BGmot knows Zabbix

Main principles of operations:

- OpenSource whenever it makes sense
- Automation whenever it is possible
- Zabbix ~~whenever it is~~... always ok… 99% cases
- We do things properly or don’t engage at all
- No solution “out of the box” - not a problem, we can develop

By Evgeny Yurchenko, 2024

Zabbix is an OpenSource project

ZABBIX

- Released under AGPLv3 license
- Source code is available https://git.zabbix.com
- Anybody can view/modify any component of Zabbix

At the same time Zabbix is:

- Highly qualified team of developers
- Quality of code: extensive testing / bugs reporting system
- All features available to all (no Enterprise subscription)

Zabbix is OpenSource

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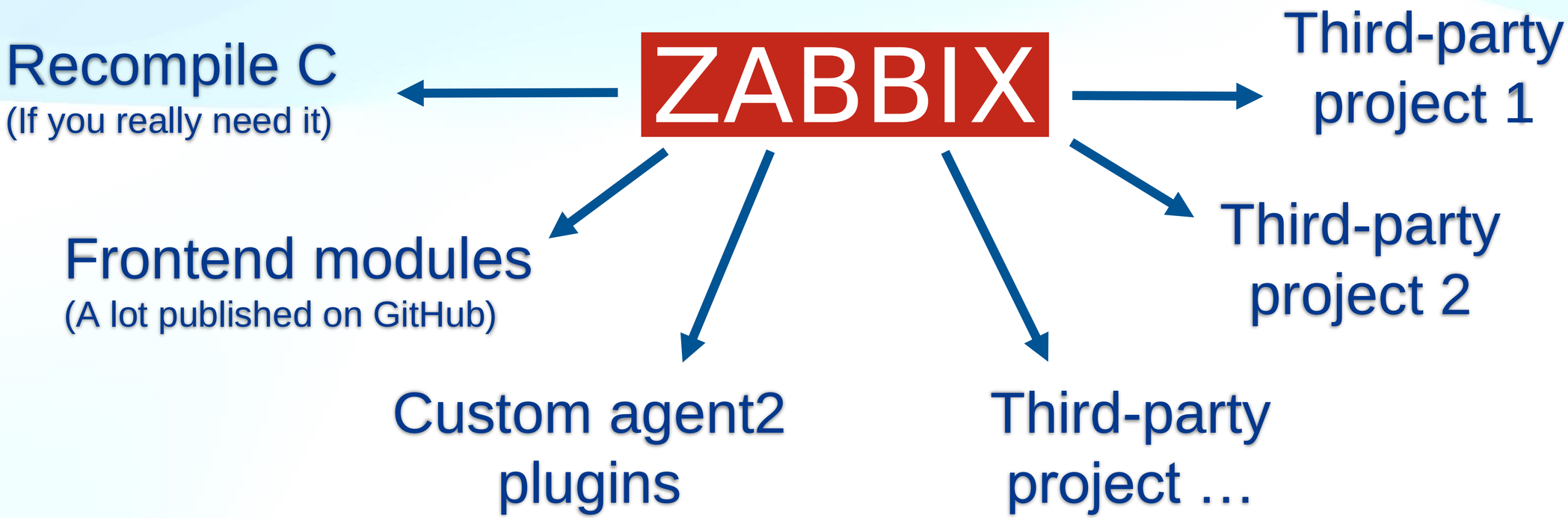
What's the benefit of Zabbix being OpenSource?

We can extend Zabbix by implementing what is not available out-of-the box



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Zabbix + community.zabbix

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When two OpenSource projects meet

ZABBIX

+

RED HAT® ANSIBLE®

community.zabbix collection

=

- Automation/Orchestration
- Huge time savings
- Repeatability
- Human errors elimination
- Configuration changes version control
- Monitoring As Code
- Test environment identical to Production
- … and much more

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What is Ansible in general?

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What is community.zabbix collection?

