to file /tmp/install.sh.1344/metadata.txt
[10.0.2.52] trying wget...
[10.0.2.52] sha1          168e534c58f9e17394bc9ba7112ee2280fecdd79
sha256  a50884a3c0be26875c329de9a1cea854eacb0a0aled031301ee6c29aad0f19ed
url      https://packages.chef.io/files/stable/chef/15.17.4/debian/9/chef_15.17.4-1_amd64.deb
version 15.17.4
[10.0.2.52]
[10.0.2.52] downloaded metadata file looks valid...
[10.0.2.52] downloading https://packages.chef.io/files/stable/chef/15.17.4/debian/9/chef_15.17.4-1_amd64.deb
  to file /tmp/install.sh.1344/chef_15.17.4-1_amd64.deb
...
[10.0.2.52] Chef Infra Client finished, 0/0 resources updated in 01 seconds
[10.0.2.52]
[10.0.2.52] [2023-11-03T15:53:49+01:00] WARN: This release of Chef Infra Client became end of life (EOL) on May
1st 2021. Please update to a supported release to receive new features, bug fixes, and security updates.
```

Connectez-vous à la VM **targetb** :

```
root@workstation:~/chef-repo/cookbooks# ssh -l trainee 10.0.2.53
The authenticity of host '10.0.2.53 (10.0.2.53)' can't be established.
ECDSA key fingerprint is SHA256:Rg0sp/XI7JHNq+oIfHKw+jkHdtTnBIh+Dd7kVmHRxtU.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '10.0.2.53' (ECDSA) to the list of known hosts.
trainee@10.0.2.53's password: trainee
Last login: Sun Mar 21 08:53:18 2021 from 10.0.2.10
[trainee@targetb ~]$ su -
Password: fenestros
Last login: dim. mars 21 08:53:25 CET 2021 on pts/0
```

Modifiez la directive **PermitRootLogin** du fichier **/etc/ssh/sshd_config** afin de permettre l'utilisateur **root** de se connecter au client :

```
[root@targetb ~]# vi /etc/ssh/sshd_config

[root@targetb ~]# cat /etc/ssh/sshd_config
#      $OpenBSD: sshd_config,v 1.100 2016/08/15 12:32:04 naddy Exp $

# This is the sshd server system-wide configuration file.  See
# sshd_config(5) for more information.

# This sshd was compiled with PATH=/usr/local/bin:/usr/bin

# The strategy used for options in the default sshd_config shipped with
# OpenSSH is to specify options with their default value where
# possible, but leave them commented.  Uncommented options override the
# default value.

# If you want to change the port on a SELinux system, you have to tell
# SELinux about this change.
# semanage port -a -t ssh_port_t -p tcp #PORTNUMBER
...
PermitRootLogin yes
...

[root@targetb ~]# systemctl restart sshd
```

Editez ensuite le fichier **/etc/hosts** :

```
[root@targetb ~]# vi /etc/hosts

[root@targetb ~]# cat /etc/hosts
127.0.0.1          localhost.localdomain localhost
::1              localhost6.localdomain6 localhost6
10.0.2.110       chefserver.ittraining.loc  chefserver
10.0.2.111       workstation.ittraining.loc workstation
10.0.2.52        web02.i2tch.loc   web02
```

```
10.0.2.53      web03.i2tch.loc  web03
```

Modifiez le FQDN de la VM :

```
[root@targetb ~]# hostnamectl set-hostname web03.i2tch.loc
```

La VM **targetb** étant une CentOS 7, le paquet **nginx** est disponible dans le dépôt **epel-release**. Installez donc ce dépôt :

```
[root@targetb ~]# yum install epel-release
```

Créez le répertoire **/var/www/html** :

```
[root@targetb ~]# mkdir -p /var/www/html
```

Déconnectez-vous de la VM :

```
[root@targetb ~]# exit  
déconnexion
```

```
trainee@targetb:~$ exit  
déconnexion
```

Utilisez maintenant la commande **knife bootstrap** pour référencer le client avec le Chef Infra Server :

```
root@workstation:~/chef-repo/cookbooks# knife bootstrap 10.0.2.53 --ssh-user root --ssh-password fenestros --  
node-name web03  
--ssh-user: This flag is deprecated. Use -U/--connection-user instead.  
--ssh-password: This flag is deprecated. Use -P/--connection-password instead.  
Connecting to 10.0.2.53  
The authenticity of host '10.0.2.53 ()' can't be established.  
fingerprint is SHA256:PokJEptX8i3G+Qdy2WFX9xWby1d+l/0FhVyN1onGXnQ.  
  
Are you sure you want to continue connecting
```

```
? (Y/N) Y
Connecting to 10.0.2.53
Creating new client for web03
Creating new node for web03
Bootstrapping 10.0.2.53
 [10.0.2.53] -----> Installing Chef Omnibus (stable/15)
downloading https://omnitruck.chef.io/chef/install.sh
  to file /tmp/install.sh.14275/install.sh
trying wget...
 [10.0.2.53] el 7 x86_64
Getting information for chef stable 15 for el...
downloading https://omnitruck.chef.io/stable/chef/metadata?v=15&p=el&pv=7&m=x86_64
  to file /tmp/install.sh.14285/metadata.txt
 [10.0.2.53] trying wget...
 [10.0.2.53] sha1          9e066d888611971a1dceb7c3eaf0375a6c61ebd0
sha256  0aaf56d149bddd73b501322777ac378e2ffb63aa6eb714d93b16714e166e4f0
url      https://packages.chef.io/files/stable/chef/15.17.4/el/7/chef-15.17.4-1.el7.x86_64.rpm
version 15.17.4
 [10.0.2.53]
 [10.0.2.53] downloaded metadata file looks valid...
 [10.0.2.53] downloading https://packages.chef.io/files/stable/chef/15.17.4/el/7/chef-15.17.4-1.el7.x86_64.rpm
  to file /tmp/install.sh.14285/chef-15.17.4-1.el7.x86_64.rpm
...
Chef Infra Client finished, 0/0 resources updated in 03 seconds
[2023-11-03T16:07:23+01:00] WARN: This release of Chef Infra Client became end of life (EOL) on May 1st 2021.
Please update to a supported release to receive new features, bug fixes, and security updates.
```

3.4 - Configuration des Environnements

Editez le fichier **/etc/hosts** de votre VM **workstation.ittraining.loc** :

```
root@workstation:~/chef-repo/cookbooks# vi /etc/hosts
root@workstation:~/chef-repo/cookbooks# cat /etc/hosts
```

```
127.0.0.1      localhost
127.0.1.1      workstation
10.0.2.110     chefserver.ittraining.loc  chefserver
10.0.2.111     workstation.ittraining.loc workstation
10.0.2.112     client.ittraining.loc      client
10.0.2.52      web02.i2tch.loc            web02
10.0.2.53      web03.i2tch.loc            web03

