
AppFlow - Deduplicating Archiver

Release 1.0.1.5

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CHAPTER 1

AppSide

Read the documentation on appside.rtf.d.io

For the playbooks, visit the [appside-playbooks](#) repository

More Screencasts: [Installation](#), [Basic setup](#), [Atlantis setup](#), [Atlantis provision](#), [Project provision](#)

Get an invite and join the conversations!



AppSide is a multitenant environment automation tool based on Ansible.

AppSide is your transparent platform that incorporates the various digital infrastructures into a continuous workflow. At the same time, it creates a consistent environment for the entire development process, saving time and money. AppSide is an open source developer and DevOps application that maps the entire development process (continuous deployment & provisioning) from development to test & staging to production. This ensures that the systems being managed on the different infrastructures are deployed in the same way. At the same time, AppSide creates a consistent environment (on-premise, in the cloud or on bare metal) throughout the development process. The administrators and developers (DevOps) can therefore independently control the entire toolchain. The automation process is created using Ansible playbooks and contains the admin and developer code, which is stored in a git repository (encrypted). The code (AppSide) runs on any UNIX-like operating system where Python can run, including Linux, BSD, and OSX. Orchestration of the AppSide code requires only SSH access to the respective systems. AppSide has been designed and optimized from DevOps for DevOps.

1.1 Features

Provisioning:

- Multitenant architecture (different teams with different environments)
- Supports development, testing, staging and production
- All configuration files are encrypted in git with `ansible-vault`
- Provision all nodes with one command

Development:

- Provides a Vagrant based development environment called `atlantis`
- Code locally on any Unix-like system or Windows (`cygwin`)

Deployment:

- Made for `Bedrock` projects and `bedrock-capistrano` deployments
- Deploy and rollback with one command

Infrastructure:

- Builtin `Percona XtraDB Cluster 5.6` and `GlusterFS` support for sharing web uploads on multiple nodes
- Easy development environments with `Vagrant`
- Easy server provisioning with `Ansible` (Ubuntu 16.04, PHP 5.6/7)

1.2 Technologies

The technology behind AppSide uses countless best-in-class programs and maps them in a toolbox. The software accesses an extensive repository of various freeware packages. Out-of-the-box, many enterprise features already exist, such as:

- Load balancing
- Apache / PHP
- Web Accelerator / Caching / PageSpeed
- Distributed file system
- Master-Master Database
- Backup & Monitoring Integration
- Jailkit - chroot
- ...

1.2.1 Installation

AppSide is hosted on PiP using `python3`. `pip3 install appside` will install appside. To start using it you first need to *initialize* it: `appside init` follow the onscreen instructions to set it up!

1.2.2 Developers

1.2.2.1 Contribute a new feature

- Create a new issue, e.g. `#XX new superfeature`

- Create local branch: `git checkout -b XX-new-superfeature`
- Code on it.
- Push it to remote as new branch: `git push -u origin XX-new-superfeature`
- Create new pull request (base: master ... compare: XX-new-superfeature)

1.2.2.2 Get all vars

```
ansible all -m setup --tree /tmp/facts -i examples/YOUR_TENANT/local/inventory  
-a "filter=ansible_distribution*"
```

1.3 Contributing

Contributions are welcome from everyone.



Join us!

1.3.1 Introduction

1.3.2 AppSide

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- Create a new issue, e.g. #XX new superfeature
- Create local branch: `git checkout -b XX-new-superfeature`
- Code on it.
- Push it to remote as new branch: `git push -u origin XX-new-superfeature`
- Create new pull request (base: master ... compare: XX-new-superfeature)

Get all vars

```
ansible all -m setup --tree /tmp/facts -i examples/YOUR_TENANT/local/inventory  
-a "filter=ansible_distribution*"
```

1.3.2.3 Contributing

Contributions are welcome from everyone.



Join us!

1.3.3 Installation

More Screencasts: [Basic setup](#), [Atlantis setup](#), [Atlantis provision](#), [Project provision](#)

1.3.3.1 Prerequisites

The preferred method to install AppFlow is pip; to install it you must do:

On MacOS (depends on [Brew](#)):

```
brew install python3
```

Or if you already have python2 installed do:

```
brew upgrade python
```

On Linux Systems:

```
- Ubuntu/Debian:  
sudo apt install python3-pip  
  
- RedHat/Fedora:  
sudo dnf install python3-pip
```

After this you will be able to install appflow using:

```
pip3 install appflow
```

this will install the appflow executable you will use.

This installation is incomplete without initializing the playbooks and your tenant. To initialize use:

```
appflow init
```

Then follow the simple instructions to choose your tenant name and default environment.

At this point the installation is **complete**. Now we will illustrate the folder structure.

1.3.3.2 Others

Fix Ansible problems on 14.04

The python3 version Shipped with Ubuntu 14.04 is not enough to use ansible from pip3 that Appflow brings as dependency. We need to remove it and default to the PPA installation:

```
- sudo pip3 uninstall ansible
- sudo apt install python2 python2-pip python3 python3-pip git
- sudo apt-add-repository ppa:ansible/ansible
- sudo apt install ansible
```

1.3.4 Usage

The following section will cover some basic usages of Appflow.