It’s literally a collection of Python code that lets you use Ansible to deploy/configure:

- Zabbix components (server, database, agent, web, proxy, java gateway)
- many objects “inside” Zabbix (host/template groups, hosts, templates, user groups, users, discovery rules/ action + many more)

Also zabbix_repo plugin let you create Ansible Inventory by pulling data from your existing Zabbix installation

Zabbix + community.zabbix

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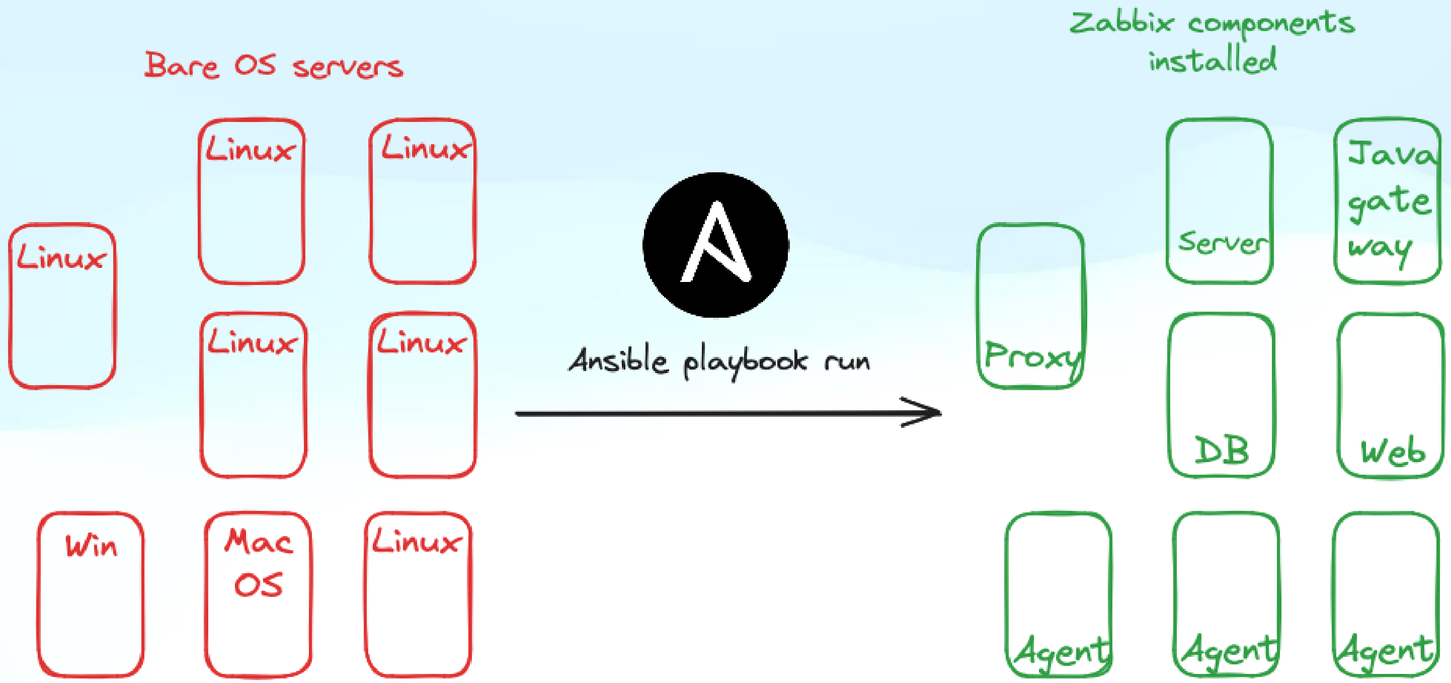
community.zabbix collection: roles



Server/DB/Web/Proxy/Java gateway:
* Rocky Linux 8/9
* Ubuntu 20/22/24
* Debian 11/12
* OpenSuse 15

DB:
* MySQL
* PostgreSQL

Proxy:
* MySQL
* PostgreSQL
* SQLite3

Web:
* Apache2
* NGINX

Agent
* Rocky Linux 8/9
* Ubuntu 20/22/24
* Debian 11/12
* OpenSuse 15
* MacOS
* Windows