# The following lines are desirable for IPv6 capable hosts
::1           ip6-localhost ip6-loopback
fe00::0       ip6-localnet
ff00::0       ip6-mcastprefix
ff02::1       ip6-allnodes
ff02::2       ip6-allrouters
```

Connectez-vous ensuite à votre VM **ChefServer_10.0.2.110_VNC**.

Ouvrez le navigateur Web et naviguez à l'adresse **10.0.2.110** :

The screenshot shows the Chef Management console interface. The browser address bar indicates the URL: `https://10.0.2.110/organizations/chefacademy/nodes/client`. The page title is "Nodes" and the breadcrumb navigation shows "Policy" and "Administration". The "Nodes" sidebar is open, showing options like "Delete", "Manage Tags", "Reset Key", "Edit Run List", and "Edit Attributes".

The main content area displays a table of nodes:

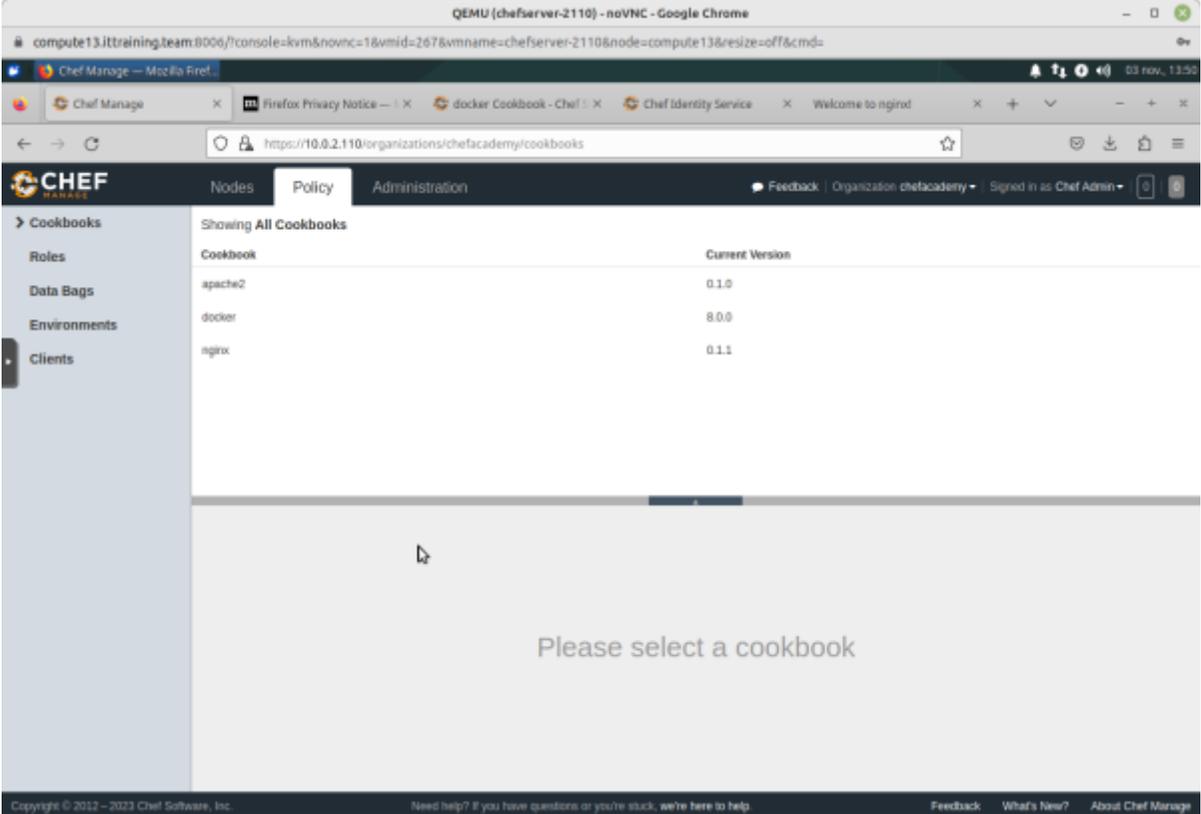
Node Name	Platform	FQDN	IP Address	Uptime	Last Check-in	Environment	Actions
client	ubuntu	client.training.loc	10.0.2.112	15 minutes	2 minutes ago	_default	⚙️
docker	ubuntu	docker.training.loc	10.0.2.114	33 minutes	a day ago	_default	

Below the table, the "Node: client" details are shown, including tabs for "Details", "Attributes", and "Permissions". The "Details" tab is active, showing:

- Last Check In: **2 Minutes Ago** (2023-11-02 15:36:45 UTC)
- Uptime: **15 Minutes** (Since 2023-11-02 15:17:50 UTC)
- Environment: **_default** (dropdown menu)
- Platforms: **ubuntu**
- FQDN: **client.training.loc**
- IP Address: **10.0.2.112**

There are also sections for "Tags" (with a "+ Add" button) and "Run List" (with "Expand All", "Collapse All", and "Edit" buttons). The footer of the page contains copyright information: "Copyright © 2012 - 2023 Chef Software, Inc." and links for "Need help?", "Feedback", "What's new?", and "About Chef Manage".

Cliquez sur l'onglet **Policy** :

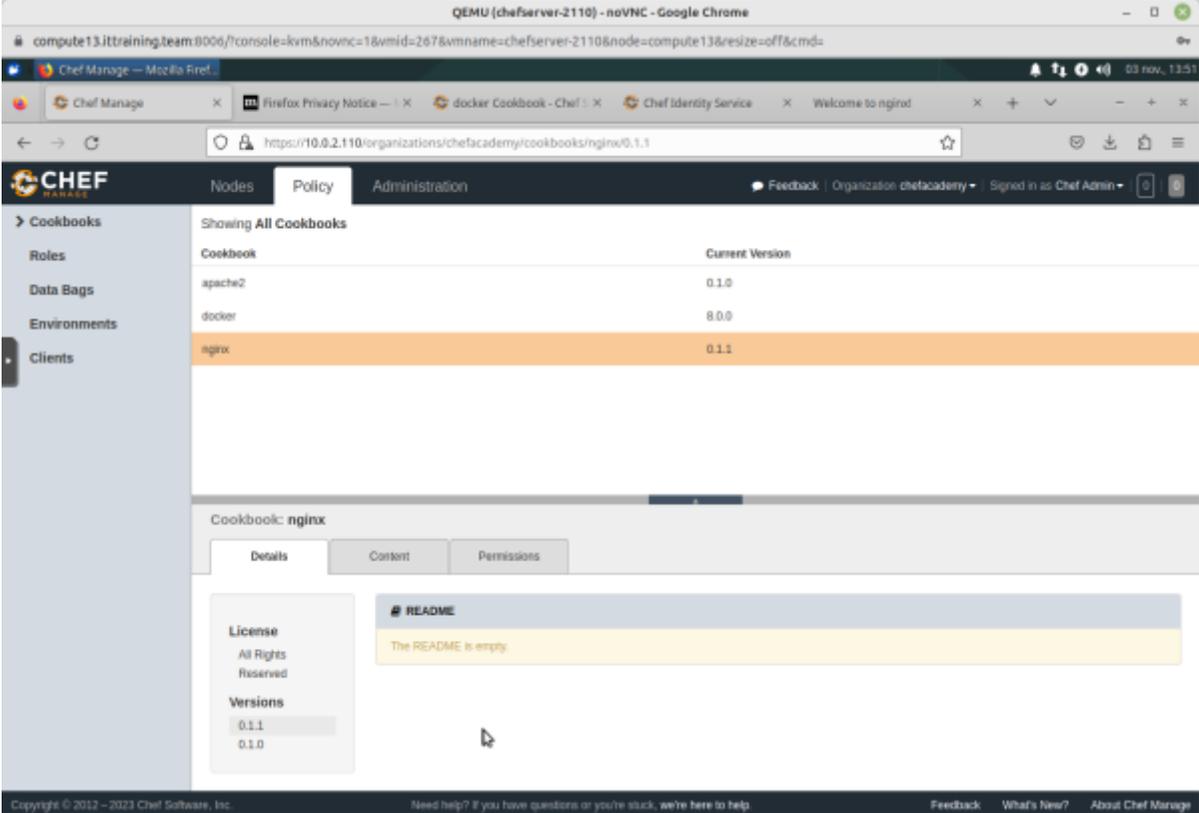


The screenshot shows the Chef Management web interface. The browser address bar indicates the URL: `https://10.0.2.110/organizations/chefacademy/cookbooks`. The interface includes a navigation sidebar on the left with options like 'Cookbooks', 'Roles', 'Data Bags', 'Environments', and 'Clients'. The main content area displays a table of cookbooks under the heading 'Showing All Cookbooks'.

Cookbook	Current Version
apache2	0.1.0
docker	8.0.0
nginx	0.1.1

Below the table, a large grey box contains the text: 'Please select a cookbook'. At the bottom of the page, there is a footer with copyright information and links for 'Feedback', 'What's new?', and 'About Chef Manage'.

Cliquez sur la ligne **nginx** :



The screenshot shows the Chef Management interface in a browser window. The main content area displays a table of cookbooks with the following data:

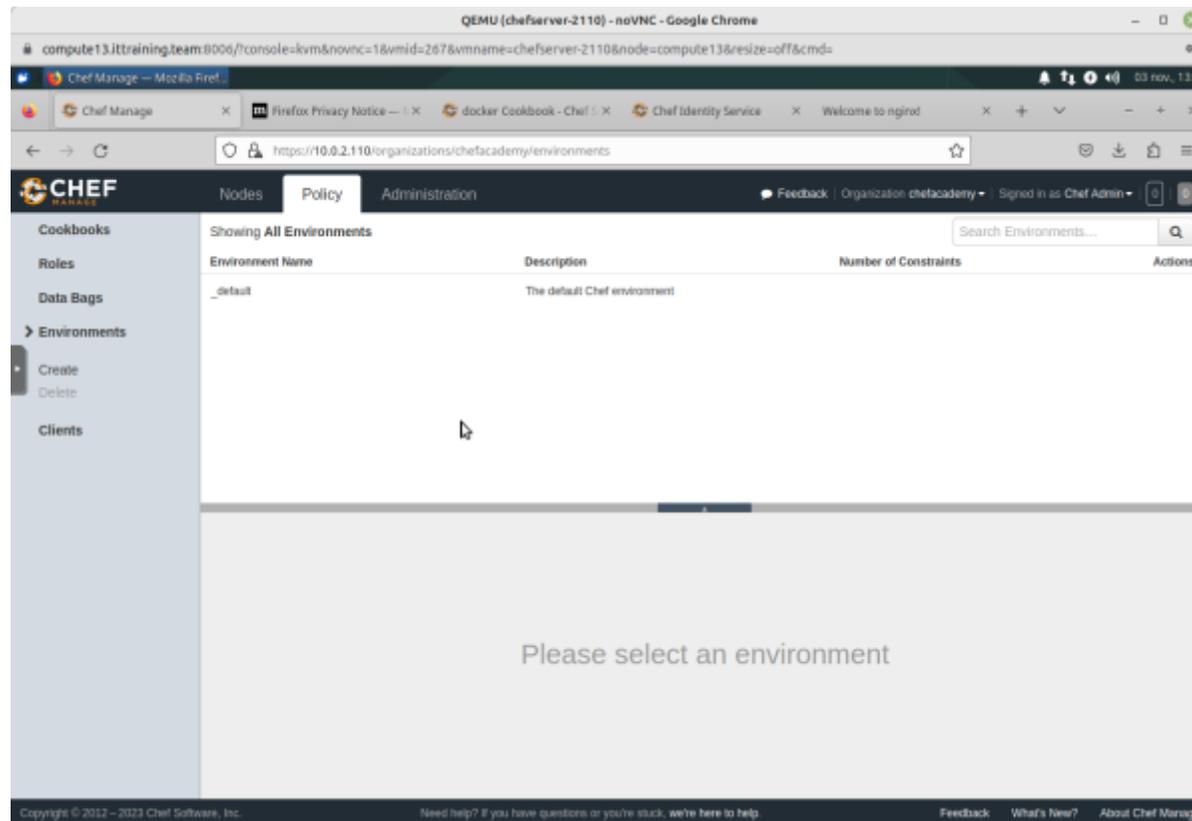
Cookbook	Current Version
apache2	0.1.0
docker	8.0.0
nginx	0.1.1

Below the table, the 'nginx' cookbook is selected, showing its details. The 'Versions' section lists two versions: 0.1.1 (selected) and 0.1.0. The 'README' section is empty.

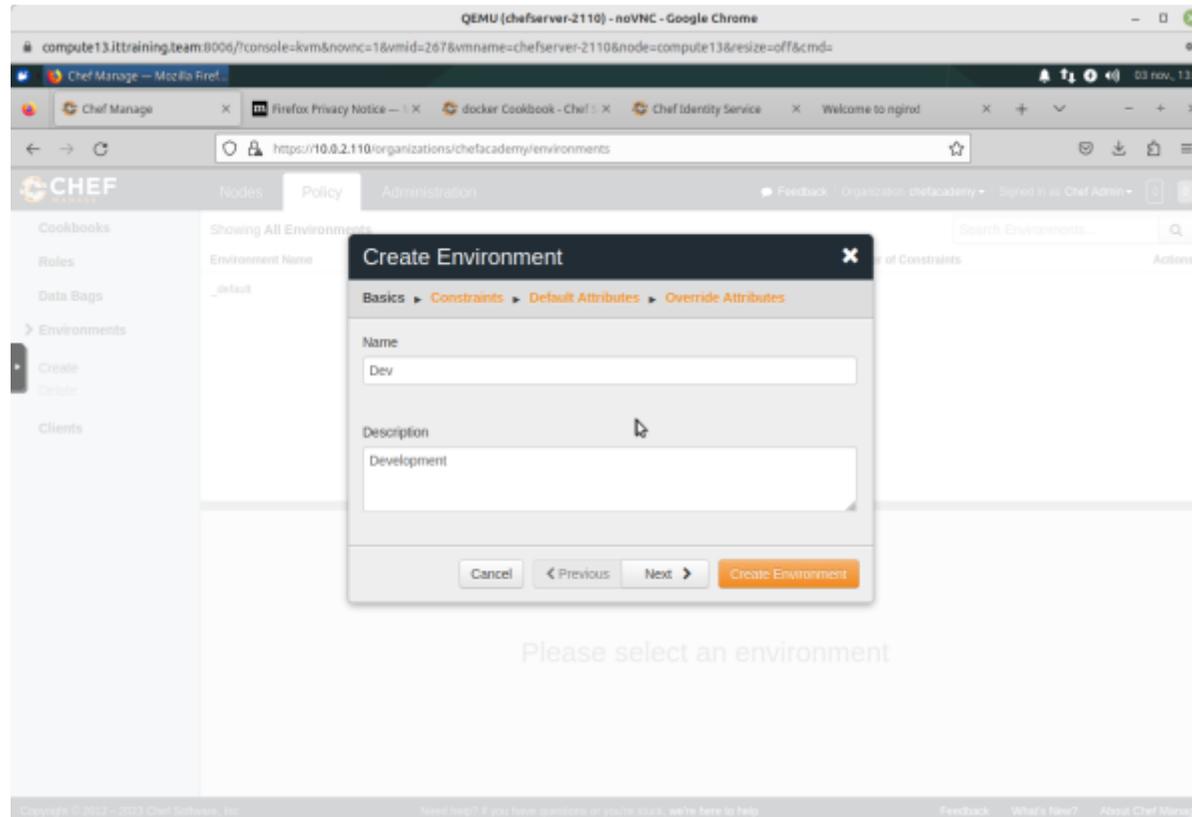


Important - Notez les deux versions présentes - **0.1.1** et **0.1.0**

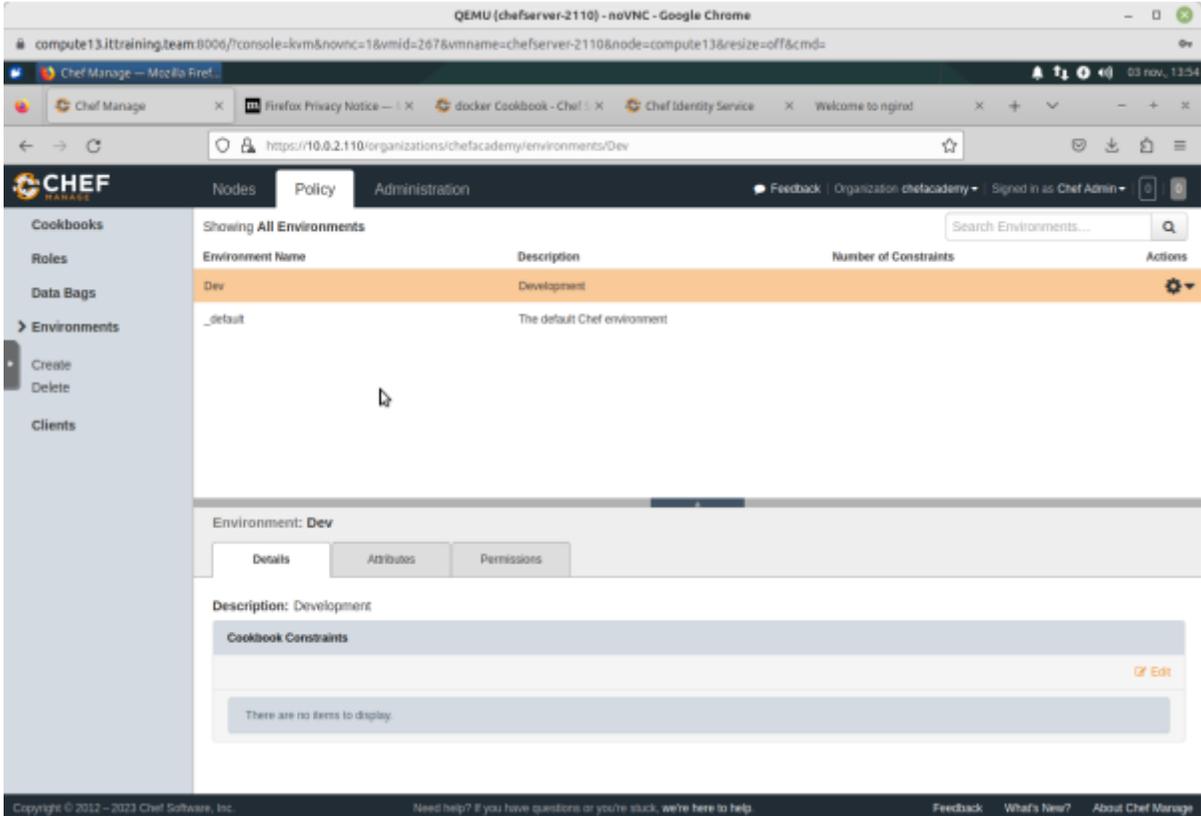
Cliquez sur **Environments** dans le menu de gauche :



Cliquez sur **Create** dans le menu de gauche et renseignez la création de l'environnement appelé **Dev**. Cliquez ensuite sur le bouton **Create Environment** :



Vous obtiendrez :



The screenshot shows the Chef Management web interface. The main content area displays a table of environments:

Environment Name	Description	Number of Constraints	Actions
Dev	Development		Settings
_default	The default Chef environment		

Below the table, the details for the 'Dev' environment are shown:

Environment: Dev

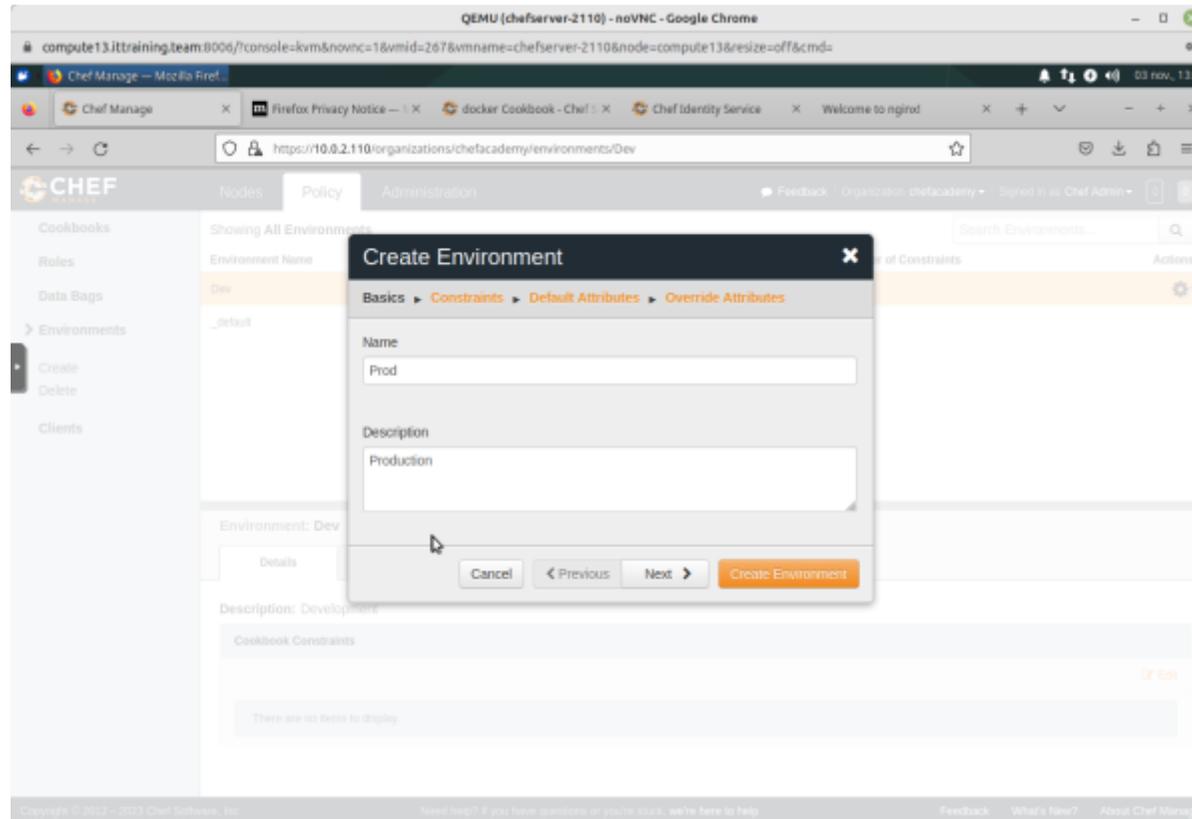
Details | Attributes | Permissions

Description: Development

Cookbook Constraints

There are no items to display.

Répétez le processus pour créer l'environnement appelé **Prod** :



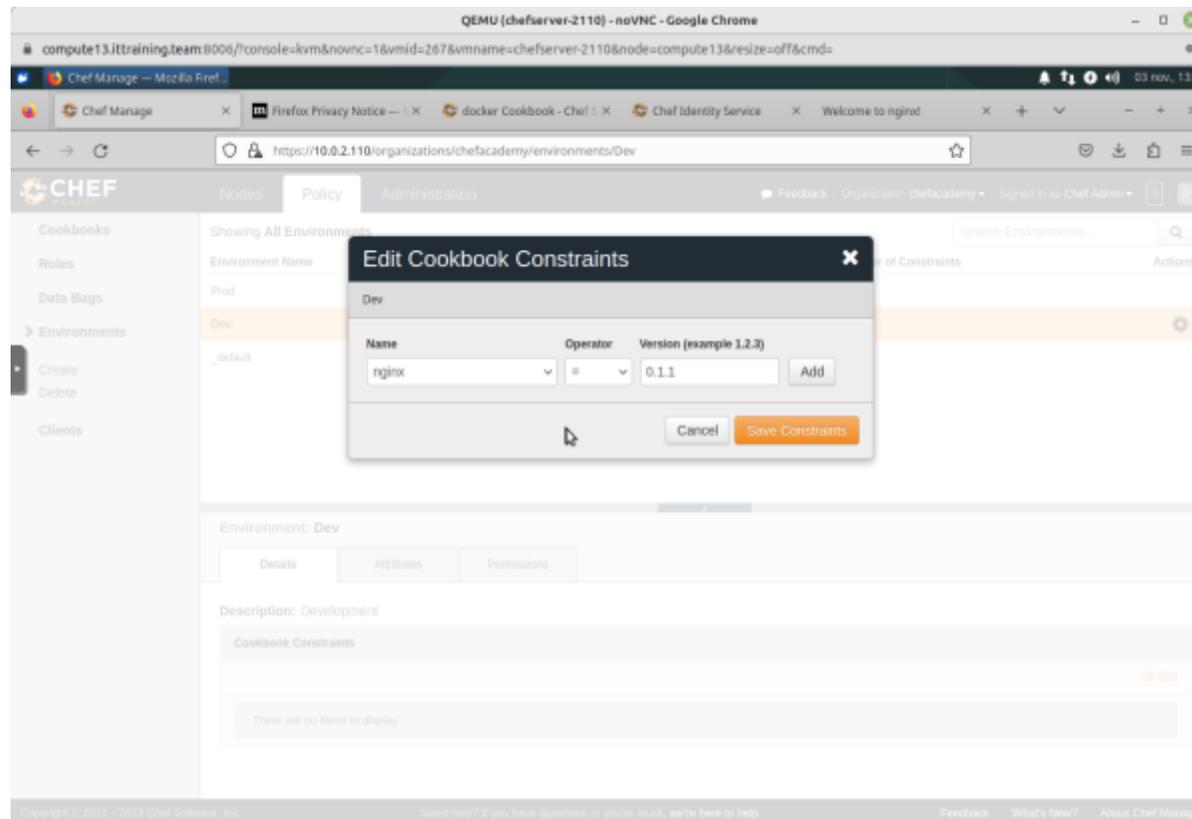
Vous obtiendrez :

The screenshot shows the Chef Management interface in a browser window. The main content area displays a table of environments:

Environment Name	Description	Number of Constraints	Actions
Prod	Production		Edit
Dev	Development		
_default	The default Chef environment		

Below the table, the 'Environment: Prod' details are shown, including a 'Description: Production' and a 'Cookbook Constraints' section. The 'Cookbook Constraints' section contains a table with no items to display and an 'Edit' link.

Cliquez sur la ligne **Dev** puis sur le lien **Edit** dans le panneau **Cookbook Constraints** Renseignez une contrainte afin que l'environnement utilise la version **0.1.1** du Cookbook **nginx** :



The screenshot displays the Chef Management web interface. A modal dialog titled "Edit Cookbook Constraints" is open, allowing the user to define constraints for the "Dev" environment. The dialog contains a table with columns for "Name", "Operator", and "Version (example 1.2.3)". A single row is visible with "nginx" in the Name field, "=" in the Operator field, and "0.1.1" in the Version field. An "Add" button is located to the right of the Version field. Below the table, there are "Cancel" and "Save Constraints" buttons. The background shows the "Environments" section of the interface, with the "Dev" environment selected. The "Cookbook Constraints" section is currently empty, displaying "There are no items to display".

