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# ANSIBLE (BEST) PRACTICES

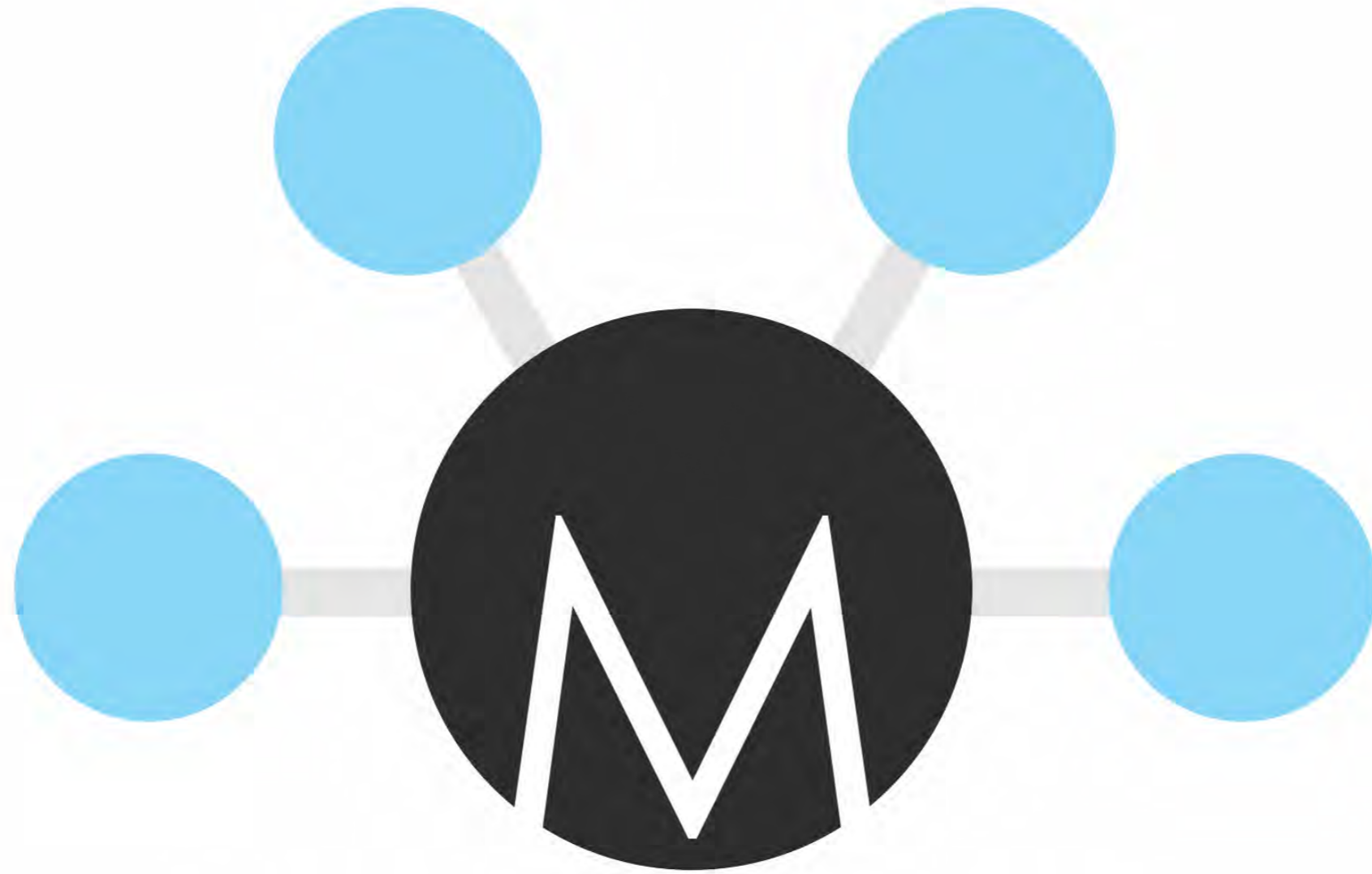
Raju Gandhi

**RAJU GANDHI**



**@LOOSELYTYPED**

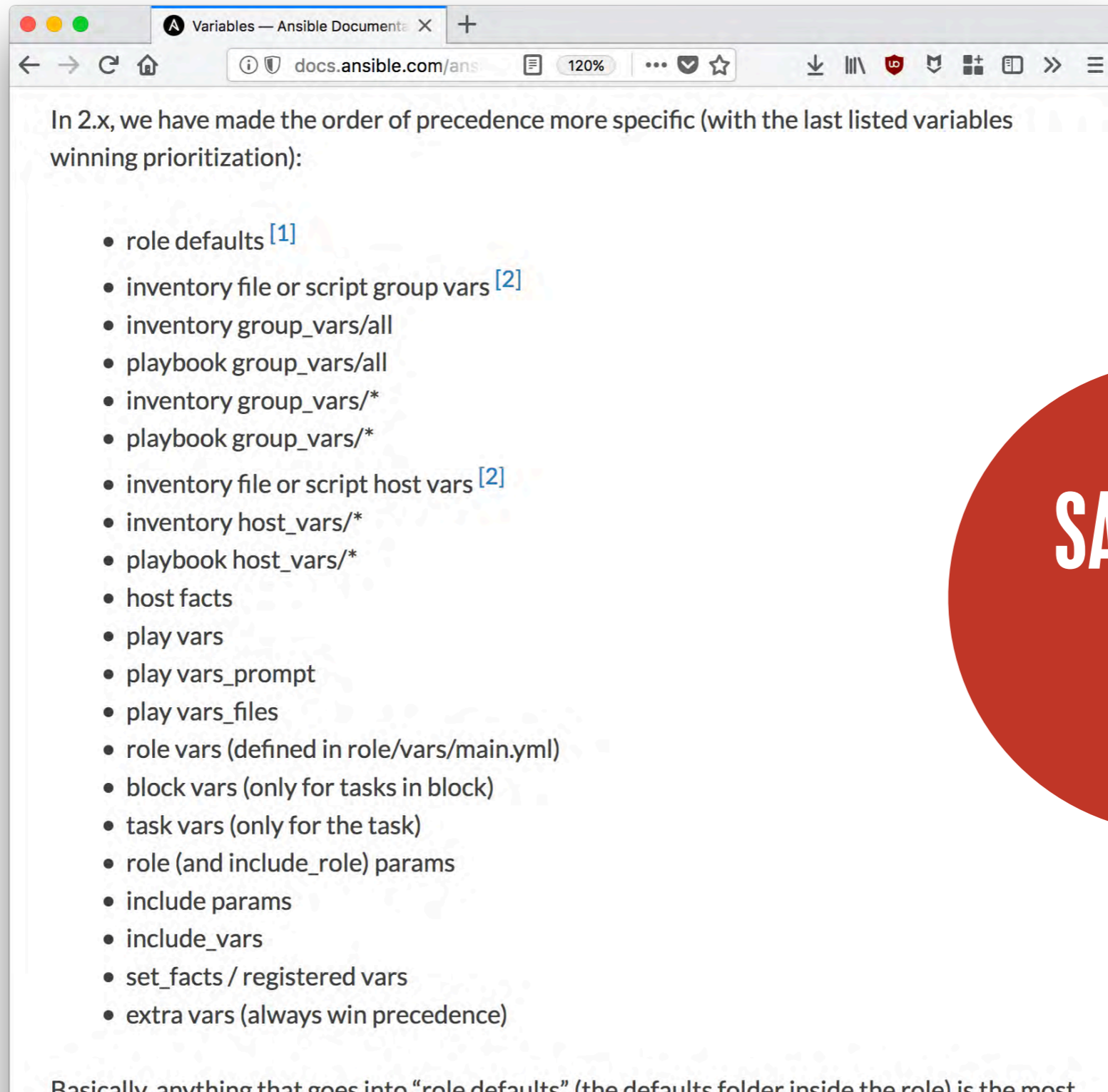
**IDEMPOTENCY!**



Molecule

# VARIABLES

# VARIABLES



In 2.x, we have made the order of precedence more specific (with the last listed variables winning prioritization):

- role defaults [\[1\]](#)
- inventory file or script group vars [\[2\]](#)
- inventory group\_vars/all
- playbook group\_vars/all
- inventory group\_vars/\*
- playbook group\_vars/\*
- inventory file or script host vars [\[2\]](#)
- inventory host\_vars/\*
- playbook host\_vars/\*
- host facts
- play vars
- play vars\_prompt
- play vars\_files
- role vars (defined in role/vars/main.yml)
- block vars (only for tasks in block)
- task vars (only for the task)
- role (and include\_role) params
- include params
- include\_vars
- set\_facts / registered vars
- extra vars (always win precedence)

Basically, anything that goes into "role defaults" (the defaults folder inside the role) is the most