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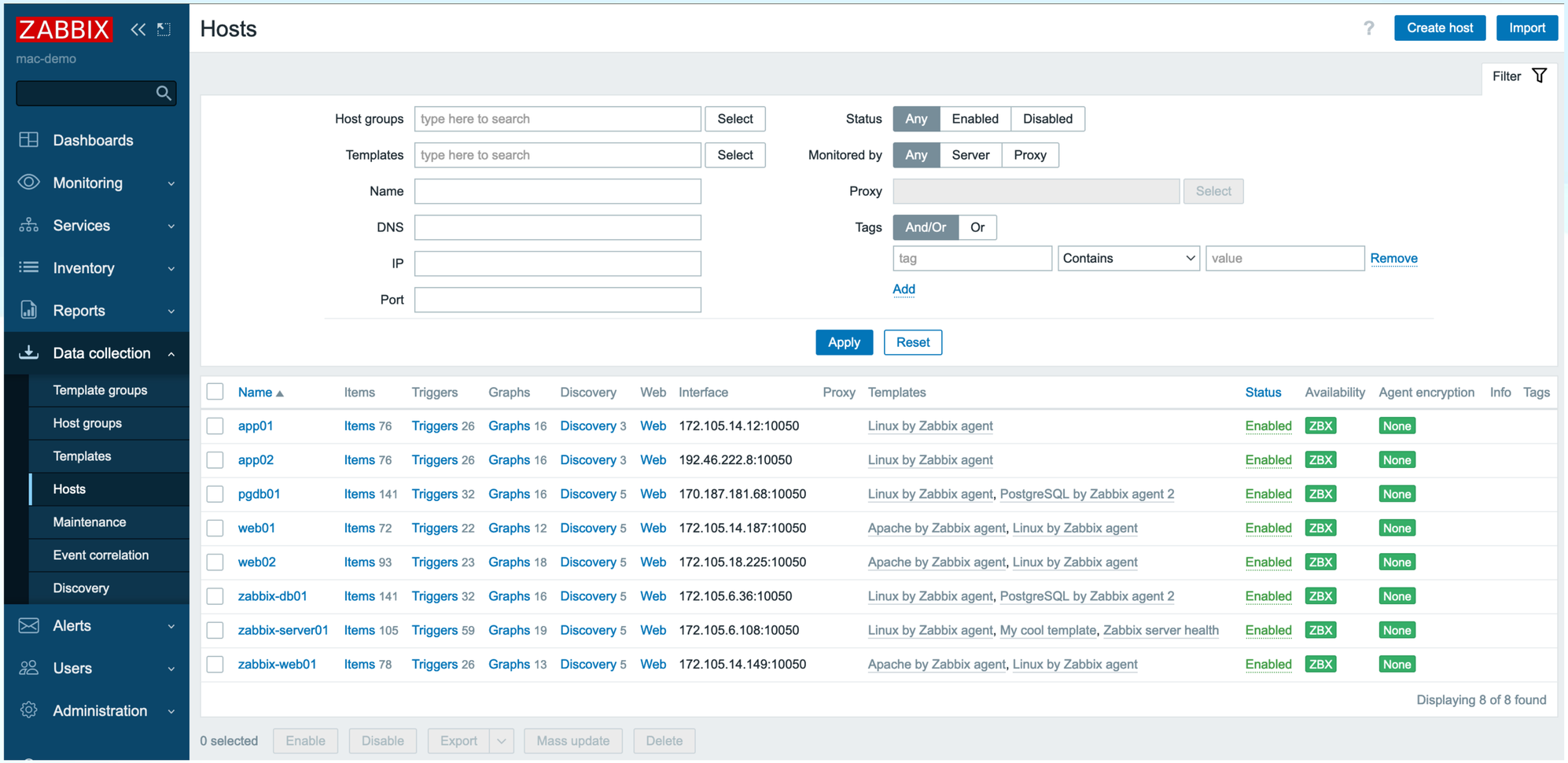
community.zabbix collection: modules



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Ansible collection vs pure REST API