Cliquez sur le bouton **Add** puis sur le bouton **Save Constraints** :

The screenshot shows the Chef Management web interface. The browser address bar indicates the URL: `https://10.0.2.110/organizations/chefacademy/environments/Dev`. The interface displays a list of environments: `Dev`, `_default`, and `Prod`. The `Dev` environment is selected. A modal dialog titled "Edit Cookbook Constraints" is open, showing a table of constraints for the `Dev` environment:

Name	Operator	Version (example 1.2.3)	
nginx	=	0.1.1	Remove
docker	=	0.1.1	Add

At the bottom of the dialog are "Cancel" and "Save Constraints" buttons. Below the dialog, the "Environment: Dev" details are visible, including a "Description: Development" and a "Cookbook Constraints" section that currently shows "There are no items to display".

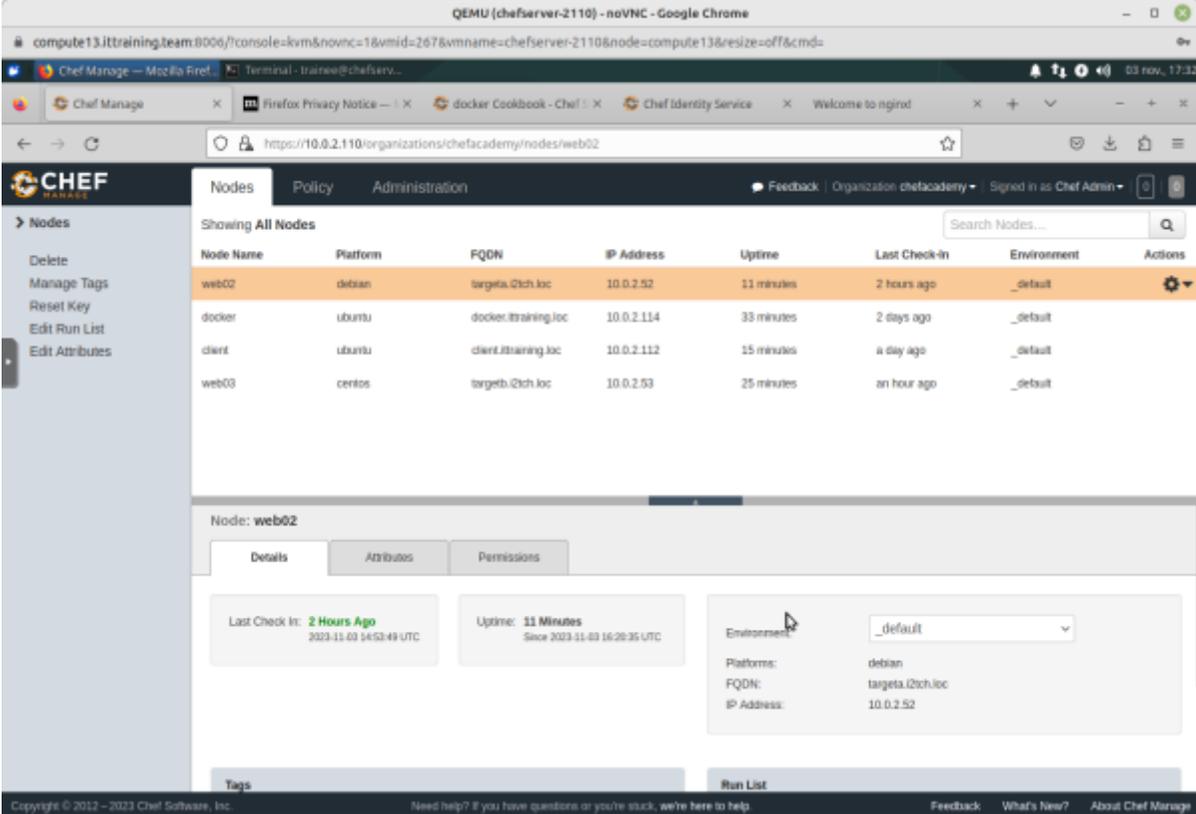
Répétez le processus pour créer une contrainte pour l'environnement **Prod** en spécifiant le version **0.1.0** du Cookbook :

The screenshot displays the Chef Management web interface. The main content area shows the 'Prod' environment selected. A modal dialog titled 'Edit Cookbook Constraints' is open, allowing the user to manage constraints for the 'Prod' environment. The dialog contains a table with the following data:

Name	Operator	Version (example 1.2.3)	
nginx	=	0.1.0	Remove
docker	=	0.1.0	Add

Below the table, there are 'Cancel' and 'Save Constraints' buttons. The background interface shows the 'Environment: Prod' section with tabs for 'Details', 'Attributes', and 'Permissions'. The 'Cookbook Constraints' section is currently empty, displaying 'There are no items to display'.

Cliquez sur l'onglet **Nodes** :



The screenshot shows the Chef Management interface in a browser. The top navigation bar includes 'Nodes', 'Policy', and 'Administration'. A sidebar on the left lists actions like 'Delete', 'Manage Tags', 'Reset Key', 'Edit Run List', and 'Edit Attributes'. The main content area displays a table of nodes:

Node Name	Platform	FQDN	IP Address	Uptime	Last Check-in	Environment	Actions
web02	debian	targeta.2tch.loc	10.0.2.52	11 minutes	2 hours ago	_default	⚙️
docker	ubuntu	docker.training.loc	10.0.2.114	33 minutes	2 days ago	_default	
client	ubuntu	client.training.loc	10.0.2.112	15 minutes	a day ago	_default	
web03	centos	targetb.2tch.loc	10.0.2.53	25 minutes	an hour ago	_default	

Below the table, the 'Node: web02' details are shown. The 'Details' tab is active, displaying 'Last Check In: 2 Hours Ago' and 'Uptime: 11 Minutes'. The 'Environment' dropdown is set to '_default'. Other fields include 'Platform: debian', 'FQDN: targeta.2tch.loc', and 'IP Address: 10.0.2.52'. At the bottom, there are sections for 'Tags' and 'Run List'.

