



What's New With Ansible Collections

Diving into the “How” to use Collections
with Ansible 2.9.10+ and beyond

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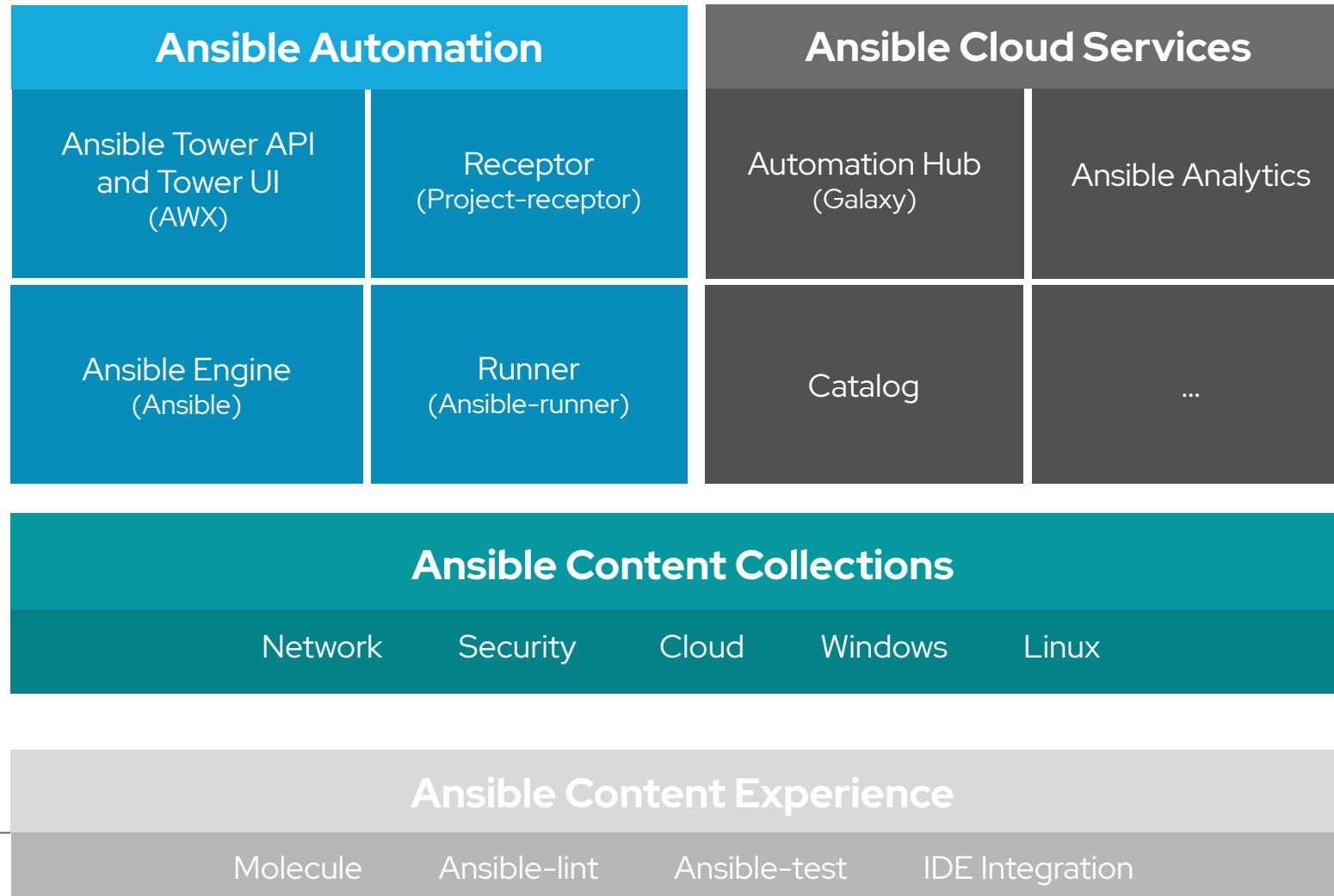
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Chief Architect, Engineering



What we hope you get from this

1. Use Ansible 2.9.10+ with Collections
2. Use fully qualified collection names in playbooks and roles
3. Migrate standalone roles into Collections

