

Ansible

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발표자

- 신정훈
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‘어슐러 르 권’의 ‘로케년의 세계’라는 소설에서
행성간의 시공간을 초월하는 통신장비.
"answerable"에서 유래

Ansible이 뭐지?

프로비저닝(Provisioning) 툴

인기짱

Python Github project(ranking 7)

The screenshot shows the GitHub repository for Ansible. At the top, it says 'ansible / ansible' with 1,632 watches, 22,771 stars, and 7,519 forks. Below this, there's a description: 'Ansible is a radically simple IT automation platform that makes your applications and systems easier to deploy. Avoid writing scripts or custom code to deploy and update your applications— automate in a language that approaches plain English, using SSH, with no agents to install on remote systems. <http://ansible.com/>'. There are also tags for 'python' and 'ansible'. The repository statistics show 29,877 commits, 48 branches, 151 releases, and 2,654 contributors. The license is GPL-3.0. The 'Files' tab is selected, showing a list of files and their commit history. The latest commit is by Brian-Williams, titled 'Change wait_for time to utc (#23987)', committed 3 hours ago.

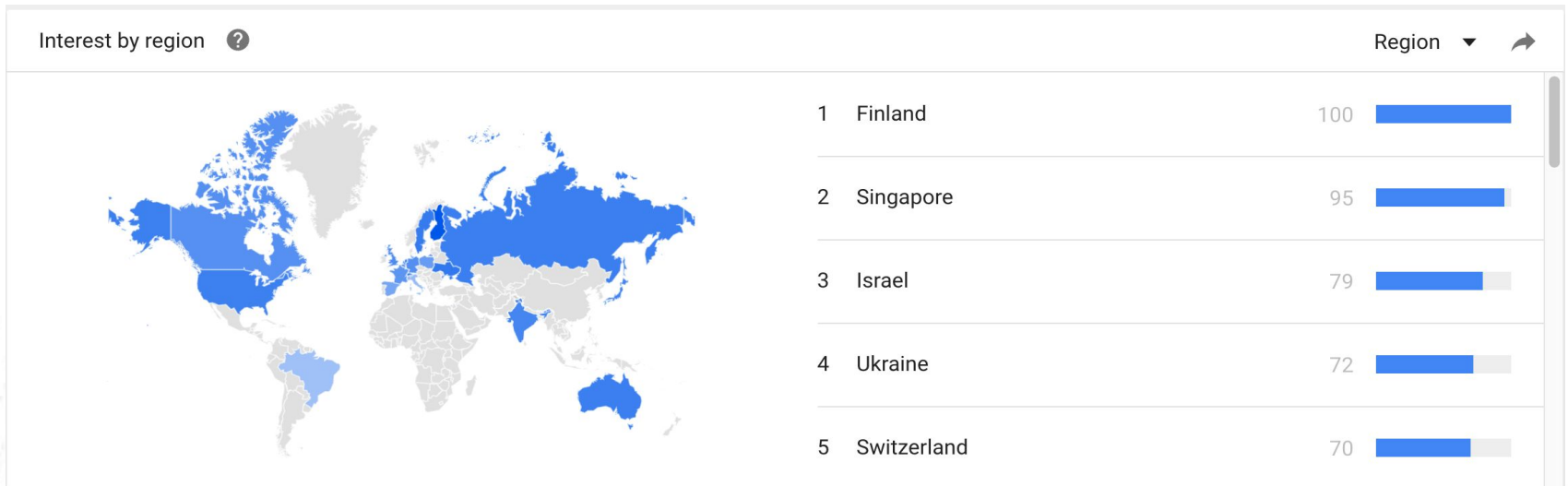
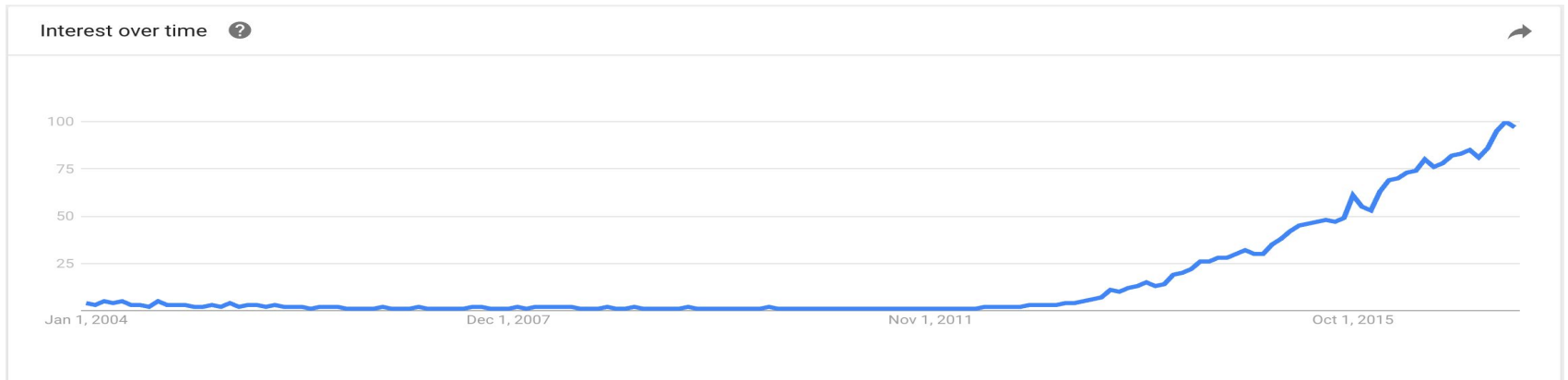
File	Commit Message	Time Ago
.github	Move summary to be next to where github places the commit message. (#...	2 months ago
bin	updates log messages in ansible-connection (#23076)	27 days ago
contrib	Fix errors reported by pylint. (#23282)	19 days ago
docs	Update playbooks_python_version.rst	5 hours ago
examples	ConfigureRemotingForAnsible: RSA 1024 to RSA 4096 (#23684)	7 days ago
hacking	moved docs generation and templates to docs/	a month ago
lib/ansible	Change wait_for time to utc (#23987)	3 hours ago
packaging	Adding 2.3.0 release date to release vars versions	13 days ago
test	Update version and change remove files from pep8 blacklist	5 hours ago
ticket_stubs	Remove obsolete ticket stubs.	5 months ago