Cliquez sur la ligne **web02** et modifiez l'environnement à **Dev** puis cliquez sur le bouton **Save** :

The screenshot shows the Chef Management interface in a browser. The main view displays a table of nodes. The 'web02' node is selected, and its configuration details are shown below. The environment is currently set to 'Dev'. A notification indicates that the environment was changed from '_default' to 'Dev'.

Node Name	Platform	FQDN	IP Address	Uptime	Last Check-in	Environment	Actions
web02	debian	targeta.l2ch.loc	10.0.2.52	11 minutes	2 hours ago	_default	⚙️
docker	ubuntu	docker.ltraining.loc	10.0.2.114	33 minutes	2 days ago	_default	
client	ubuntu	client.ltraining.loc	10.0.2.112	15 minutes	a day ago	_default	
web03	centos	targetb.l2ch.loc	10.0.2.53	25 minutes	an hour ago	_default	

Node: web02

Details | Attributes | Permissions

Last Check In: **2 Hours Ago**
2023-11-03 14:52:49 UTC

Uptime: **11 Minutes**
Since 2023-11-03 16:28:35 UTC

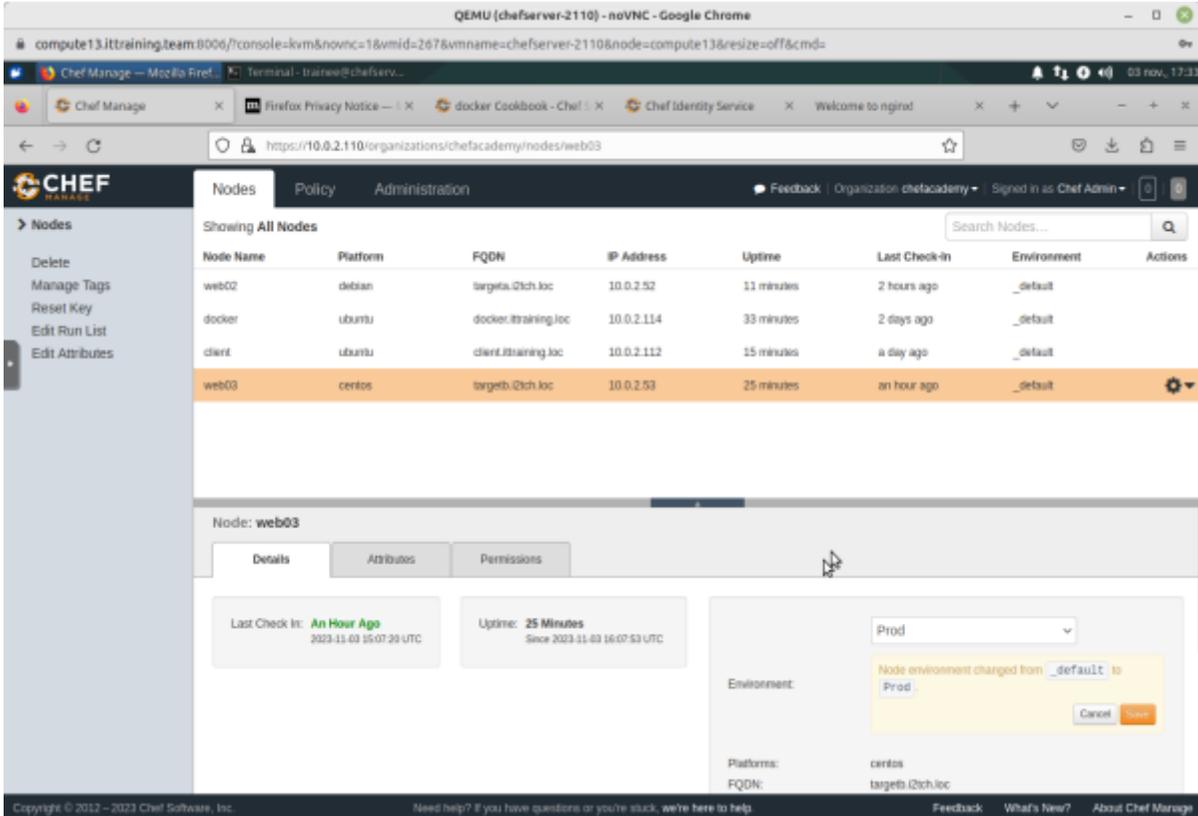
Environment: Dev

Node environment changed from **_default** to **Dev**

Platforms: debian
FQDN: targeta.l2ch.loc

Cancel Save

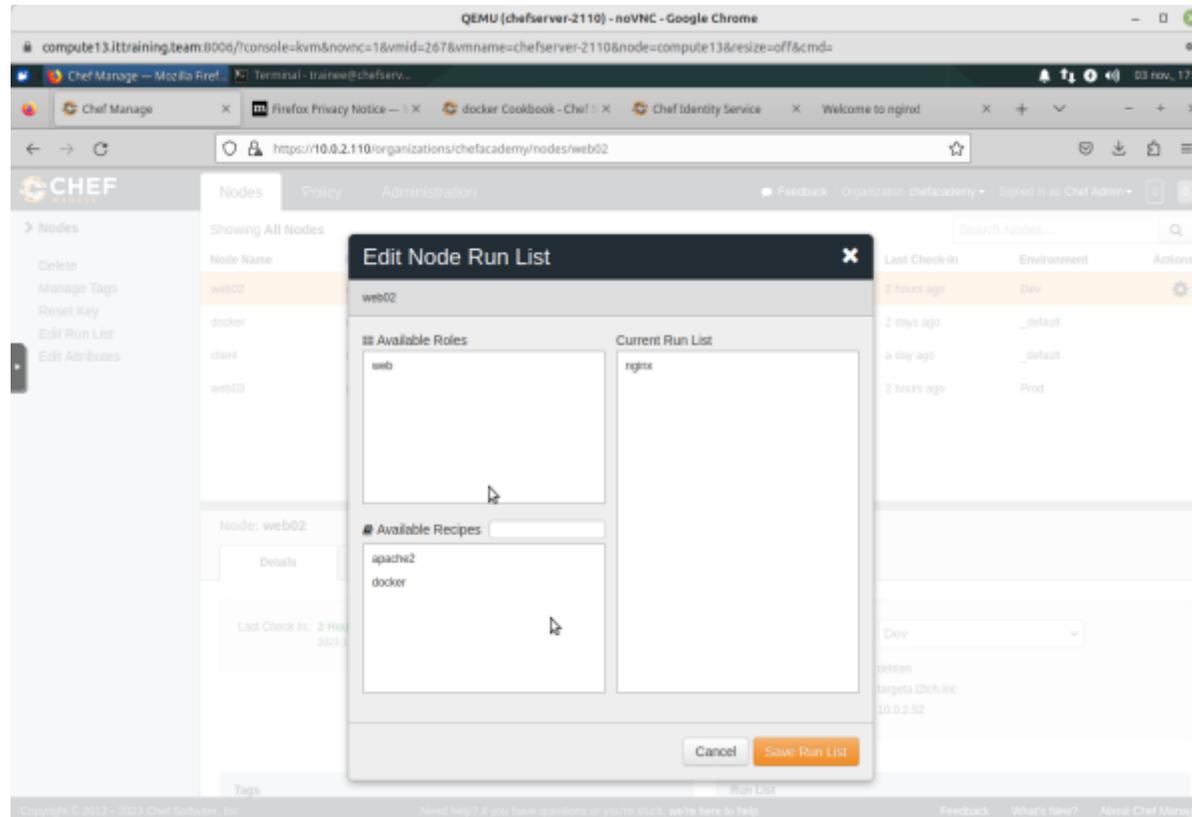
Cliquez sur la ligne **web03** et modifiez l'environnement à **Prod** puis cliquez sur le bouton **Save** :



The screenshot shows the Chef Management interface in a browser. The main view displays a table of nodes. The node 'web03' is selected and highlighted in orange. Below the table, the details for 'Node: web03' are shown, including tabs for 'Details', 'Attributes', and 'Permissions'. The 'Details' tab is active, showing 'Last Check In: An Hour Ago' and 'Uptime: 25 Minutes'. A modal dialog is open, showing the 'Environment' dropdown set to 'Prod' and a message: 'Node environment changed from _default to Prod'. The 'Platforms' section shows 'Platform: centos' and 'FQDN: targetb.l2ch.loc'.

Node Name	Platform	FQDN	IP Address	Uptime	Last Check-in	Environment	Actions
web02	debian	targetb.l2ch.loc	10.0.2.52	11 minutes	2 hours ago	_default	
docker	ubuntu	docker.l2training.loc	10.0.2.114	33 minutes	2 days ago	_default	
client	ubuntu	client.l2training.loc	10.0.2.112	15 minutes	a day ago	_default	
web03	centos	targetb.l2ch.loc	10.0.2.53	25 minutes	an hour ago	_default	

Cliquez sur la roue dentée à dans la ligne **web03** puis cliquez sur le lien **Edit Run List**. Dans la fenêtre qui apparaît, faites glisser **nginx** de **Available Recipes** vers **Current Run List**. Cliquez ensuite sur le bouton **Save Run List** :