1.3.4.1 Folder Structure

This will initialize your folders and default playbooks in the appflow config directory. This folder is placed in **\$HOME** in **\$HOME/.appflow**

You will find here:

```
ls ~/.appflow
.appflow
├── config.yml
├── playbooks
├── tenant
├── tmp
└── vault

4 directories, 1 file
```

What you need to know:

config.yml holds your default config (default tenant, environment) so you do not have to specify them always. To use something different from defaults, AppFlow allows you to specify them during your command: *appflow provision -tenant ANOTHER_TENANT -env ANOTHER_ENV*

playbooks this is where all playbooks are placed, you can contribute to them visiting the repository: [Appflow-Playbooks](#). To keep them updated, you can just type *appflow update*

tenant this is where all your tenants (you can have as many as you wish) will be placed. all Tenants are organized by name (`~/.appflow/tenant/tenant1`, `~/.appflow/tenant/tenant2...`) in your tenant you then specify the inventory files for each environment (`~/.appflow/tenant/tenant1/development`, `~/.appflow/tenant/tenant1/testing...`)

vault this will hold your passwords to decrypt your inventories (**appflow decrypt**, **appflow encrypt**) it's organized in a similar fashion of tenant folder: `~/.appflow/vault/tenant1/` this folder will contain files with the password. These files have to be named with the environment they correspond to: `~/.appflow/vault/tenant1/development...`

in your tenant you then specify the inventory files for each environment (`~/.appflow/tenant/tenant1/development`, `~/.appflow/tenant/tenant1/testing...`)

1.3.4.2 Setting up a new user

More Screencasts: [Installation](#), [Atlantis setup](#), [Atlantis provision](#), [Project provision](#)

This section will refer to the **example tenant** that you will find in this repository: [Appflow-Example repository](#)

To setup a new user, you will need to modify the file

```
$HOME/.appflow/tenant/appflow-example/development/group_vars/all
```

There is a section called **conf_users**. Here you will find a series of users that will be configured in your base system.

The example tenant will have the segment code:

```
REPLACE_USER_NAME:
  state: enabled
  groups: "{{ conf_sudo_nopasswd_group }},{{ conf_www_group }}"
  name: "Basic User"
  home: "/home/REPLACE_USER_NAME"
  shell: "{{ conf_zsh_path }}"
  public_key: |
    REPLACE_SSH_KEY
  private_key:
  is_deployer: yes
  is_mysql_admin: yes

deploy:
  state: enabled
  groups: "{{ conf_www_group }}"
  name: "Capistrano Deploy User"
  home: "/home/deploy"
  shell: "{{ conf_zsh_path }}"
  public_key: |
    REPLACE_SSH_KEY
  private_key:
  is_deployer: no
  is_mysql_admin: yes
```

As you can see the structure is pretty simple, just REPLACE_SSH_KEY with **YOUR public ssh key** (you can find it in `$HOME/.ssh/id_rsa.pub`).

`private_key` is not needed for a simple user

`is_deployer` will specify if this user is allowed to deploy

`is_mysql_admin` will specify if this user is a mysql admin

User Groups You can also specify in what group the user should (or not) be.

Populate the groups line with a list of the groups.

conf_www_group is likely needed for a developer and deployer.

conf_sudo_nopasswd_group is likely needed for a maintainer and admin user.

And that's it.

If you want to add new users you can simply clone the settings of the example user and modify the confs as described.

1.3.4.3 Setting up a new Project

More Screencasts: [Installation](#), [Basic setup](#), [Atlantis setup](#), [Atlantis provision](#)

A project is defined in a tenant as a virtual host.

Setup a vhost

Referring to the *example tenant*, there is a section called conf_vhosts. Here you will find:

```
example:
  state: enabled
  servername: dev.example.com
  serveralias:
    - www.dev.example.com
  serveradmin: webmaster@ttss.ch
  db_name: example_wp
  db_user: example_wp
  db_password: We9Diel2
  db_server: 127.0.0.1
  db_host: '%'
  db_prefix: ahCh7Fei
  glusterfs_uploads: example
  type: wp_bedrock
  config_env: true
  env_opt: |
    CFG_URL_DEVELOPMENT='https://dev.example.com'
    CFG_URL_STAGING='https://stage.example.com'
    CFG_URL_PRODUCTION='https://example.com'
    WPMDB_LICENCE='XXXXXXXXXXXXXXXXXXXXXXXXXXXX'
  wp_salt: |
    AUTH_KEY=']+-v`hHqK.M |QO.1|sYEqM5v:^^[3-,]:s?Bbtus9@y+nEbE7+ladg.E|H+<EC|'
    SECURE_AUTH_KEY='94ZoJdn,s:Jy)p-.pH-A3`GtK$BrwZTL6lA-520F=/l90*,i]t-zI|0QZn)Cq#1|'
    LOGGED_IN_KEY='$Jd>Gv{:5}^r|!=.F8*Psg{j_B27TVC{n-R<@9GqF[d`@$WhGd+tf?OiPyN8kcb8'
    NONCE_KEY='46^*wL<)IzG01Y/m_e,|Hb/B-!5:mc#.w{6~@ipSSJc*|67>d[|HJ&OY*|DXjV83'
    AUTH_SALT='!;oV$#%N3WcL-VsW3IkhI0}FtO/fJ`*H}n18.3.2bT5sW/svc-1nKnp~PONKT<B$'
    SECURE_AUTH_SALT='iqyy{?<h`fNX/iQ}on>cmB|/bbRD*nZD;8fGDH5`an_-Qj|:h|yO|two>a-yZ;*x
    LOGGED_IN_SALT='182hxF[w)R)L|bqw:a@;x=+geLouagDu:)}ss1k=T:!!#.fc:9ZU{hJPEmV`7<BRi'
    NONCE_SALT='R{~-C+p|eJ=mEF,5F$m-|8@<HocSO!e&GNPw{ _GTjW]c@to@8[O3RJA7:G-gMu!F'
  htaccess:
  httpasswd_password: false
  ssl_pemfile:
  ssl_haproxy: false
  ssl_pem:
  bkup: false
  bkup_www_hosts:
  bkup_mysql_hosts:
  bkup_cron_schedule:
```

Just replace the values with the one needed in your project. In particular pay attention to the db_user and db_password. For the wp_salt section you can refer to [This Website](#) to generate random values for the project.