The screenshot shows the 'Top Projects' section on GitHub. It lists the top 100 projects in the Python ecosystem. The projects are ranked by the number of stars they have received. The top project is 'jakubroztocil/httpie' with 29,056 stars. The 7th project is 'ansible/ansible' with 21,842 stars. The projects listed are:

- 29056 [jakubroztocil/httpie](#)
Modern command line HTTP client – user-friendly curl alternative with intuitive UI, JSON support, syntax highlighting, wget-like downloads, extensions, etc.
<https://httpie.org>
- 26298 [pallets/flask](#)
A microframework based on Werkzeug, Jinja2 and good intentions
- 25103 [rg3/youtube-dl](#)
Command-line program to download videos from YouTube.com and other video sites
- 24843 [django/django](#)
The Web framework for perfectionists with deadlines.
- 24305 [nvn/thefuck](#)
Magnificent app which corrects your previous console command.
- 22536 [kennethreitz/requests](#)
Python HTTP Requests for Humans™
- 21842 [ansible/ansible](#)
Ansible is a radically simple IT automation platform that makes your applications and systems easier to deploy. Avoid writing scripts or custom code to deploy and update your applications— automate in a language that approaches plain English, using SSH, with no agents to install on remote systems.

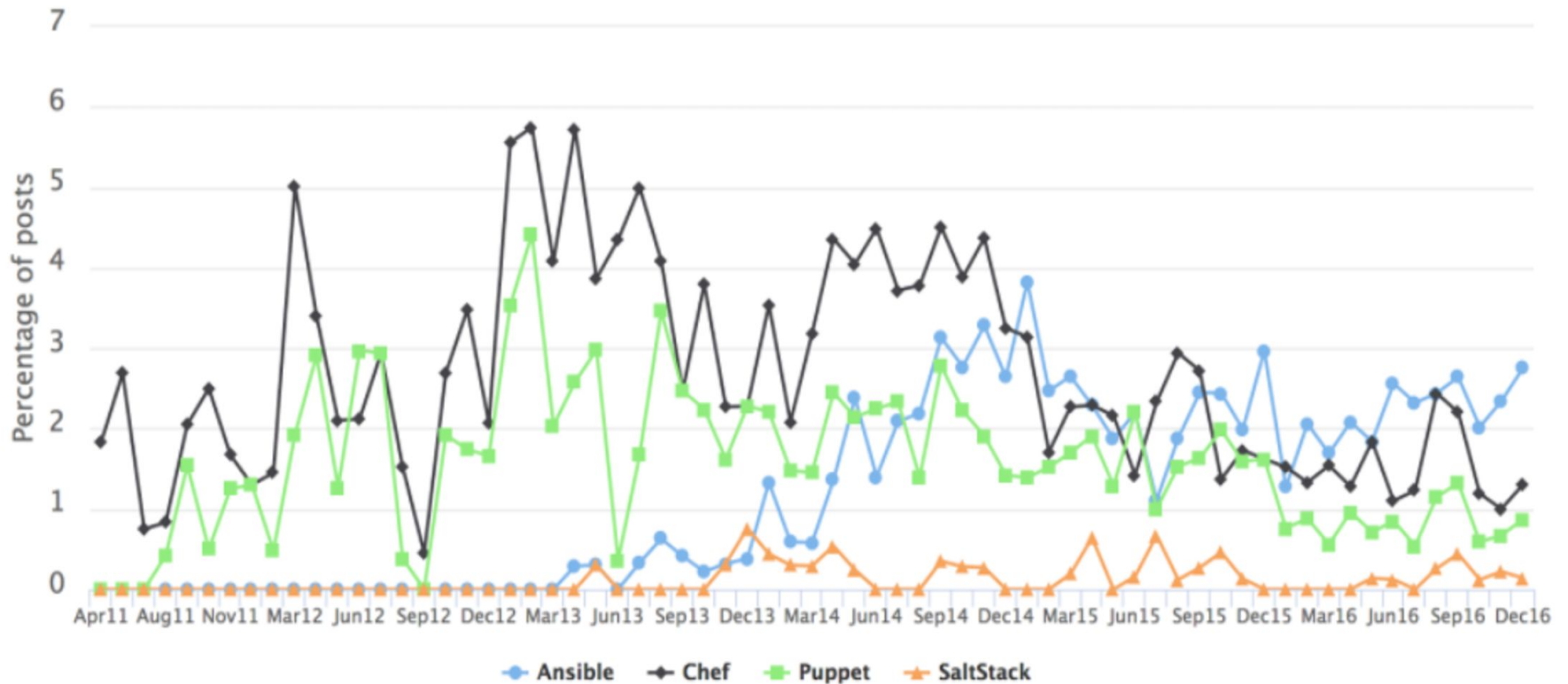
인기짱

Google trend



인기짱

Hackers news



Highcharts.com

그럼 왜 인기가 좋은데?

- 참 좋은 오픈소스
 - 활동성이 높음
 - 믿을만한 회사(레드햇)가 서포트
 - Training & Certification
 - Consulting
- 배우기 너무 쉬워
- 에이전트가 없네
- 병렬 프로비저닝
- 플러그 앤 플레이
- 멍등성(Idempotency)
 - 연산을 여러 번 적용하더라도 결과가 달라지지 않는 성질

ansible

- 개발언어
 - python
- 정의
 - YAML
- 통신
 - SSH
- 실행결과
 - ok, failed, changed, unreachable