Utilisez le même processus pour affecter **nginx** à la **Current Run List** de **web02** :

The screenshot shows the Chef Management interface in a browser. The 'Nodes' page is active, and the 'web03' node is selected. A modal dialog titled 'Edit Node Run List' is open, showing the 'Current Run List' for 'web03' containing 'nginx'. The 'Available Roles' section is empty, and the 'Available Recipes' section lists 'apache2' and 'docker'. The 'Save Run List' button is highlighted in orange.

Node Name	Last Check-in	Environment	Actions
web02	2 hours ago	Dev	
docker	2 days ago	_default	
nginx	4 days ago	_default	
web03	2 hours ago	Prod	

Available Roles:

- web

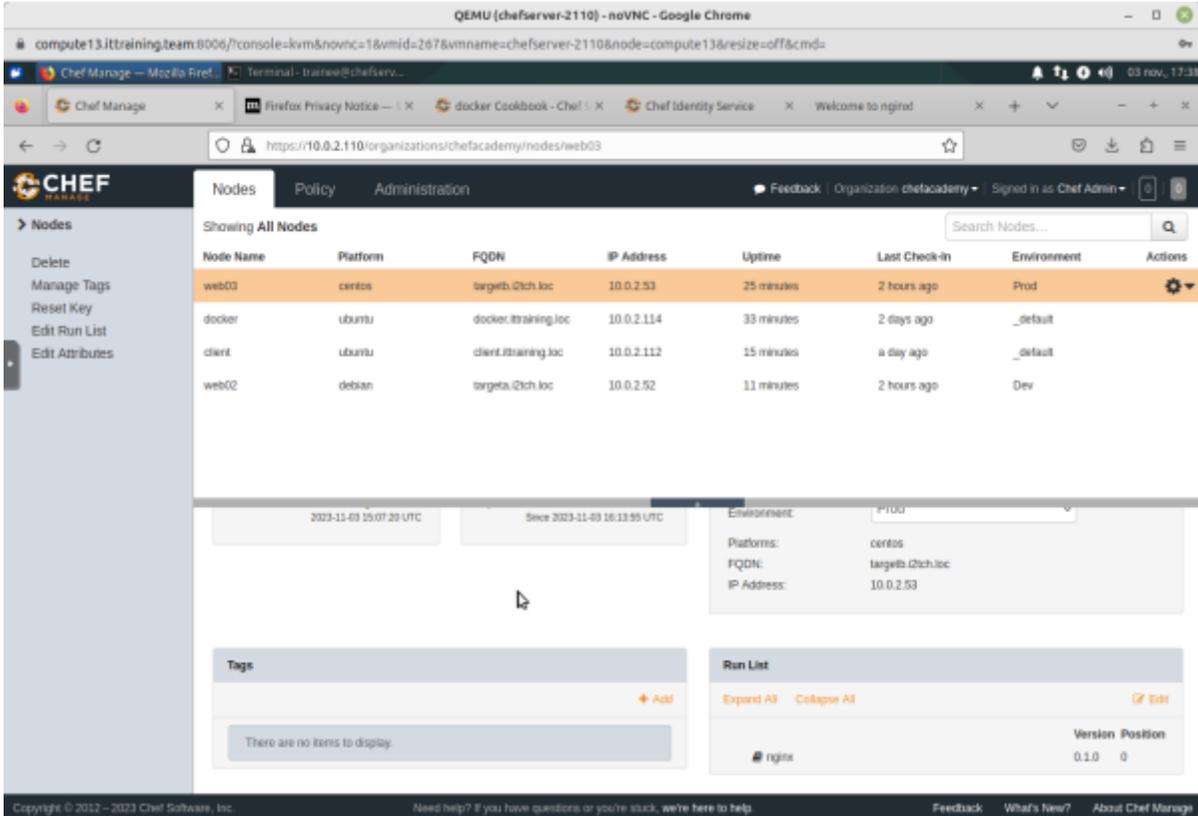
Current Run List:

- nginx

Available Recipes:

- apache2
- docker

Cliquez sur la ligne **web03** et vérifiez que la **Run List** contient **nginx** versions **0.1.0** :



The screenshot displays the Chef Management interface. The main content area shows a table of nodes with the following data:

Node Name	Platform	FQDN	IP Address	Uptime	Last Check-in	Environment	Actions
web03	centos	targetb.qlch.loc	10.0.2.53	25 minutes	2 hours ago	Prod	⚙️
docker	ubuntu	docker.training.loc	10.0.2.114	33 minutes	2 days ago	_default	
client	ubuntu	client.training.loc	10.0.2.112	15 minutes	a day ago	_default	
web02	debian	targeta.qlch.loc	10.0.2.52	11 minutes	2 hours ago	Dev	

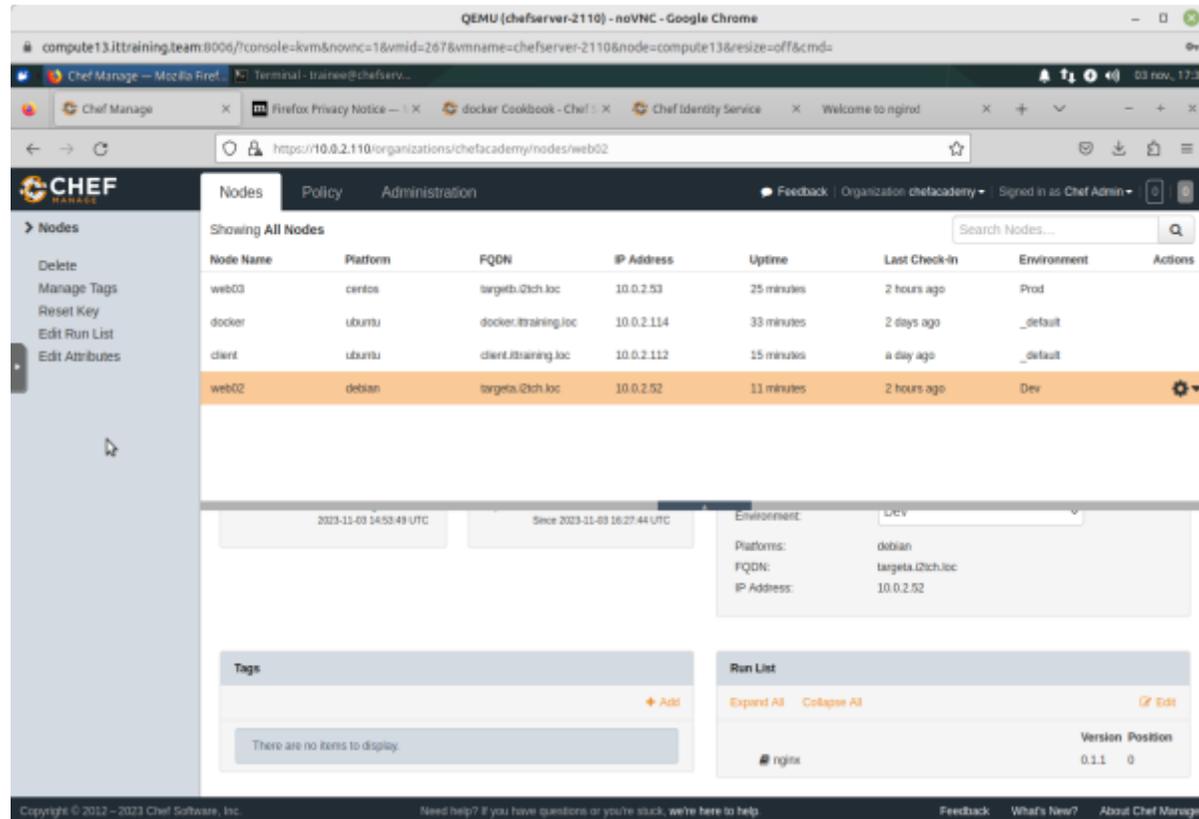
Below the table, the details for the selected node (web02) are shown:

- Environment: Prod
- Platforms: centos
- FQDN: targetb.qlch.loc
- IP Address: 10.0.2.53

The 'Run List' section shows the following information:

Package	Version	Position
nginx	0.1.0	0

Cliquez sur la ligne **web02** et vérifiez que la **Run List** contient **nginx** versions **0.1.1** :



The screenshot displays the Chef Management interface in a browser window. The main content area shows a table of nodes with the following data:

Node Name	Platform	FQDN	IP Address	Uptime	Last Check-in	Environment	Actions
web01	centos	target1.i2tch.loc	10.0.2.53	25 minutes	2 hours ago	Prod	
docker	ubuntu	docker.ittraining.loc	10.0.2.114	33 minutes	2 days ago	_default	
client	ubuntu	client.ittraining.loc	10.0.2.112	15 minutes	a day ago	_default	
web02	debian	target1.i2tch.loc	10.0.2.52	11 minutes	2 hours ago	Dev	

Below the table, the details for the selected 'web02' node are shown, including its environment (Dev), platform (debian), FQDN (target1.i2tch.loc), and IP address (10.0.2.52). A 'Run List' section shows the 'nginx' service with version 0.1.1 and position 0.

3.5 - Exécution avec Environnements

Connectez-vous à la VM **web02.i2tch.loc** et devenez l'utilisateur **root** puis exécutez la commande **chef-client** :