1.3.4.4 Setting Up Atlantis (14.04)

This procedure has to be executed in the Atlantis VM. To enter it just do

```
- vagrant ssh atlantis
```

1.3.4.4.1 We need percona repo to complete the provisioning

From inside atlantis we have to perform the following commands:

```
- wget https://repo.percona.com/apt/percona-release_0.1-4.$(lsb_release -sc)_all.deb
- sudo dpkg -i percona-release_0.1-4.$(lsb_release -sc)_all.deb
- sudo apt update
- sudo apt-get install -y percona-xtradb-cluster-server-5.7
```

1.3.4.4.2 Upgrade Packages

```
- sudo apt update && sudo apt upgrade
- sudo pip list --outdated --format=columns | grep -v sdist | awk '{print $1}' | \
  ↪tail -n +3 | xargs -n1 sudo pip install -U
- sudo pip list --outdated --format=columns | grep -v sdist | awk '{print $1}' | \
  ↪tail -n +3 | xargs -n1 sudo pip3 install -U
```

1.3.4.5 Setting Up Atlantis (16.04)

More Screencasts: [Installation](#), [Basic setup](#), [Atlantis provision](#), [Project provision](#)

1.3.4.5.1 We first need to install Python or ansible will not work

```
- vagrant ssh atlantis -c "sudo apt-get install -y python"
```

1.3.4.5.2 We now need to setup the percona repo and package to install

First we enter atlantis using

```
- vagrant ssh atlantis
```

Then from inside atlantis we have to perform the following commands:

```
- wget https://repo.percona.com/apt/percona-release_0.1-4.$(lsb_release -sc)_all.deb
- sudo dpkg -i percona-release_0.1-4.$(lsb_release -sc)_all.deb
- sudo apt update
- sudo apt-get install -y percona-xtradb-cluster-server-5.7
- sudo chown mysql:mysql /run/mysqld
```

note: get ssh pwd for ubuntu user:

```
- vagrant ssh atlantis -c "echo $(cat ~/.ssh/id_rsa.pub) | sudo tee -a /home/ubuntu/  
↪.ssh/authorized_keys"  
- vagrant ssh atlantis -c "sudo passwd ubuntu"
```

1.3.4.6 Provision Atlantis

More Screencasts: [Installation](#), [Basic setup](#), [Atlantis setup](#), [Project provision](#)

To provision atlantis we have first to use the `--first-run` flag, because the basic users are not yet configured.

```
- appflow provision --env development --tenant example --limit atlantis --first-run_  
↪True
```

From now on the `--first-run` flag can be ignored as your `id_rsa.pub` key will be used to authenticate.

After the first provision that will setup all the basic packages, users and configs, the most useful tags you will use are:

- `--tags env` this will provision `.env`
- `--tags htaccess` this will provision `.htaccess`
- `--tags vhosts` this will provision the projects/vhosts
- `--tags mysql` this will provision both db and users
- `--tags shell-users` this will provision any new users that will be created afterwards.

Remember, tags can be concatenated, for example

```
- appflow provision --env development --tenant example --limit atlantis,testing --  
↪tags htaccess,env,vhosts,mysql
```

1.3.5 Useful Tips

1.3.5.1 Aliases

An useful alias you can add to your `.bashrc` or your `.zshrc` is:

```
vagup(){pushd ~/.appflow/playbooks; vagrant up $@; popd}  
vaghalt(){pushd ~/.appflow/playbooks; vagrant halt $@; popd}  
vagdestroy(){pushd ~/.appflow/playbooks; vagrant destroy $@; popd}
```

This will make your vagrant managing much faster.

1.3.5.2 Update Playbooks and Vagrantfile

Since the split in Appflow and Appflow-Playbooks, you can now just update your playbooks and Vagrantfile using:

```
appflow update
```

1.3.6 FAQs

1.3.6.1 Help

You can always have basic help from appflow itself:

```
appflow
```

Will print a generic help:

```
% appflow
Type:      AppFlow
String form: <__main__.AppFlow object at 0x7f75a19fa080>
Docstring: Appflow CLI tool.

Type appflow to have a list of available commands.
Type appflow command -- --help to have help for the specified command.

Usage:      appflow
            appflow add
            appflow checkin
            appflow checkout
            appflow decrypt
            appflow encrypt
            appflow get
            appflow init
            appflow provision
            appflow reset
            appflow rm
            appflow set
            appflow ssh
            appflow status
            appflow tags
            appflow update
            appflow vhosts
```

You will have greather help, typing `appflow COMMAND -- --help` This will print a more detailed help for every function you need (add,checking,checkout...)