The Red Hat Ansible Automation Platform



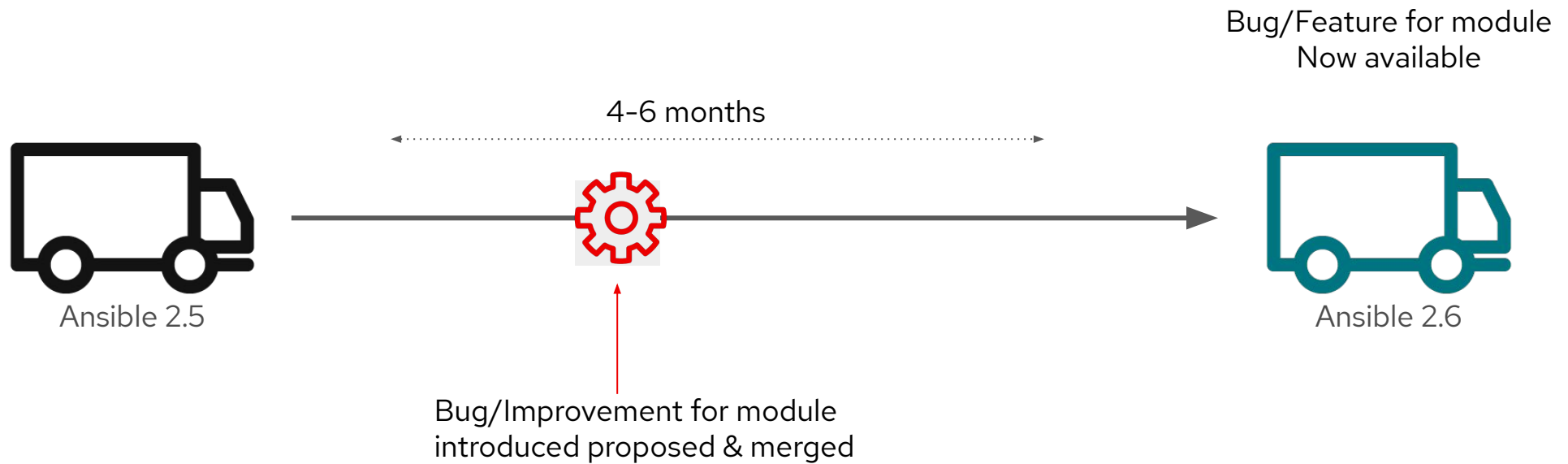
Introducing the Ansible Collection

Simplified and consistent content schema

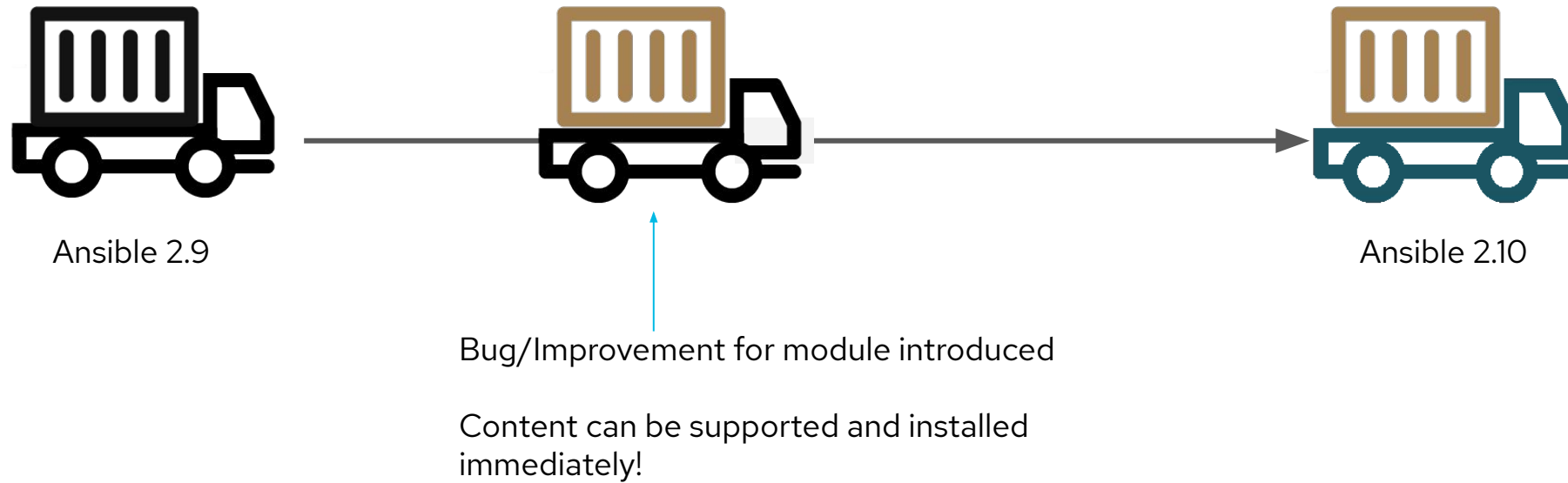


- A standardized way to organize and package Ansible content (roles, modules, module utilities, plugins, documentation)
- Semantic versioning
- Portable and flexible delivery