```
root@web02:~# chef-client
Starting Chef Infra Client, version 15.17.4
resolving cookbooks for run list: ["nginx"]
Synchronizing Cookbooks:
  - nginx (0.1.1)
Installing Cookbook Gems:
Compiling Cookbooks...
Converging 3 resources
```

Recipe: nginx::default

```
* apt_package[nginx] action install
  - install version 1.10.3-1+deb9u4 of package nginx
* service[nginx] action enable (up to date)
* service[nginx] action start (up to date)
* cookbook_file[/var/www/html/index.html] action create
  - create new file /var/www/html/index.html
  - update content in file /var/www/html/index.html from none to bfe461
  --- /var/www/html/index.html          2023-11-04 13:17:29.520612571 +0100
  +++ /var/www/html/.chef-index20231104-5615-1pw0ng9.html    2023-11-04 13:17:29.520612571 +0100
@@ -1 +1,10 @@
+<html>
+ <head>
+   <title>Hello from chef</title>
+ </head>
+ <body>
+   <h1>This is a nginx server</h1>
+   <p>Happy Development!</p>
+ </body>
+</html>
- change mode from '' to '0644'
```

Running handlers:

Running handlers complete

Chef Infra Client finished, 2/4 resources updated in 19 seconds

[2023-11-04T13:17:29+01:00] WARN: This release of Chef Infra Client became end of life (EOL) on May 1st 2021. Please update to a supported release to receive new features, bug fixes, and security updates.



Important - Notez la sortie **Synchronizing Cookbooks:** qui indique la version **nginx (0.1.1)**.

Vérifiez le contenu du fichier `/var/www/html/index.html` :