Example:

```
% appflow provision -- --help
↳[12:48:37]
Type:      method
String form: <bound method AppFlow.provision of <__main__.AppFlow object at 0x7fc0f056eb70>>
File:      /usr/local/bin/appflow
Line:      197
Docstring: Provision your machines.
Syntax is:
appflow provision "machine1,machine2" tag1,tag2 skiptag1,skiptag2
tags: will run only the tags specified
skip_tags: will run all the tags except for the specified ones
limit: limit to only some specified hosts.

Optionally it is possible to specify custom tenant and environment
appflow provision tenant-name env-name...
this is optional and by default will read the
```

(continues on next page)

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```
default config in ~/.appflow/config.yml

:type tenant: string
:param tenant: The name of the tenant.

:type env: string
:param env: The name of the tenant.

:type limit: string
Usage:      appflow provision [TENANT] [ENV] [LIMIT] [TAGS] [SKIP_TAGS] [FIRSTRUN]
↳[LOCAL]
           appflow provision [--tenant TENANT] [--env ENV] [--limit LIMIT] [--tags
↳TAGS] [--skip-tags SKIP_TAGS] [--firstrun FIRSTRUN] [--local LOCAL]
```

Read carefully the various helps, and in case of doubts head to the Developer section Where you will be able to read each function's Docstring and source code.

1.3.6.2 Let's Encrypt!

Issue: Setup Let's [Encrypt](#) on a server provisioned with Appflow.

Solve:

Certificate verification:

```
ssh REMOTE-SERVER.NAME "sudo cert-verify.sh"
```

Create a new Certificate:

```
ssh REMOTE-SERVER.NAME "sudo cert-create.sh www.YOUR-URL.DOMAIN"
```

Then manually renew **all** the certificates:

```
ssh REMOTE-SERVER,NAME "sudo cert-renew.sh"
```

1.3.6.3 Troubleshooting

1.3.6.3.1 [vagrant] Missing Vagrantfile.local.yml

Issue: There was an error loading a Vagrantfile. The file being loaded and the error message are shown below. This is usually caused by a syntax error.

Path: /Users/foo/Documents/webdev/appflow/Vagrantfile
Line number: 0
Message: Errno::ENOENT: No such file or directory @ rb_sysopen - Vagrantfile.
↳local.yml`

Solve: add Vagrantfile.local.yml to the appflow folder **with** this content:

```
synced_folder:
  appflow_folder: "~/Documents/webdev/appflow"
  webdev_folder: "~/Documents/webdev/development"
```

1.3.6.3.2 [vagrant] Vagrant was unable to mount VirtualBox shared folders

Issue: Vagrant was unable to mount VirtualBox shared folders.
 This **is** usually because the filesystem "**vboxsf**" **is not** available.
 This filesystem **is** made available via the VirtualBox Guest Additions
and kernel module. Please verify that these guest additions are properly
 installed **in** the guest. This **is not** a bug **in** Vagrant **and is** usually
 caused by a faulty Vagrant box. For context, the command attempted was:

```
id -u deploy
```

The error output **from the** command was:

```
id: deploy: no such user
```

Solve: appflow provision limit=atlantis firstrun=true (password **is** vagrant).

1.3.6.3.3 [vagrant] The box you attempted to add doesn't match the provider you specified

Issue: The box you attempted to add doesn't match the provider you specified.

Solve: vagrant up --provider=virtualbox atlantis

1.3.6.3.4 [vagrant] Lost Vagrant reference to VirtualBox VM

Issue: Lost Vagrant reference to VirtualBox VM

Solve:

```
VBoxManage list vms
```

```
"vagrant-atlantis" {xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxx}
```

```
echo xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxx > ~/appflow/.vagrant/machines/atlantis/
```

```
↪virtualbox/id
```

1.3.6.3.5 [vagrant] Warning: Authentication failure. Retrying...

Issue: vagrant **Warning:** Authentication failure. Retrying...

Solve: <http://stackoverflow.com/a/30792296>

1.3.6.3.6 [vagrant] an error occurred while downloading the remote file

Issue: An error occurred **while** downloading the remote file.

The error message, **if any**, **is** reproduced below. Please fix this error **and try** ↪
 ↪again.

Solve: sudo mv /opt/vagrant/embedded/bin/curl /tmp

See also: <https://github.com/mitchellh/vagrant/issues/7997>

1.3.6.3.7 [boot] An error occurred while mounting /

Issue: An error occurred **while** mounting /.
Keys: Press S to skip mounting **or** M **for** manual recovery

Solve:
Press S **and try** to see **if** atlantis boots up.
ssh atlantis
mount -o remount,rw / (optional)
e2fsck /dev/sda1
reboot

1.3.7 Changes

1.3.7.1 Appflow 1.0.1.5

Minor update introducing:

- Appflow-playbooks versioning
- Appflow-playbooks selectable branch
- **appflow version will now yield also the playbooks version:** Appflow Version: 1.0.1.5
Playbooks Version 1.0.0

1.3.7.2 Appflow 1.0.1.4

Released a little update including

- introduced appflow version command
- introduced appflow provision debug
- fixed newline bug in appflow hosts

to update just use Pip: *pip3 install -U appflow*

1.3.7.3 Screenscasts

To complement the documentation, we've added screencasts recorded on asciinema.org

Screencasts include the walkthrough of the basic setups and features of Appflow. They include:

- [Installation](#)
- [Basic setup](#)
- [Atlantis setup](#)
- [Atlantis provision](#)
- [Project provision](#)

1.3.7.4 Varnish Grace mode

Grace mode has been a long expected feature and went production ready with recent appflow-playbooks commit [f0d7f3817ffb1b2354f0c24a98e3dac37b72202d](#).

This special operation mode in Varnish allows a website to remain online and running also when the backend components, like MySQL or Apache2, are not running. This works because Varnish will serve all the web content directly from it's cache.

Backend operations like login to CMS or similar will obviously not work as expected but at least the public facing part of the website will not be offline, so no 404s or similar for end-users.

Grace period is set by default to 6h but can be extended to one week or whatever your preference is, the main advantage of Grace is that your site remains up when bad things happen and you'll get a time buffer for fixing whatever issue happened to the backend.

Grace mode will be enabled by default, for any environment, if you perform:

```
% appflow update
% appflow provision --tags varnish-conf,apache2-conf,mysql
```

It's important to note that Grace mode is active by default from Varnish 5.1 upwards so if you're on 3.x you'll need to upgrade varnish first, this can be done, in development, by:

```
% appflow update
% ssh atlantis "sudo service varnish stop"
% appflow provision --tags varnish,apache2-conf,mysql
```

You also need to set the Varnish version in group_vars/webserver:

```
#
# Varnish
#
conf_varnish_version: 51
...
```

a complete config setting for Varnish 5.1 and Grace would look like:

```
#
# Varnish
#
conf_varnish_version: 51
conf_varnish_listen_port: 6081
conf_varnish_listen_admin_port: 60821
conf_varnish_backend_default: |
.host = "127.0.0.1";
.port = "8080";
.max_connections = 800;
conf_varnish_acl_purge: |
"127.0.0.1";
"localhost";
"192.168.80.2";
conf_varnish_vcl_recv: |
{% if conf_lbtier_enable == false %}
remove req.http.X-Forwarded-For;
set req.http.X-Forwarded-For = client.ip;
{% endif %}
```

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```

if (req.url ~ "/wp(-login|-admin|-cron|login|-comments-post.php)" ) {
    return (pass);
}

if (req.http.Cache-Control ~ "no-cache") {
    return (pass);
}

# Remove client-side cookies.
set req.http.Cookie = regsuball(req.http.Cookie, "(^|;\\s*)(_[a-z]+|has_|
↪js|utmctr|utmcmd.|utmccn.|WT_FPC|_hjIncludedInSample)=[^;]*", "");

# Remove a ";" prefix, if present.
set req.http.Cookie = regsub(req.http.Cookie, "^;\\s*", "");

# Are there cookies left with only spaces or that are empty?
if (req.http.cookie ~ "\\s*$") {
    unset req.http.cookie;
}

conf_varnish_vcl_backend_response: |
# Allow stale content, in case the backend goes down.
# make Varnish keep all objects for 6 hours beyond their TTL
set beresp.grace = 6h;
# set beresp.grace = 2m;

conf_varnish_vcl_fetch: |
# set beresp.grace = 2m;

# If the URL is for one of static images or documents, we always want them to be_
↪cached.
if (beresp.status == 200 && req.url ~ "\\.(ico|jpe?g|jpe|gif|png|webp|svg|css|js)$") {
# Cookies already removed.
# Cache the page for 10 days.
    set beresp.ttl = 10d;
# Remove existing Cache-Control headers.
    remove beresp.http.Cache-Control;
# Set new Cache-Control headers for browser to store cache for 7 days.
    set beresp.http.Cache-Control = "public, max-age=604800";
}

# Cache 404 responses for 15 seconds.
if (beresp.status == 404) {
    set beresp.ttl = 15s;
    set beresp.grace = 15s;
}

conf_varnish_vcl_deliver: |
# For security and asthetic reasons, remove some HTTP headers before final delivery.
unset resp.http.Server;
unset resp.http.X-Powered-By;
unset resp.http.Via;
unset resp.http.X-Varnish;
Once Varnish has been updated and Grace mode has been enabled you could test if it's_
↪working correctly:

```

Open one of the web projects you're hosting on Atlantis in the browser, everything should be there.

```
% curl http://atlantis:8080/health.php
MySQL running

% ssh atlantis "sudo varnishadm backend.list"
Backend name      Admin      Probe
boot.default      probe      Healthy

% ssh atlantis "sudo service mysql stop"

% ssh atlantis "sudo varnishadm backend.list"
Backend name      Admin      Probe
boot.default      probe      Sick
```

Open the previous web project again in the browser, the website should be online as usual via Grace mode.

The same concept applies also to production where we have three or more nodes.

1.3.8 Support

Please first read the docs, the existing issue tracker issues and mailing list posts – a lot of stuff is already documented / explained / discussed / filed there.

1.3.8.1 Issue Tracker

If you've found a bug or have a concrete feature request, please create a new ticket on the project's [issue tracker](#).

1.3.9 Development

This chapter will get you started with AppFlow development.

AppFlow is written in Python. Here you will find all the references to the Code

1.3.9.1 appflow

1.3.9.1.1 appflow module

Appflow CLI tool.

Type appflow to have a list of available commands. Type appflow command – -help to have help for the specified command.

class appflow.AppFlow

Bases: **class:** 'object'

Appflow CLI tool.

Type appflow to have a list of available commands. Type appflow command – -help to have help for the specified command.

add (file, key, value)

This will create and then print the key you are specifying. Syntax: appflow get tenant.environment.folder.to.file.searched key.subkey.value

Parameters

- **file** (*string*) – path.to.file (dot encoded) where to set the key.
- **key** (*string*) – The key to search. (this function will add it if not found.)
- **value** (*T*) – the value to set.

checkin (*tenant=""*, *env=""*, *commit='Auto Commit'*)

Git push from your local tenant repository. This will only push the files that were modified. Before any push, all the files are encrypted.