**SAY WHAT  
NOW?**

# VARIABLES

~~VARIABLE SPREAD~~

USE CONSISTENT  
NAMING

USE SCALAR FORMAT



**USE GROUP\_VARS MORE  
THAN HOST\_VARS**

# VARIABLES

~~VARIABLE SPREAD~~

USE CONSISTENT  
NAMING

USE SCALAR FORMAT

# VARIABLES

~~VARIABLE SPREAD~~

USE CONSISTENT  
NAMING

USE SCALAR FORMAT

# avoid

java:

Xmx: 512m

Xms: 256m

# use

java\_Xmx: 512m

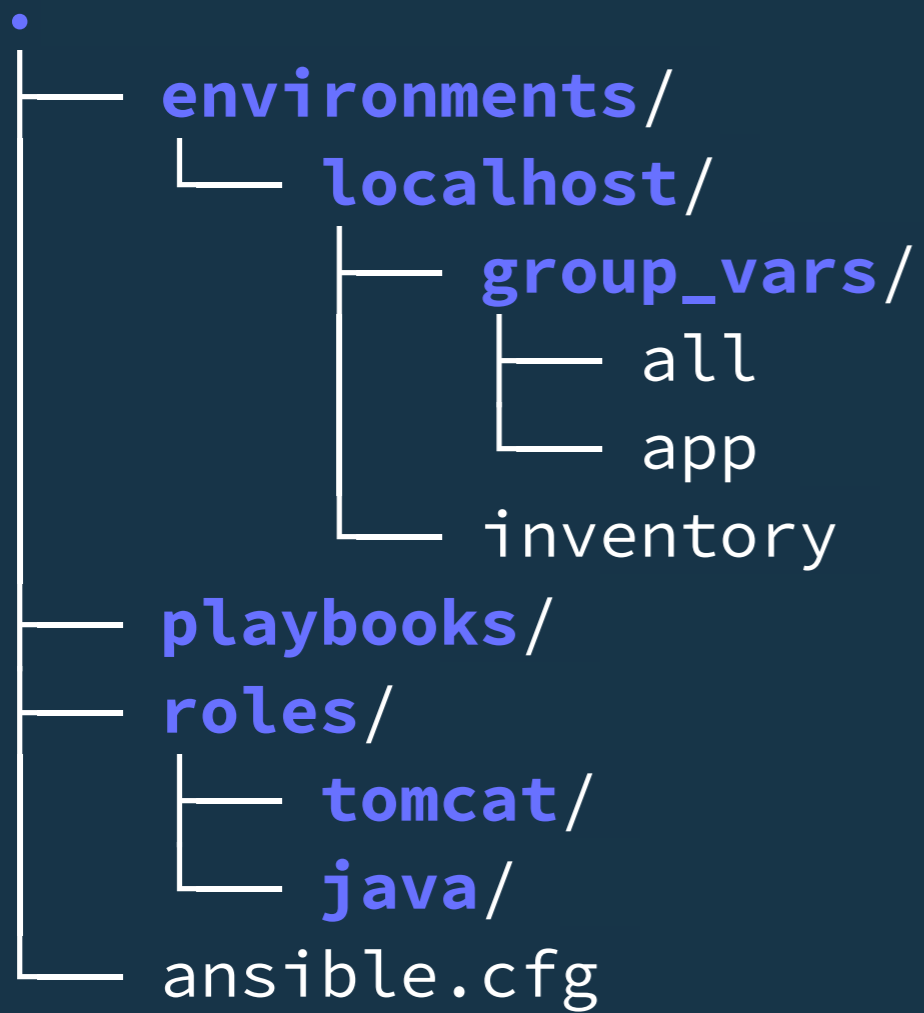
java\_Xms: 256m

**NAME ALL THE TASKS!**



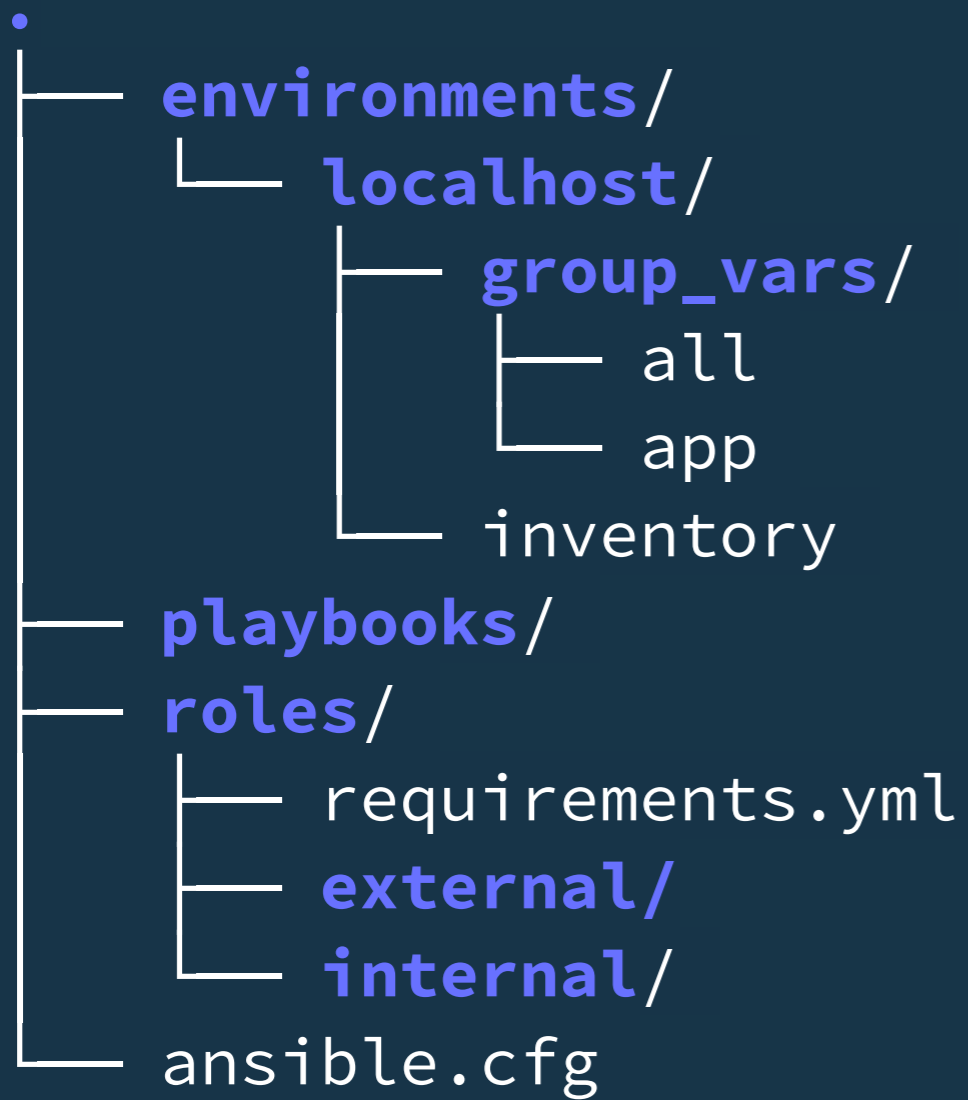
# PROJECT LAYOUT

**START SIMPLE**





START SIMPLE  
THEN REFACTOR



# ROLES LAYOUT

```
> ansible-galaxy init <role-name>
```

```
<role-name>
```

```
├── defaults/
│   └── main.yml
├── files/
├── handlers/
│   └── main.yml
├── meta/
│   └── main.yml
├── tasks/
│   └── main.yml
├── templates/
├── tests/
│   ├── inventory
│   └── test.yml
├── vars/
│   └── main.yml
└── README.md
```

```
> ansible-galaxy init <role-name>
```

```
<role-name>
```

```
├── defaults/
│   └── main.yml
├── files/
├── handlers/
│   └── main.yml
├── meta/
│   └── main.yml
├── tasks/
│   └── main.yml
├── templates/
├── tests/
│   ├── inventory
│   └── test.yml
├── vars/
│   └── main.yml
└── README.md
```