Collection

- more ‘human-like’ language
- any number of objects (hosts, users etc) managed by the same code in one run
- easy switch between different environments (Prod, Dev) by using different Ansible inventories
- Natural version control (e.g. git) thus “Monitoring as Code” approach

```
- name: "Add/update host"
   delegate_to: myzabbix.mycompany.com
   community.zabbix.zabbix_host:
     host_name: server1
     host_groups:
       - Linux servers
     link_templates:
       - Linux by Zabbix agent
     interfaces:
       - type: agent
         main: 1
         useip: 1
         ip: 1.2.3.4
     inventory_mode: "manual"
     inventory_zabbix:
       location_lat: 49.2606052
       location_lon: -123.2485741
     state: present
```

REST API

- Much more coding
- Many more things to take care about (e.g. getting object IDs having only names)
- Knowledge transfer - much more needs to be documented
- If you decide to write large enough project flexible enough to cover different scenarios you’ll be effectively re-writing Ansible code

```
{
  "jsonrpc": "2.0",
  "method": “{
    "jsonrpc": "2.0",
    "method": "host.get" or “host.create” or “host.update"
    "interfaces": [{
        "type": 1,
        "main": 1,
        "useip": 1,
        "ip": “1.2.3.4”
    }],
    "groups": [{
        "groupid": "50"
    }],
    "templates": [{
        "templateid": "20045"
    }],
    "inventory_mode": 0,
    "inventory": {
      “location_lat”: “49.2606052",
      "location_lon": "-123.2485741"
    }
    "id": 1
}
```

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History: who? when? why? what?

- It's believed that original authors of modules that established roots for Zabbix in Ansible were these guys from Epic Games, Inc. (year 2013?):
  - Cove (@cove)
  - Tony Minfei Ding (!UNKNOWN)
  - Harrison Gu (@harrisongu)
  - Eike Frost (@eikef)

- The first version of collection was released on Fri Apr 24, 2020 by:
  - John Barker
  - sky-joker
  - Dusan Matejka
  - Werner Dijkerman

- First version included:
  - no roles to install/configure Zabbix components
  - 18 modules to create/manage Zabbix objects (hosts, users etc)

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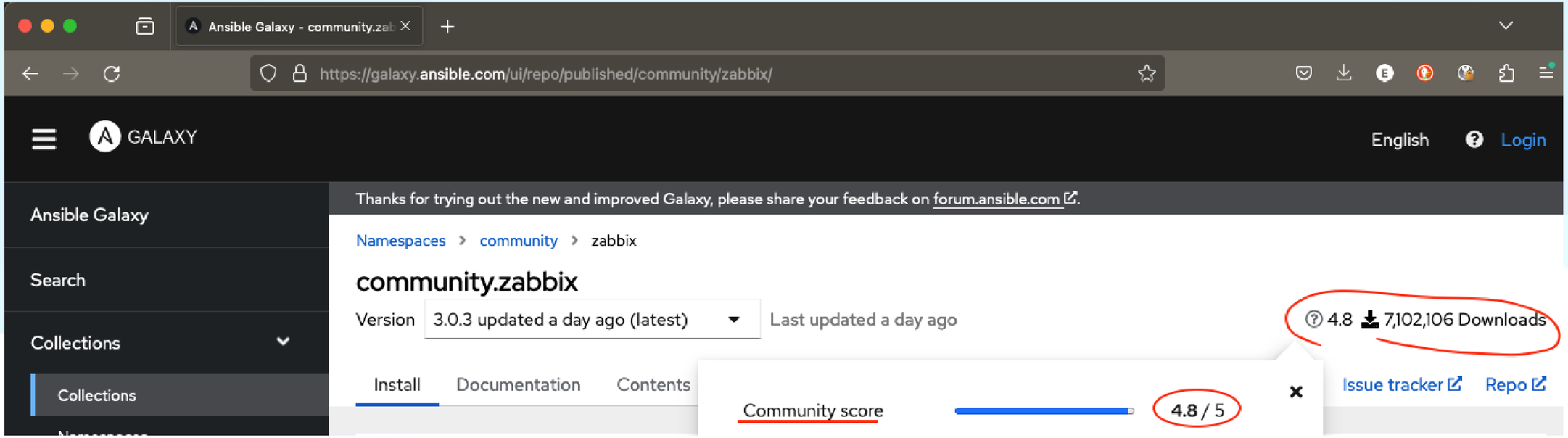
History: current state