Parameters

- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the tenant.
- **commit** (*string*) – The commit message to use when committing. (default Auto Commit)

checkout (*tenant=""*, *env=""*)

Git pull your local tenant repository. This will download the latest available code. This will also overwrite any unpushed work.

Parameters

- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the tenant.

decrypt (*tenant=""*, *env=""*)

Decrypt your local tenant repository

Parameters

- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the tenant.

encrypt (*tenant=""*, *env=""*)

Encrypt your local tenant repository

Parameters

- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the tenant.

get (*file*, *key=None*)

This will print the key you are searching (or the whole file if key is not specified) Syntax: appflow get tenant.environment.folder.to.file.searched key.subkey.value

Parameters

- **file** (*string*) – path.to.file (dot encoded) where to search the key.
- **key** (*string*) – The key to search.

init (*tenant=None*, *env=None*)

This will initialize all the folders for AppFlow. This will also setup autocompletion for the CLI tool.

Parameters

- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the tenant.

provision (*tenant=""*, *env=""*, *limit: str = None*, *tags: str = None*, *skip_tags: str = None*, *firstrun: bool = False*, *local: bool = False*, *debug: bool = False*)

Provision your machines. Syntax is: appflow provision "machine1,machine2" tag1,tag2 skiptag1,skiptag2
tags: will run only the tags specified skip_tags: will run all the tags except for the specified ones limit:
limit to only some specified hosts.

Optionally it is possible to specify custom tenant and environment appflow provision tenant-name env-name... this is optional and by default will read the default config in ~/.appflow/config.yml

Parameters

- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the tenant.
- **limit** (*string*) – Comma separated list of hosts to provision. (default None)
- **tags** (*string*) – Comma separated list of tags to exec (default All).
- **skip_tags** (*string*) – Comma separated list of tags to skip (default None).
- **firstrun** (*bool*) – if it's first run (default False)
- **local** (*bool*) – if it's doing a local auto-provision (default False)
- **debug** (*bool*) – if it's a debug run (default False)

reset (*tenant=""*, *env=""*)

Reset your local tenant repository. This will restore the status to the latest git pull. This will also reset any unpushed work.

Parameters

- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the tenant.

rm (*file, key*)

This will remove and then print the key you are specifying. Syntax: appflow get tenant.environment.folder.to.file.searched key.subkey.value

Parameters

- **file** (*string*) – path.to.file (dot encoded) where to remove the key.
- **key** (*string*) – The key to search.

set (*file, key, value*)

This will modify and then print the key you are specifying. Syntax: appflow get tenant.environment.folder.to.file.searched key.subkey.value

Parameters

- **file** (*string*) – path.to.file (dot encoded) where to set the key.
- **key** (*string*) – The key to search.
- **value** (*T*) – the value to set.

ssh (*tenant=""*, *env=""*)

This will deploy the ssh keys from your tenant/env to the Assh folders.

Parameters

- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the tenant.

status (*tenant*="", *env*="")

Outputs your local tenant status, any modified files. This is handy to have an overview of what's going to be pushed as a dry run.

Parameters

- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the tenant.

tags (*tenant*="", *env*="")

Show available tags. This is handy to provision only a part of them or skipping some of them.

Parameters

- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the tenant.

update (*branch*='master')

Simple function to update Appflow. This is handy for the appflow-git package. You can specify which branch you want to use

Parameters **branch** (*string*) – The name of the branch (default Master)

version ()

This will print the appflow version and the current appflow-playbooks informations.

vhosts (*tenant*="")

This will setup your /etc/hosts to reflect the configs int your tenant/development host_vars. ** Needs Root Access **

Parameters **tenant** (*string*) – The name of the tenant.

1.3.9.1.2 Lib package

Submodules

lib.appflow_ansible module

Appflow Ansible utilities. This contains all the functions needed to perform Ansible actions. From provision to encryption/decryption and tag listing.

`lib.appflow_ansible.decrypt` (*tenant*, *env*)

Decrypt the tenant/environment data

Parameters

- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the tenant.

Return type None

Returns the function prints to screen the ansible output of the execution.

`lib.appflow_ansible.encrypt` (*tenant*, *env*)

Encrypt the tenant/environment data

Parameters

- **tenant** (*string*) – The name of the tenant.

- **env** (*string*) – The name of the tenant.

Return type None

Returns the function prints to screen the ansible output of the execution.

`lib.appflow_ansible.list_tags (tenant, env)`

List all available tags for tenant/environment

Parameters

- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the tenant.

Return type None

Returns the function prints to screen the available tags.

`lib.appflow_ansible.provision (tenant: str, env: str, limit: str, tags: str, skip_tags: str, firstrun: bool, local: bool, debug: bool)`

This will perform the ansible playbook. We pass tenant and environment and all other options as `--option xys` in order to respect ansible's syntax.

Parameters

- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the tenant.
- **limit** (*string*) – Comma separated list of hosts to provision.
- **tags** (*string*) – Comma separated list of tags to exec (default All).
- **skip_tags** (*string*) – Comma separated list of tags to skip (default None).
- **firstrun** (*bool*) – if it's first run (default False)
- **debug** (*bool*) – if it's a debug run (default False)

Return type None

Returns the function prints to screen the ansible output of the execution.

lib.appflow_tools module

Appflow Tools. This contains all the functions needed to perform actions connected to initialization, config deployment and git versioning.