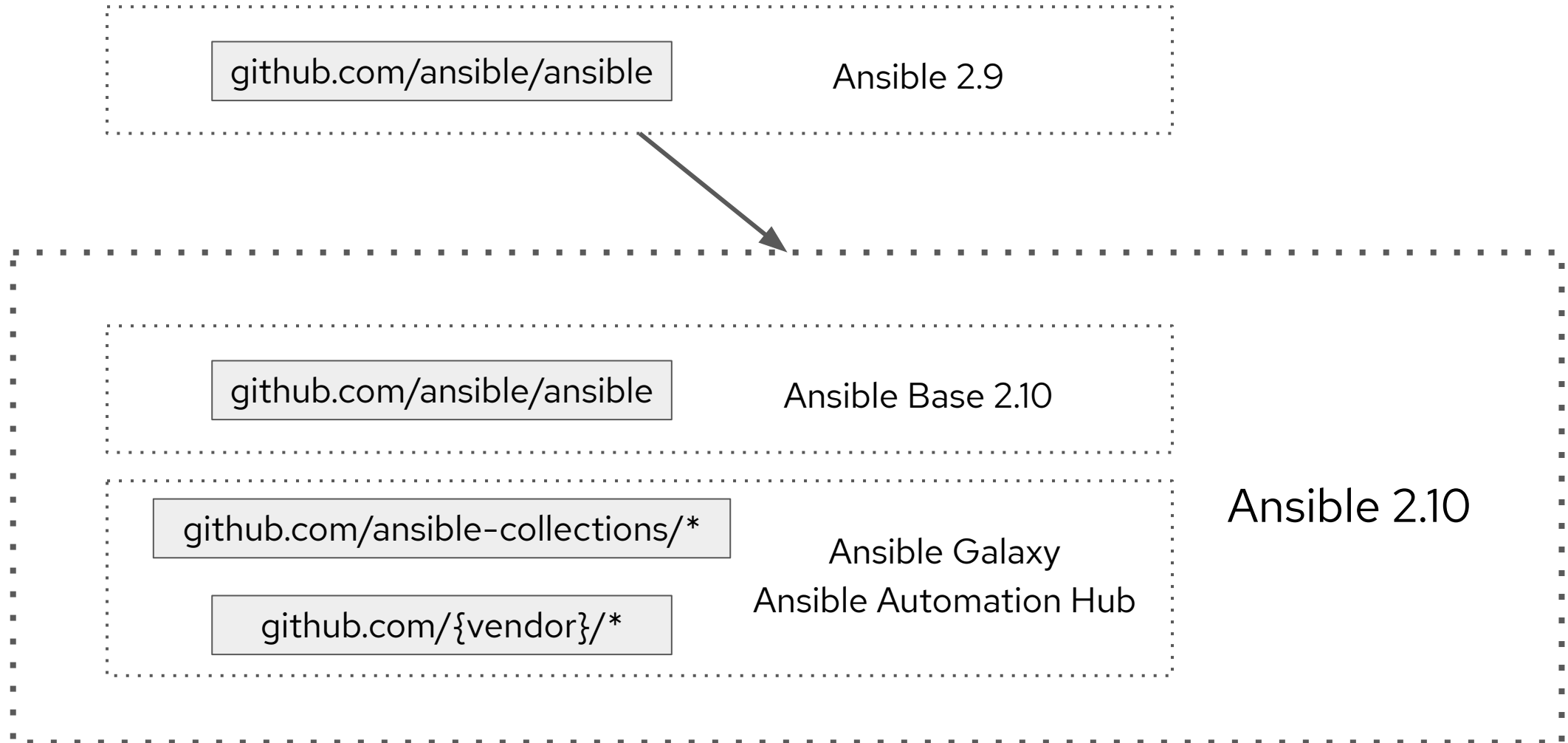
Before Collections



After Collections



What went where?



Distribution of Collections

Ansible Galaxy

galaxy.ansible.com

- Community supported
- Extended to leverage Collections framework
- “Latest and greatest”

Ansible Automation Hub

cloud.redhat.com

- Certified, jointly supported by Red Hat and Partner
- Access to advanced analytics
- “Slow and steady”

Ansible automates technologies you use

Time to automate is measured in minutes, 50+ **certified** platforms

Cloud

AWS
Azure
Digital Ocean
Google
OpenStack
Rackspace
+more

Red Hat
Products
RHEL
Satellite
Insights
+more

Virt & Container

Docker
Kubernetes
OpenStack
OpenShift
VMware
+more

Storage
Infinidat
Netapp
Pure Storage
+more

Windows

ACLs
Files
Packages
IIS
Registry
Shares
Services
Configs
Users
Domains
Updates
+more

Network

Arista
Aruba
Bigswitch
Cisco
Ericsson
F5
FRR
Juniper
Meraki
OpenvSwitch
Ruckus
VyOS
+more