- Quite popular in Zabbix community (over 7 millions downloads)
- 5 roles to install/configure server, agent(2), web, proxy, JavaGateway
- 42 modules to create/manage hosts, host groups, templates, actions etc.
- “Approved” by RedHat and comes with default Ansible installation

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History: life is going on

- **John Barker** (USA)
  part of the Community Engineering Team at Red Hat
- **Dušan Matejka** (Slovakia)
  does DevOps engineering for small to medium size businesses.Everything that needs to be done on infrastructure, but also some more serious python development alongside it.
- **Werner Dijkerman** (Netherlands)
  currently working as a technical application engineer at the Dutch ministry of infrastructure, Watermanagement. Making sure that the Netherlands will not be flooded and stays dry.

History: current state - Zabbix is GLOBAL

- **Troy Ward** (USA)
  a systems engineer. Recently was running a US Department of Defense contract focused on cyber security and recently moved over to Splunk.
  Never actually used Zabbix but loves Ansible!
- **Erik Berg** (Norway)
  Senior engineer at the University of Oslo.
- **Masaru Onodera** (Japan)
  develops and monitors a cloud infrastructure which consists of multiple regions.
- **Evgeny Yurchenko** (Canada)
  Founder/Tech lead at BGmot. Loves Zabbix and Ansible.

Why on earth???

- You start using collection because it just does make sense to automate and it helps in your day-to-day work
- Your find a bug or a missing feature you badly need
- You fix/change/add code to satisfy you needs
- You have not even noticed but you are already married -/
- You do it because you want to do it

Nobody ever earned a cent off this project

By Evgeny Yurchenko, 2024

Automated Testing: code quality

- Fully automated. Happens on:
  - every push to your forked repository
  - every pull request in main repository
- Every role (to deploy/configure Zabbix server, agent etc) runs against:
  - Zabbix 6.0, 6.4 and 7.0
  - Rocky Linux 8/9, Ubuntu 20/22/24, Debian 11/12, openSuse Leap 15
- Every module (objects in Zabbix like user, host etc) runs against:
  - Zabbix 6.0, 6.4 and 7.0
  - Python 3.9, 3.10, 3.11 and 3.12
  - Ansible 2.15, 2.16, 2.17 and devel