`lib.appflow_tools.git_check_in (tenant, env, commit)`

Git push. This will affect only the modified files (see `git_status` function). Commit message can be specified.

Parameters

- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the tenant.
- **commit** (*string*) – The commit message to use when committing.

Return type None

Returns the function doesn't have a return statement.

`lib.appflow_tools.git_check_out (tenant, env)`

Git pull of the specified tenant/environment folder. un-pushed work can be overwritten by this, so ask for confirmation.

Parameters

- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the tenant.

Return type None

Returns the function doesn't have a return statement.

`lib.appflow_tools.git_reset(tenant, env)`

Perform git reset in the specified tenant/environment folder. After this, updates the md5 file to reflect the new status.

Parameters

- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the tenant.

Return type None

Returns the function doesn't have a return statement.

`lib.appflow_tools.git_status(tenant, env)`

Return a status of modified files in the tenant/environment folder. this is tracked separately from git, because encryption/decryption of files will always override the git status method.

Parameters

- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the tenant.

Return type list

Returns the function returns a list containing the different lines between the 2 md5 files.

`lib.appflow_tools.git_update_playbooks(branch)`

Git pull the latest version of the playbooks. You can specify which branch you want to use

Parameters **branch** (*string*) – The name of the branch

`lib.appflow_tools.initialize(tenant, env)`

Create default dirs, clone playbooks and yaml files for Assh to function properly.

Parameters

- **tenant** (*string*) – The name of the tenant. (ex: mrrobot)
- **env** (*string*) – The name of the tenant.

Return type None

Returns This function doesn't have a return statement.

`lib.appflow_tools.set_vhosts_hosts(tenant)`

Setup /etc/hosts for tenant. Requires root access to write.

Parameters **tenant** (*string*) – The name of the tenant.

Return type None

Returns the function doesn't have a return statement.

`lib.appflow_tools.setup_default_config(tenant, env)`

Deploy a default config file in ~/.appflow/config.yml

Parameters

- **tenant** (*string*) – The name of the tenant. (ex: mrrobot)
- **env** (*string*) – The name of the tenant.

Return type None

Returns the function prints to screen the ansible output of the execution.

`lib.appflow_tools.setup_ssh (tenant, env)`
Deploy Assh configs for tenant/environment.

Parameters

- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the tenant.

Return type None

Returns the function doesn't have a return statement.

lib.appflow_utils module

Appflow Utilities. This contains all the generic functions needed to support the rest of the library.

`lib.appflow_utils.add_keys (data_dict, key, value=None)`
Add keys to dictionary (set also value if specified)

Parameters

- **data_dict** (*dict*) – The dictionary where to search the key.
- **key** (*string*) – The key to search.
- **value** (*string*) – The value to set. (default None)

Return type None

Returns the function doesn't have a return statement.

`lib.appflow_utils.check_string_in_file (file_name, searched_string)`
Check if string is in file

Parameters

- **file_name** (*string*) – The file name where to search the string.
- **searched_string** (*string*) – The string to search.

Return type bool

Returns the function returns if the string is found or not.

`lib.appflow_utils.diff_files (file1, file2)`
Returns different lines between file1 and file2. Returned data is a list of strings.

Parameters

- **file1** (*string*) – The name of the first file.
- **file2** (*string*) – The name of the second file.

Return type list

Returns the function returns a list containing the different lines between the 2 files.

`lib.appflow_utils.format_string_argument(argument)`

Fire takes multiple arguments (comma separated) as list or tuple. Check argument type and put it to string.

Parameters `argument` (*tuple or list*) – The argument passed.

Return type string

Returns Separated comma strings conversion for lists and tuples.

`lib.appflow_utils.get_appflow_folder()`

Get directory or appflow.

Parameters `_file` (*string*) – The name of the script file executed internally.

Return type string

Returns the function returns the root of appflow. Needed to then search for playbooks.

`lib.appflow_utils.get_env_color_string(env)`

Color code for the environment variable Needed in provision string.

Parameters `env` (*string*) – The name of the tenant.

Return type string

Returns the function returns the color needed for the corresponding env.

`lib.appflow_utils.get_file_list(_dir)`

Returns a list of files in a directory.

Parameters `_dir` (*string*) – The name of the directory to explore.

Return type list

Returns the function returns the list of files in the folder.

`lib.appflow_utils.get_from_dict(data_dict, key)`

Return key-value dictionary

Parameters

- **data_dict** (*dict*) – The dictionary where to search the key.
- **key** (*string*) – The key to search.

Return type dict

Returns the function returns a dict containing the key-value pair searched.

`lib.appflow_utils.get_md5_folder(tenant)`

Get directory for the specified tenant md5 files.

Parameters `tenant` (*string*) – The name of the tenant.

Return type string

Returns the function returns the md5_folder searched.

`lib.appflow_utils.get_md5_sum(file_name)`

Return the md5 checksum of the specified file.

Parameters `file_name` (*string*) – The name of the file to hash.

Return type string

Returns the function returns the md5 hash of the file.

`lib.appflow_utils.get_provision_color_string(command, tenant, env)`

Color code for the provision string

Parameters

- **command** (*string*) – The command to execute.
- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the tenant.

Return type string**Returns** the function returns the color coded string to print before the execution of the ansible command.

```
lib.appflow_utils.get_tenant_dir (tenant)
```

Get directory for the specified tenant.

Parameters **tenant** (*string*) – The name of the tenant.**Return type** string**Returns** the function returns the tenant folder.

```
lib.appflow_utils.get_tenant_env_dir (tenant, env)
```

Get directory for the specified tenant/environment.