```
root@web02:~# cat /var/www/html/index.html
<html>
  <head>
    <title>Hello from chef</title>
  </head>
  <body>
    <h1>This is a nginx server</h1>
    <p>Happy Development!</p>
  </body>
</html>
```



Important - Notez que vous êtes dans l'environnement **Dev**.

Connectez-vous à la VM **web03.i2tch.loc** et devenez l'utilisateur **root** puis exécutez la commande **chef-client** :

```
[root@web03 ~]# chef-client
Starting Chef Infra Client, version 15.17.4
resolving cookbooks for run list: ["nginx"]
Synchronizing Cookbooks:
  - nginx (0.1.0)
Installing Cookbook Gems:
Compiling Cookbooks...
Converging 3 resources
Recipe: nginx::default
  * yum_package[nginx] action install (up to date)
  * service[nginx] action enable (up to date)
  * service[nginx] action start (up to date)
  * cookbook_file[/var/www/html/index.html] action create
    - update content in file /var/www/html/index.html from bfe461 to a89b2b
```

```
--- /var/www/html/index.html      2023-11-04 12:40:57.072941692 +0100
+++ /var/www/html/.chef-index20231104-19702-1kw3xch.html  2023-11-04 12:54:51.404871486 +0100
@@ -4,7 +4,7 @@
  </head>
  <body>
    <h1>This is a nginx server</h1>
-   <p>Happy Development!</p>
+   <p>Happy Production!</p>
  </body>
</html>
- restore selinux security context
```

Running handlers:

Running handlers complete

Chef Infra Client finished, 1/4 resources updated in 04 seconds

[2023-11-04T12:54:51+01:00] WARN: This release of Chef Infra Client became end of life (EOL) on May 1st 2021. Please update to a supported release to receive new features, bug fixes, and security updates.



Important - Notez la sortie **Synchronizing Cookbooks:** qui indique la version **nginx (0.1.0)**.

Vérifiez le contenu du fichier **/var/www/html/index.html** :

```
[root@web03 ~]# cat /var/www/html/index.html
<html>
  <head>
    <title>Hello from chef</title>
  </head>
  <body>
    <h1>This is a nginx server</h1>
    <p>Happy Production!</p>
```

```
</body>  
</html>
```



Important - Notez que vous êtes dans l'environnement **Prod**.