일단 3개만 먼저 알고 넘어갈까요

YAML

- YAML Ain't Markup Language
- JSON보다 더 읽기 쉬운 언어
 - **Human friendly** data serialization standard for all programming languages.

```
- name: Configure Cloudera Manager Repository
  hosts: cdh_servers
  roles:
    - cm_repo
  tags: cm_repo

- name: Install Java
  hosts: cdh_servers
  roles:
    - java
  tags: java
```

Jinja2

- 파이썬 템플릿 언어

```
- name: Create MySQLDB log file
  file: path={{ mysql_log }} state=touch owner=mysql group=mysql mode=0775
```

```
{% if krb5_kdc_type == 'ad' %}
"value" : "Active Directory"
{% else %}
"value" : "MIT KDC"
{% endif %}
```


```
- name: Install MySQLDB packages
  yum: name={{ item }} state=present
  with_items:
    - mysql-server
    - MySQL-python
```

Inventory file

- 리모트 서버에 대한 메타 데이터
 - OS의 hosts 파일과 유사
- 기본 파일은 `/etc/ansible/hosts`
 - 옵션(-i) 사용해서 따로 정의가능
- Grouping 가능

`$ansible mn -m ping -i hosts`

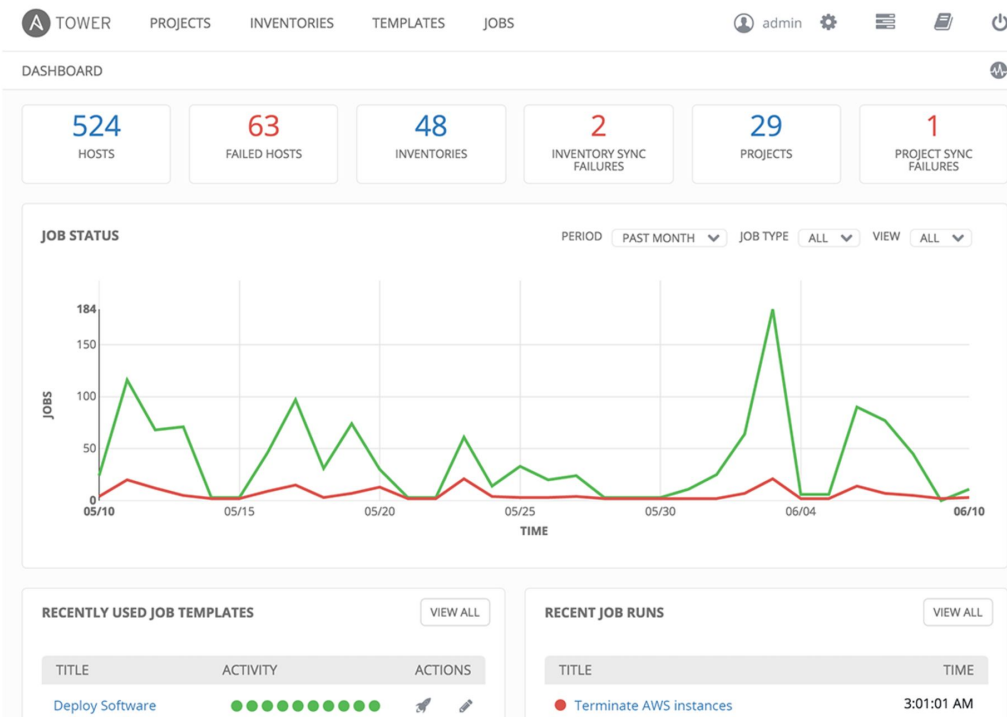
```
[mn]
mn[1:3].hadoop.com - - - - -
[en]
en.hadoop.com
[dn]
dn[1:100].hadoop.com
```



mn1.hadoop.com
mn2.hadoop.com
mn3.hadoop.com

실행 종류는 뭐가있나?