**USE THE VERBOSITY FLAG FOR DEBUG**



# PLAYBOOKS

# PLAYBOOKS

SIMPLE

~~PRE\_TASKS, TASKS,  
POST\_TASKS~~

USE ROLES INSTEAD



# PLAYBOOKS

**SIMPLE**

~~PRE\_TASKS, TASKS,  
POST\_TASKS~~

**USE ROLES INSTEAD**

# PLAYBOOKS

SIMPLE

~~PRE\_TASKS, TASKS,  
POST\_TASKS~~

USE ROLES INSTEAD

# PLAYBOOKS

**SIMPLE**

~~PRE\_TASKS, TASKS,  
POST\_TASKS~~

**USE ROLES INSTEAD**

**AVOID** COMMAND AND SHELL MODULES



# ROLES

# ROLES

**SMALL**

**DO ONE THING**

**PREFIX VARIABLES WITH  
ROLE NAME**

**LIMIT ROLE DEPENDENCIES**

**IDEMPOTENT!**

**VARIABLES**

*are your*

**ROLES API**



**FILES/TEMPLATES**



# FILES / TEMPLATES

TEMPLATE ALL\* THE  
FILES

USE

ANSIBLE\_MANAGED

REFLECT DEST PATH IN  
SOURCE

# FILES / TEMPLATES

TEMPLATE ALL\* THE  
FILES

USE

ANSIBLE\_MANAGED

REFLECT DEST PATH IN  
SOURCE

# FILES / TEMPLATES

TEMPLATE ALL\* THE  
FILES

USE

ANSIBLE\_MANAGED

REFLECT DEST PATH IN  
SOURCE

**USE ONLY STATIC VALUES IN  
ANSIBLE\_MANAGED**



# FILES / TEMPLATES

TEMPLATE ALL\* THE  
FILES

USE

ANSIBLE\_MANAGED

REFLECT DEST PATH IN  
SOURCE

**TAGS**

# TAGS

HIGH LEVEL

~~TOO MANY TAGS~~

1 ROLE => 1-2 TAGS

# TAGS

**HIGH LEVEL**

~~TOO MANY TAGS~~

**1 ROLE => 1-2 TAGS**



# TAGS

HIGH LEVEL

~~TOO MANY TAGS~~

1 ROLE => 1-2 TAGS

# TAGS

HIGH LEVEL

~~TOO MANY TAGS~~

1 ROLE => 1-2 TAGS

# CODE FORMATTING

# CODE FORMATTING

USE FULL YAML NOTATION

TRUE/FALSE OR YES/NO

USE WITH `_*` TO AVOID  
DUPLICATION

DEFINE/ENFORCE A STYLE  
GUIDE

# CODE FORMATTING

**USE FULL YAML NOTATION**

**TRUE/FALSE OR YES/NO**

**USE WITH `_*` TO AVOID  
DUPLICATION**

**DEFINE/ENFORCE A STYLE  
GUIDE**

```
# avoid
```

```
- name: Change ownership of Tomcat installation
```

```
  file: path=/usr/share/tomcat/ owner=tomcat group=tomcat  
state=directory recurse=yes
```

```
# use
```

```
- name: Change ownership of Tomcat installation
```

```
  file:
```

```
    path: /usr/share/tomcat/
```

```
    owner: tomcat
```

```
    group: tomcat
```

```
    state: directory
```

```
    recurse: yes
```

# CODE FORMATTING

USE FULL YAML NOTATION

TRUE/FALSE OR YES/NO

USE WITH `_*` TO AVOID  
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DEFINE/ENFORCE A STYLE  
GUIDE

# CODE FORMATTING

USE FULL YAML NOTATION

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DUPLICATION

DEFINE/ENFORCE A STYLE  
GUIDE



```
# avoid
```

```
- name: Create required application etc directory
```

```
file:
```

```
  path: /DATA/app/etc
```

```
  state: directory
```

```
  mode: 0755
```

```
- name: Create required application certs directory
```

```
file:
```

```
  path: /DATA/app/certs
```

```
  state: directory
```

```
  mode: 0755
```

```
# use
```

```
- name: Create required application directories
```

```
file:
```

```
  path: /DATA/app/{{ item }}
```

```
  state: directory
```

```
  mode: 0755
```

```
with_items:
```

```
- etc
```

```
- "certs/{{ env }}"
```

**ANSIBLE 2.5+ USE LOOP**

# CODE FORMATTING

USE FULL YAML NOTATION

TRUE/FALSE OR YES/NO

USE WITH `_*` TO AVOID  
DUPLICATION

DEFINE/ENFORCE A STYLE  
GUIDE

**OPTIMIZE FOR READABILITY**

**TOOLS**

```
> ansible-playbook
  -i environments/localhost
  playbooks/010-echo.yml
  --syntax-check
```

**ANSIBLE-LINT**



```
> pip2 install ansible-lint
> # Install ansible-lint globally
>
> ansible-lint 020-dnf-nginx.yml
[ANSIBLE0010] Package installs should not use latest
020-dnf-nginx.yml:8
Task/Handler: Install nginx
```