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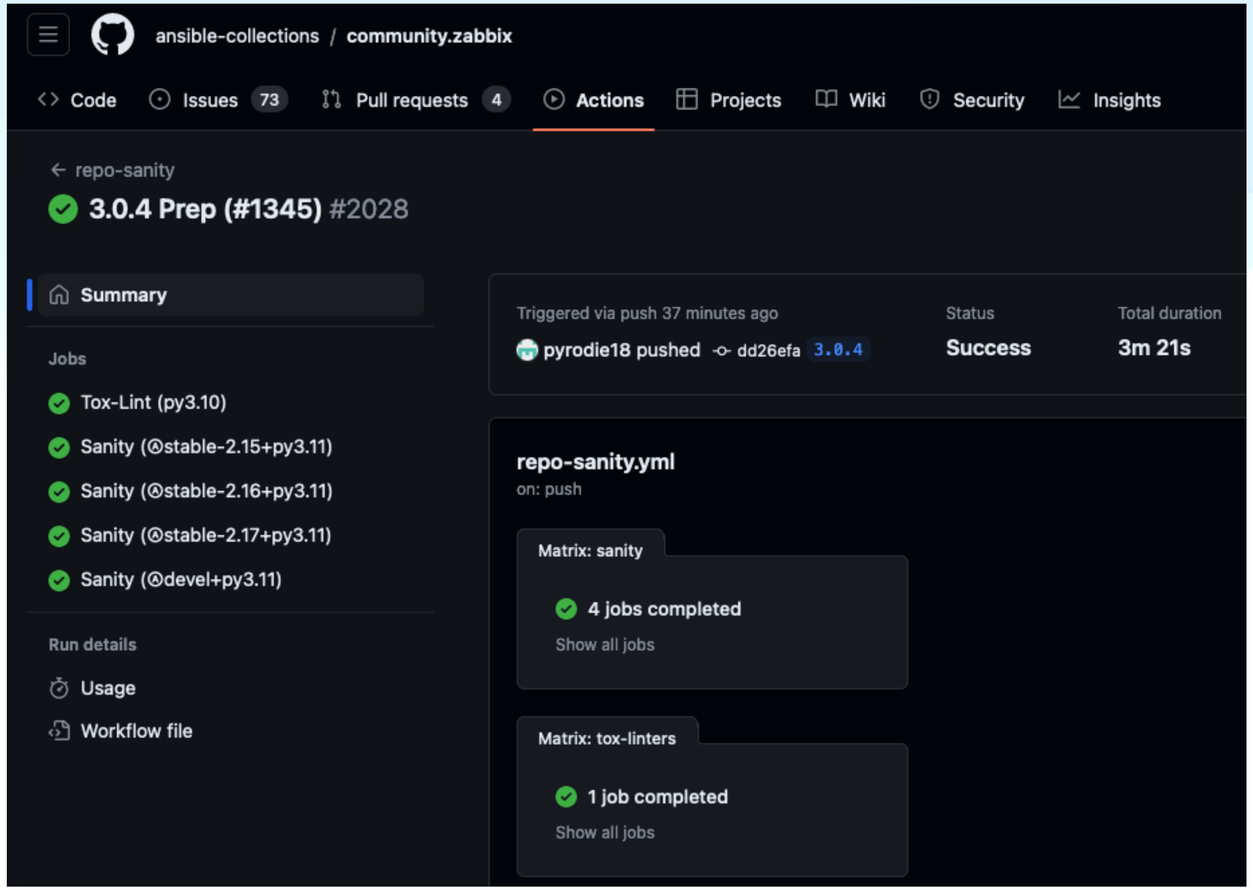
Automated Testing: sanity

"Sanity" tests ensure all the code correct and satisfies Python, YAML and Ansible "best practices".

Documentation section is checked for being consumable by Ansible and for all documented parameters match to what's really used in module's code.



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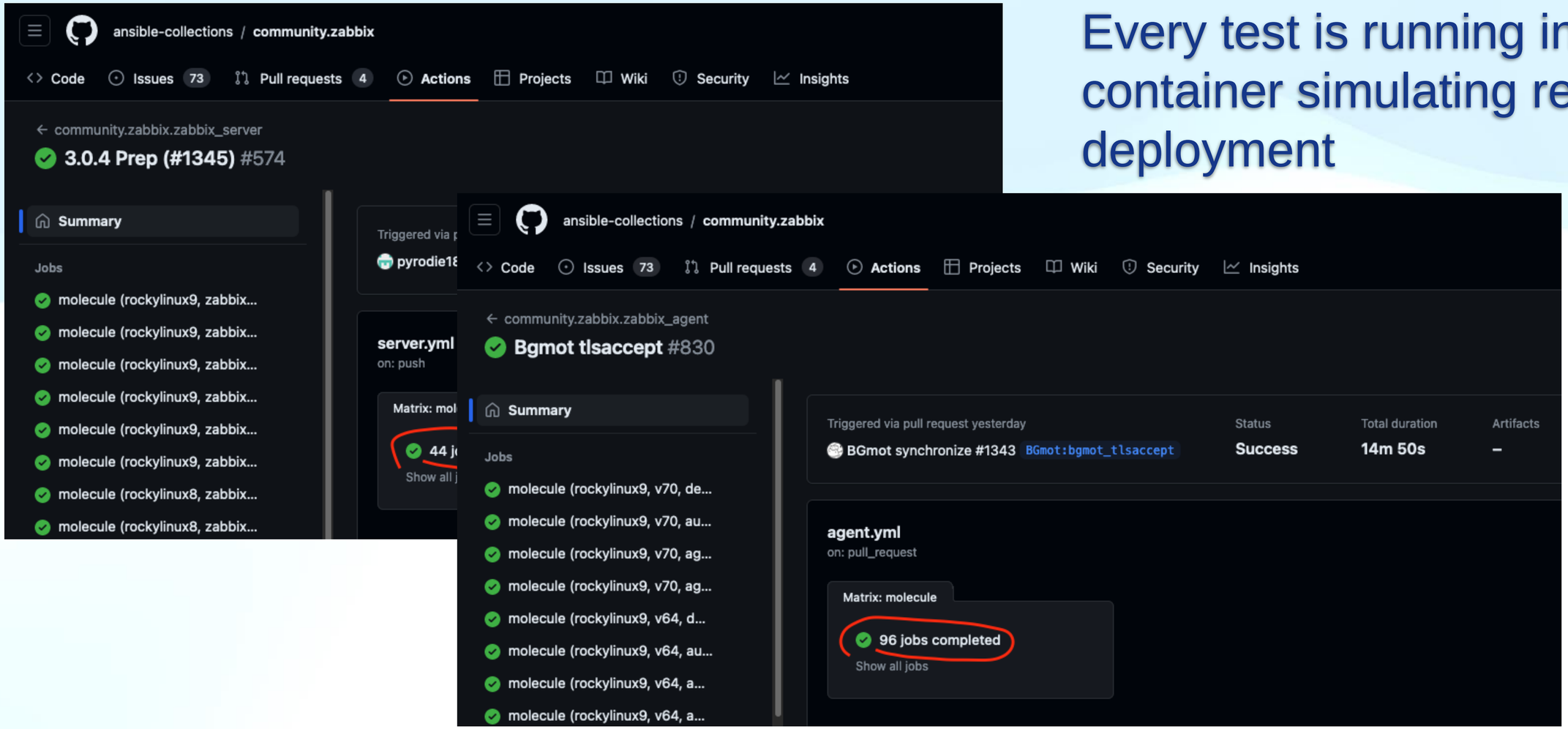
Automated Testing: roles