- Ad-hoc
- Playbook
- Tower



Ad-hoc

- 처음에는 이걸로 시작해서 자신감을 가져요
`$ansible all -m ping -i hosts`

```
[root@ip-10-0-0-120 ansible]# ansible all -m command -a "hostname -f" -i hosts
10.0.0.124 | SUCCESS | rc=0 >>
ip-10-0-0-124.ap-northeast-2.compute.internal

10.0.0.123 | SUCCESS | rc=0 >>
ip-10-0-0-123.ap-northeast-2.compute.internal

10.0.0.125 | SUCCESS | rc=0 >>
ip-10-0-0-125.ap-northeast-2.compute.internal

10.0.0.126 | SUCCESS | rc=0 >>
ip-10-0-0-126.ap-northeast-2.compute.internal

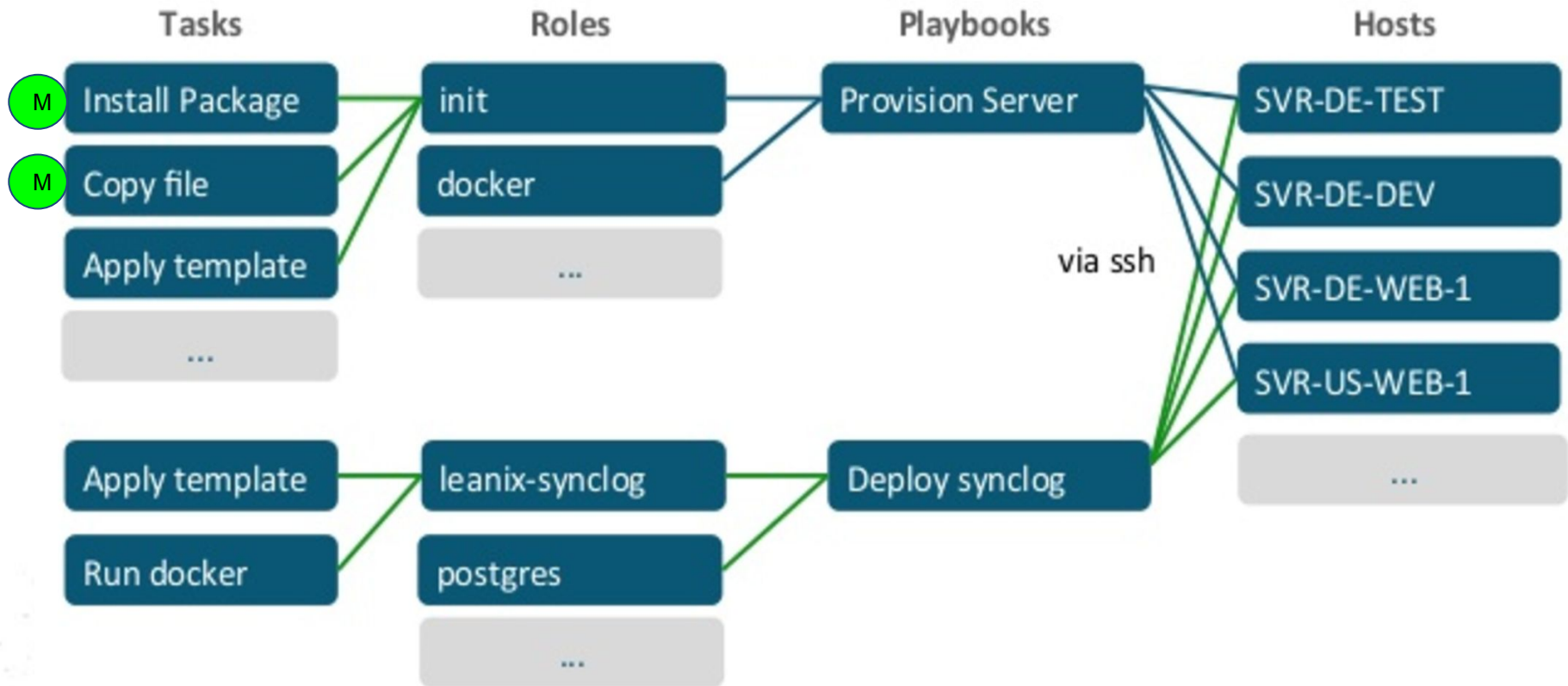
10.0.0.120 | SUCCESS | rc=0 >>
ip-10-0-0-120.ap-northeast-2.compute.internal

10.0.0.122 | SUCCESS | rc=0 >>
ip-10-0-0-122.ap-northeast-2.compute.internal

10.0.0.121 | SUCCESS | rc=0 >>
ip-10-0-0-121.ap-northeast-2.compute.internal
```