# **ANSIBLE-REVIEW**

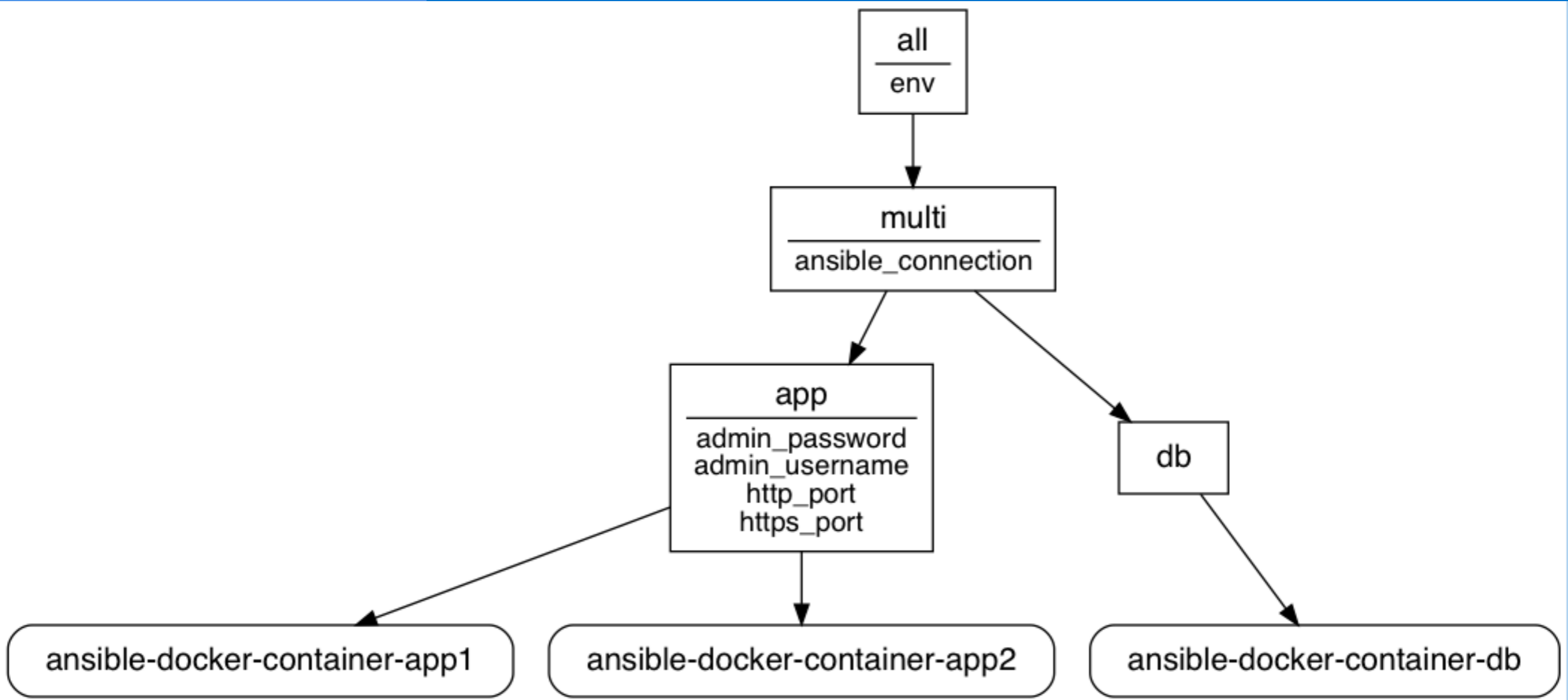
---

**USES ANSIBLE-LINT**

```
> pip install ansible-review
> # Install ansible-lint globally
>
> find . -type f | xargs ansible-review
WARN: Best practice "Commands should be idempotent" not met:
./010-echo.yml:8: [ANSIBLE0012] Commands should not change things if
nothing needs doing
WARN: Best practice "YAML should be correctly indented" not met:
./010-echo.yml:8: lines starting with '- ' should have same or less
indentation than previous line
```

# **ANSIBLE-INVENTORY-GRAPHER**

```
> pip install ansible-inventory-grapher
> # Install ansible-inventory-grapher globally
>
> ansible-inventory-grapher \
    -i environments/localhost multi \
    --format "multi.dot"
>
> dot -Tpng multi.dot
```



# CREDITS

Theme - Dynamic Static Site Strategies by Phil Hawksworth

# RESOURCES

<https://www.ansible.com/ansible-best-practices>

**THANKS!**

**@looselytyped**





**Save the Date for 2020!**  
**April 20-24 | Bangalore, India**

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