Security

Checkpoint
Cisco
CyberArk
F5
Fortinet
Juniper
IBM
Palo Alto
Snort
+more

Monitoring

Dynatrace
Datadog
LogicMonitor
New Relic
Sensu
+more

Devops
Jira
GitHub
Vagrant
Jenkins
Slack
+more

Collection Architecture

What you need to know
about using Collections

Collection Directory Structure

- **docs/**: local documentation for the collection
- **galaxy.yml**: source data for the MANIFEST.json that will be part of the collection package
- **playbooks/**: playbook snippets
 - **tasks/**: holds 'task list files' for include_tasks/import_tasks usage
- **plugins/**: all ansible plugins and modules go here, each in its own subdir
 - **modules/**: ansible modules
 - **lookup/**: lookup plugins
 - **filter/**: Jinja2 filter plugins
 - **connection/**: connection plugins required if not using default
- **roles/**: directory for ansible roles
- **tests/**: tests for the collection's content
- **meta/**: metadata files including runtime.yml

Introducing `meta/runtime.yml`

AKA “tombstoning” or “collection routing”

Supports collection runtime metadata:

- Plugin (action, modules) routing, redirection, removal, and deprecation for collections
- new `/meta` directory that contains `runtime.yml`
- Identifies supported Ansible versions
- Slated for release in Ansible Base 2.10

See: <https://github.com/ansible/ansible/pull/67684> for more info

Playbook Writing with Collections

What you need to know
about using Collections

What's in an Ansible Version?

Understanding which Ansible versions to use with Collections

- 1 Ansible 2.9.10 or later via Ansible Automation Platform (AAP) (June 2020)
 - a. Ansible-maintained Collections are fully supported
 - b. Contains some content but "frozen"
 - c. Content fixes and enhancements are delivered in collections
- 2 Ansible Base 2.10, Ansible 2.10 (August, September 2020)
 - a. ansible base + minimal, limited plugins
- 3 Ansible releases in Certified Containers (Execution Environments + AAP) (2021)
 - a. ansible base + select collections + containerized

Playbook Developer Recommendations

1. Update build and installation scripts to install collections after installing Ansible
 - `pip install ansible`
 - `ansible-galaxy collection install cisco.ios`
2. Update host inventories to reflect connection and plugin collection name
 - `ansible_network_os: cisco.ios.ios`
 - `ansible_connection: ansible.netcommon.network_cli`
3. Use fully qualified plugin names in all tasks
 - `cisco.ios.ios_vlans`
 - `newfact: "{{ data|corg.cname.filter_plugin }}"`
4. Migrate all stand-alone roles into collections
 - `ansible_collections/corg/cname/roles/myrole`
 - `include_role: corg.cname.myrole`

Playbook Examples

Recommended Today (short-term)

```
# as shown in docs and examples
# this works with:
# - 2.9.10 + collections
# - 2.10 Base + collections
# - 2.10 + collections
# - execution environments
# does not rely on any runtime.yml entries
```

```
tasks:
- cisco.ios.ios_vlans:
  config: "{{ vlans }}"
  state: merged
```

Future Usage (long-term)

```
# meta/runtime.yml from the cisco.ios collection:
#
# vlans:
#   redirect: cisco.ios.ios_vlans
#
# allows the use of 'short names'
# use FQCN to ensure the collection is used on 2.9
```

```
tasks:
- cisco.ios.vlans:
  config: "{{ vlans }}"
  state: merged
```

NOTE: Please use FQCN **per task** due to potential duplicate naming/ordering conflicts with Playbooks referencing multiple collections. The `collections` directive has other limitations, therefore FQCN is recommended.

Collection Author Recommendations

1. Identify, document and maintain a collections' scope
2. Scaffold new collections: `ansible-galaxy collection init corg.cname`
3. Use Semantic versioning for collection versions: <https://semver.org/>
4. Update the collection's meta/runtime.yml to reflect Ansible version compatibility
 - a. Supports [PEP440 Version Specifiers](#)
 - b. `requires_ansible: '>=2.9.10,<2.11' #requires Ansible 2.9.10+ and 2.10.x`
5. Maintain a README.md, include collection contents
6. Use meta/runtime.yml for deprecation and redirection of plugins
7. Populate tags in galaxy.yml for easier discoverability in galaxy and AH

Resources and Getting Started


- Collections User Guide and Collections Developer Guide
https://docs.ansible.com/ansible/devel/user_guide/collections_using.html
https://docs.ansible.com/ansible/devel/dev_guide/developing_collections.html
- The Bullhorn - Ansible Community Newsletter
<https://bit.ly/thebullhorn>
- Community Collections Overview
<https://github.com/ansible-collections/overview>
- Ansible.com Blog
<https://www.ansible.com/blog> search for "Collection" (many results)

Thank you

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