Playbook

- 복잡한것도 척척해서 잘난척 좀 할까



Playbook

\$ansible-playbook **site.yml** -i hosts

```
- name: Configure Cloudera Manager Repository
  hosts: cdh_servers
  roles:
    - cm_repo
  tags: cm_repo

- name: Install Java
  hosts: cdh_servers
  roles:
    - java
  tags: java

- name: Install MySQLDB and create databases
  hosts: db_server
  roles:
    - mysql_db
  tags: mysql

- name: Install MySQL Connector
  hosts: utility_servers:master_servers:worker_servers
  roles:
    - mysql_connector
  tags: mysql
```

play1

play2

play3

Playbook Standard Layout

```
production           # inventory file for production servers
staging              # inventory file for staging environment

group_vars/
  group1             # here we assign variables to particular groups
  group2             # ""
host_vars/
  hostname1          # if systems need specific variables, put them here
  hostname2          # ""

library/             # if any custom modules, put them here (optional)
filter_plugins/      # if any custom filter plugins, put them here (optional)

site.yml             # master playbook
webservers.yml       # playbook for webserver tier
dbservers.yml        # playbook for dbserver tier

roles/
  common/            # this hierarchy represents a "role"
    tasks/           #
      main.yml        # <-- tasks file can include smaller files if warranted
    handlers/        #
      main.yml        # <-- handlers file
    templates/       # <-- files for use with the template resource
      ntp.conf.j2     # <----- templates end in .j2
    files/           #
      bar.txt         # <-- files for use with the copy resource
      foo.sh          # <-- script files for use with the script resource
    vars/            #
      main.yml        # <-- variables associated with this role
    defaults/        #
      main.yml        # <-- default lower priority variables for this role
    meta/            #
      main.yml        # <-- role dependencies
    library/         # roles can also include custom modules
    lookup_plugins/  # or other types of plugins, like lookup in this case

webtier/             # same kind of structure as "common" was above, done for the webtier role
monitoring/          # ""
fooapp/              # ""
```

Module

- 실제로 일하는 친구
- 여러분들이 생각하는건 다 있습니다

Quickstart Video
Playbooks
Playbooks: Special Topics
About Modules
Module Index
All Modules
Cloud Modules
Clustering Modules
Commands Modules
Crypto Modules
Database Modules
Files Modules
Identity Modules
Inventory Modules
Messaging Modules
Monitoring Modules
Net Tools Modules
Network Modules
Notification Modules
Packaging Modules
Remote Management Modules
Source Control Modules
Storage Modules
System Modules
Utilities Modules
Web Infrastructure Modules
Windows Modules