Every test is running in its own container simulating real life deployment

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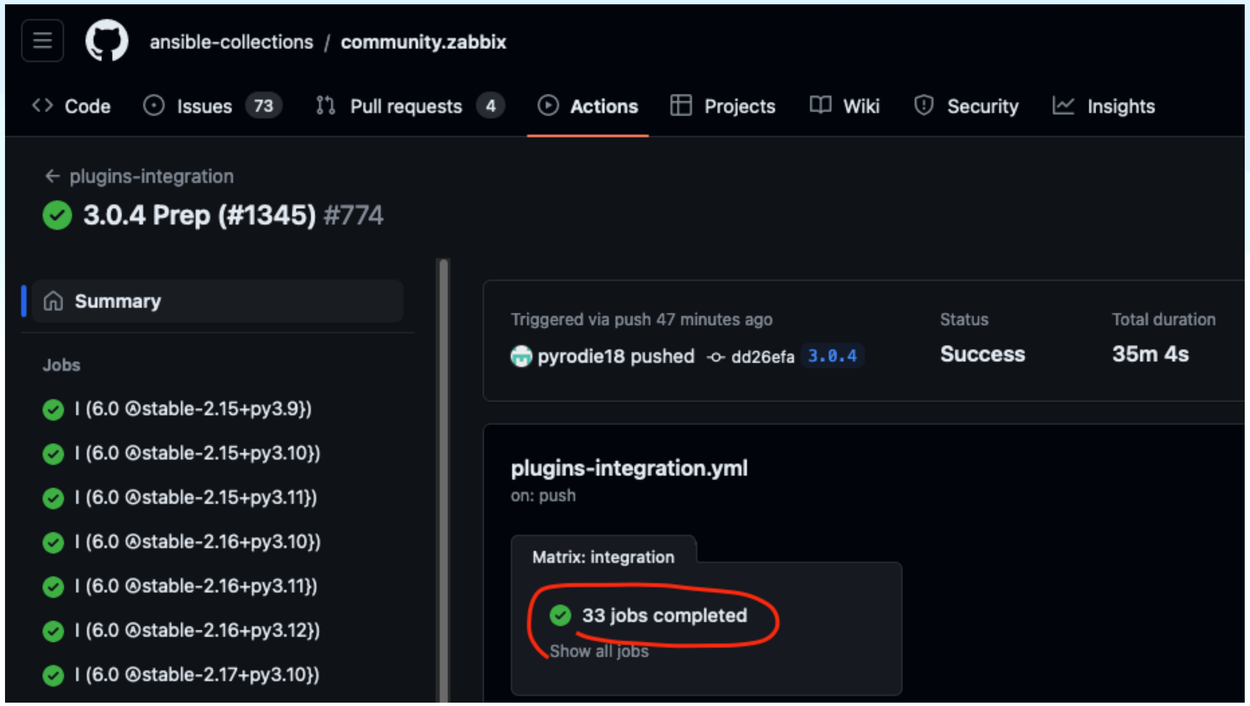
Automated Testing: modules