Parameters

- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the environment.

Return type string**Returns** the function returns the tenant/environment folder.

```
lib.appflow_utils.get_vault_file (tenant, env)
```

Get vault file for the specified tenant/environment.

Parameters

- **tenant** (*string*) – The name of the tenant.
- **env** (*string*) – The name of the environment.

Return type string**Returns** the function returns the vault file searched.

```
lib.appflow_utils.rm_in_dict (data_dict, key)
```

Remove keys from dictionary

Parameters

- **data_dict** (*dict*) – The dictionary where to search the key.
- **key** (*string*) – The key to search.

Return type dict**Returns** the function returns the dictionary with the deleted the key searched.

```
lib.appflow_utils.safe_remove (file_name)
```

Gracefully delete a file.

Parameters **file_name** (*string*) – The name of the file to delete.**Return type** None**Returns** the function doesn't have a return statement.

`lib.appflow_utils.set_in_dict (data_dict, key, value)`
Set key-value in dictionary

Parameters

- **data_dict** (*dict*) – The dictionary where to search the key.
- **key** (*string*) – The key to search.
- **value** (*string*) – The value to set.

Return type None

Returns the function doesn't have a return statement.

`lib.appflow_utils.write_md5_sum (file_name, md5_store_file)`
Write the modified md5 filename to the md5_store_file

Parameters

- **file_name** (*string*) – The name of the file to hash.
- **md5_store_file** (*string*) – The name of the file where to write the hash.

Return type None

Returns the function doesn't have a return statement.

`lib.appflow_utils.yes_no (question, default='yes')`
Get a prompt for asking a question with y/N as accepted answer.

Parameters

- **question** (*string*) – The question to ask.
- **default** (*string*) – The default answer. (default Yes)

Return type bool

Returns the function returns if the answer was yes or no.

lib.appflow_yaml module

Appflow Yaml utilities. This contains all the functions needed to manipulate yaml files. Handy for configs and for tenant setups.

`lib.appflow_yaml.add_value (orig_file, orig_key, value)`
Returns key-value for searched key in file. Key will be created with the value specified. Data is written to file.
Returns string in json format.

Parameters

- **_file** (*string*) – path.to.file (dot encoded) where to set the key.
- **key** (*string*) – The key to search. (this function will add it if not found.)
- **value** (*T*) – the value to set.

Return type json

Returns the function returns a json containing the updated file content.

`lib.appflow_yaml.get_value (_file, key=None)`
Returns key-value for searched key in file. If key is not specified, returns the whole file. Returns string in json format.

Parameters

- **_file** (*string*) – path.to.file (dot encoded) where to search the key.
- **key** (*string*) – The key to search.

Return type json

Returns the function returns a json containing the key-value searched.

`lib.appflow_yaml.rm_value(_file, key)`

Returns key-value for searched key in file. Searched key will be removed. Data is written to file. Returns string in json format.

Parameters

- **_file** (*string*) – path.to.file (dot encoded) where to remove the key.
- **key** (*string*) – The key to search.

Return type json

Returns the function returns a json containing the updated file content.

`lib.appflow_yaml.set_value(_file, key, value)`

Returns key-value for searched key in file. Searched key will be set with the value specified. Data is written to file. Returns string in json format.

Parameters

- **_file** (*string*) – path.to.file (dot encoded) where to set the key.
- **key** (*string*) – The key to search.
- **value** (*T*) – the value to set.

Return type json

Returns the function returns a json containing the updated file content.

Module contents

1.3.9.2 Contributions

... are welcome!

Some guidance for contributors:

- discuss about changes on github issue tracker, IRC or mailing list

1.3.10 Authors

1.3.10.1 AppSide authors

- Ivo Marino <ivo.marino@ttss.ch>
- Luca Di Maio <luca.dimaio@ttss.ch>

1.3.10.1.1 AppFlow patches and suggestions

- Dominik Schilling
- Stefan Pasch
- Stefan Kalb
- Houssein Maatouk
- Malik Amrein

1.3.11 License

```
GNU AFFERO GENERAL PUBLIC LICENSE
Version 3, 19 November 2007

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Preamble

The GNU Affero General Public License is a free, copyleft license for
software and other kinds of works, specifically designed to ensure
cooperation with the community in the case of network server software.

The licenses for most software and other practical works are designed
to take away your freedom to share and change the works. By contrast,
our General Public Licenses are intended to guarantee your freedom to
share and change all versions of a program--to make sure it remains free
software for all its users.

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price. Our General Public Licenses are designed to make sure that you
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want it, that you can change the software or use pieces of it in new
free programs, and that you know you can do these things.

Developers that use our General Public Licenses protect your rights
with two steps: (1) assert copyright on the software, and (2) offer
you this License which gives you legal permission to copy, distribute
and/or modify the software.

A secondary benefit of defending all users' freedom is that
improvements made in alternate versions of the program, if they
receive widespread use, become available for other developers to
incorporate. Many developers of free software are heartened and
encouraged by the resulting cooperation. However, in the case of
software used on network servers, this result may fail to come about.
The GNU General Public License permits making a modified version and
letting the public access it on a server without ever releasing its
source code to the public.

The GNU Affero General Public License is designed specifically to
ensure that, in such cases, the modified source code becomes available
```

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to the community. It requires the operator of a network server to provide the source code of the modified version running there to the users of that server. Therefore, public use of a modified version, on a publicly accessible server, gives the public access to the source code of the modified version.

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