All Modules ↗

- a10_server - Manage A10 Networks AX/SoftAX/Thunder/vThunder devices' server object.
- a10_server_axapi3 - Manage A10 Networks AX/SoftAX/Thunder/vThunder devices
- a10_service_group - Manage A10 Networks AX/SoftAX/Thunder/vThunder devices' service groups.
- a10_virtual_server - Manage A10 Networks AX/SoftAX/Thunder/vThunder devices' virtual servers.
- accelerate (D) - Enable accelerated mode on remote node
- acl - Sets and retrieves file ACL information.
- add_host - add a host (and alternatively a group) to the ansible-playbook in-memory inventory
- airbrake_deployment - Notify airbrake about app deployments
- aix_inittab - Manages the inittab on AIX.
- aix_lvol - Configure AIX LVM logical volume
- alternatives - Manages alternative program
- aos_asn_pool - Manage AOS ASN Pool
- aos_blueprint - Manage AOS blueprint instance
- aos_blueprint_param - Manage AOS blueprint parameter
- aos_blueprint_virtnet - Manage AOS blueprint virtual network
- aos_device - Manage Devices on AOS Server
- aos_external_router - Manage AOS External Router
- aos_ip_pool - Manage AOS IP Pool
- aos_logical_device - Manage AOS Logical Device
- aos_logical_device_map - Manage AOS Logical Device Map
- aos_login - Login to AOS server for session
- aos_rack_type - Manage AOS Rack Type
- aos_template - Manage AOS Template
- apache2_mod_proxy - Set and/or get mem
- apache2_module - enables/disables a mod
- apk - Manages apk packages
- apt - Manages apt-packages
- apt_key - Add or remove an apt key
- apt_repository - Add and remove APT repository
- apt_rpm - apt_rpm package manager
- archive - Creates a compressed archive of

```
- name: Install MySQLDB packages
  yum: name={{ item }} state=present
  with_items:
    - mysql-server
    - MySQL-python

- name: Create MySQLDB configuration file
  template: src=my.cnf.j2 dest=/etc/my.cnf
  notify:
    - restart mysql

- name: Create MySQLDB log file
  file: path={{ mysql_log }} state=touch owner=mysql group=mysql mode=0775

- name: Create MySQLDB PID directory
  file: path={{ mysql_pid_dir }} state=directory owner=mysql group=mysql mode=0775

- name: Start MySQLDB Service
  service: name=mysql state=started enabled=yes
```

Tags

- Playbook에 Play가 많을 경우 유용
- 특정 Tag 만 실행

`$ansible-playbook site.yml --tags "java,mysql"`

- 특정 Tag 무시

`$ansible-playbook site.yml --skip-tags "java"`



```
- name: Configure Cloudera Manager Repository
  hosts: cdh_servers
  roles:
    - cm_repo
  tags: cm_repo
- name: Install Java
  hosts: cdh_servers
  roles:
    - java
  tags: java
- name: Install MySQLDB and create databases
  hosts: db_server
  roles:
    - mysql
  tags: mysql
- name: Install MySQL Connector
  hosts: utility_servers:master_servers:worker_servers
  roles:
    - mysql_connector
  tags: mysql
```


Variables

group_vars/db_server.yml

```
mysql_datadir: /var/lib/mysql
mysql_socket: /var/lib/mysql/mysql.sock
mysql_port: 3306
mysql_log_bin: /var/lib/mysql/mysql_binary_log
mysql_log: /var/log/mysql.log
mysql_pid_dir: /var/run/mysqld
mysql_pid_file: "{{ mysql_pid_dir }}/mysqld.pid"
mysql_root_password: master
```

databases:

scm:

```
name: 'scm'
user: 'scm'
pass: 'scm_password'
type: 'mysql'
```

[mysqld]

```
datadir = {{ mysql_datadir }}
socket = {{ mysql_socket }}
port = {{ mysql_port }}
```

transaction-isolation = READ-COMMITTED

Disabling symbolic-links is recommended to prevent assorted security risks
symbolic-links = 0

```
key_buffer = 16M
key_buffer_size = 32M
max_allowed_packet = 32M
thread_stack = 256K
thread_cache_size = 64
query_cache_limit = 8M
```

roles/mysqldb/templates/my.cnf.j2

Handler

- 반복되는 작업을 수행
- 대부분의 작업은 애플리케이션 **restart**
- Task의 **notify**에 의해 호출됨

roles/mysqlldb/**tasks**/main.yml

```
- name: Install MySQLDB packages
  yum: name={{ item }} state=present
  with_items:
    - mysql-server
    - MySQL-python

- name: Create MySQLDB configuration file
  template: src=my.cnf.j2 dest=/etc/my.cnf
  notify:
    - restart mysql
```

roles/mysqlldb/**handlers**/main.yml

```
- name: restart mysql
  service: name=mysql state=restarted
```


Demo

JBoss Community

<http://www.jboss.org>

<https://www.facebook.com/groups/jbossusergroup>