For every test job a containerized Zabbix is brought up and we create/modify/delete all the objects (hosts, users, templates etc) comparing results with what we expect



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Documentation: codified

GitHub repository

```
11  DOCUMENTATION = """
12  ---
13  module: zabbix_action
14
15  short_description: Create/Delete/Update Zabbix actions
16
17
18  description:
19      - This module allows you to create, modify and delete Zabbix actions.
20
21  author:
22      - Ruben Tsirunyan (@rubentsirunyan)
23      - Ruben Harutyunov (@K-DOT)
24
25  requirements:
26      - "python >= 3.9"
27
28  options:
29      name:
30          type: str
31          description:
32              - Name of the action
33          required: true
```

https://docs.ansible.com/ansible/latest/collections/community/zabbix/zabbix_action_module.html

This is the **latest** (stable) Ansible community documentation. For Red Hat Ansible Automation Platform subscriptions, see Life Cycle for version details.

community.zabbix.zabbix_action module – Create/Delete/Update Zabbix actions

Requirements

The below requirements are needed on the host that executes this module.

- python >= 3.9

name string / required	Name of the action

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Documentation: validation

GitHub repository

```
34          event_source:
35              type: str
36              description:
37                  - Type of events that the action will handle.
38                  - Required when C(state=present).
39              required: false
40              choices: ["trigger", "discovery", "auto_registration", "internal"]
```

Must match

```
1908  def main():
1909      """Main ansible module function
1910      """
1911
1912      argument_spec = zabbix_utils.zabbix_common_argument_spec()
1913      argument_spec.update(dict(
1914          esc_period=dict(type="str", required=False),
1915          name=dict(type="str", required=True),
1916          event_source=dict(type="str", required=False, choices=["trigger", "discovery", "auto_registration", "internal"]),
```

https://docs.ansible.com/ansible/latest/collections/community/zabbix/zabbix_action_module.html

event_source string	Type of events that the action will handle. Required when `state=present`. **Choices:** • `"trigger"` • `"discovery"` • `"auto_registration"` • `"internal"`

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Summary

OpenSource project:

- Code can be (and in most cases is!) of high quality
- Community engagement is a big plus (not a drawback)
- Security is enforced by code openness and community involvement
- Documentation is often better than in expensive paid products
- Done by people who love coding (not just because of money)
- Enterprises should NOT be afraid of OpenSource projects

By Evgeny Yurchenko, 2024

Useful links

- Ansible https://ansible.readthedocs.io
- Zabbix collection
  - https://docs.ansible.com/ansible/latest/collections/community/zabbix/
  - https://github.com/ansible-collections/community.zabbix
  - https://galaxy.ansible.com/ui/repo/published/community/zabbix/
- Managing hosts in Zabbix using Ansible
  - https://www.zabbix.com/events/meetup_20240229
  - https://assets.zabbix.com/files/events/2024/meetup_20240229/Zabbix_Meetup_290224_JY.pdf
- Monitoring as Code at BGmot's YouTube channel
  https://www.youtube.com/@BGmot42

By Evgeny Yurchenko, 2024

Thanks for listening

- Join us!
- Enjoy using Zabbix with community.zabbix collection!
- Contribute back!

Zabbix rocks!

By Evgeny Yurchenko, 2024

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