Kriten

API driven automation

working alongside: evolvere TECHNOLOGIES

10 years of Network Automation

Many platforms, modules and products now available

No single solution, even within an organisation.

Custom code necessary to automate networks.

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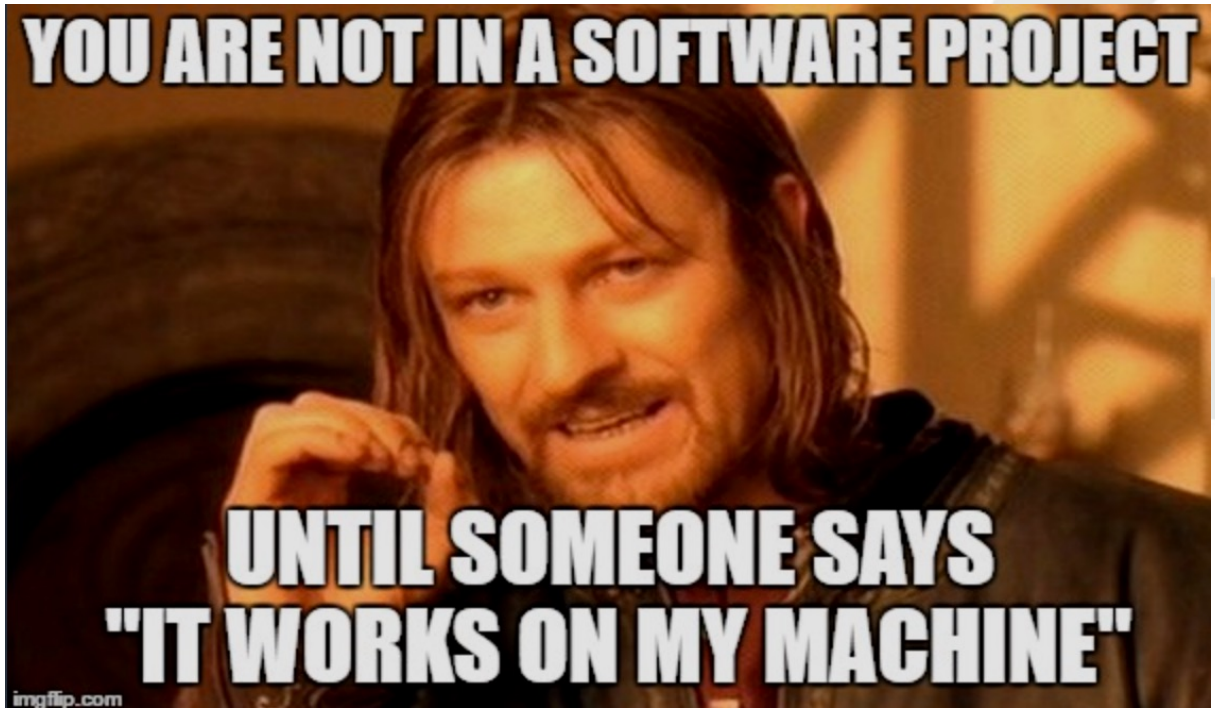
Common Problems

Where to run automation code?

How to make it available?

How to implement authentication/authorisation.

How to protect system/priviledged accounts?



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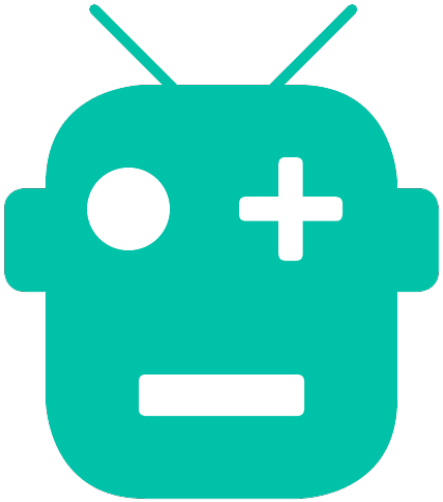
Kriten – The API-driven runtime environment

Kriten is a cloud-native code execution platform.

- Build and test your automation code.
- Build a container with your packages installed.
- Configure runner and task in Kriten.

You can now send consumers the Kriten task URL, which is all they need to run your automation code.



https://kriten.io/

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The show version example

You have proudly written an Ansible playbook to issue the “show version” command to a set of devices.

```yaml
---
- name: Read extra_vars
  hosts: localhost
  gather_facts: no
  vars:
    input_vars: "{{ lookup('ansible.builtin.env', 'EXTRA_VARS')}}"

  tasks:
    - name: Reading target hosts from input vars and storing as localhost fact
      set_fact:
         target_hosts: "{{ input_vars['target_hosts'] }}"

- name: Show Version
  hosts: "{{ hostvars['localhost']['target_hosts'] }}"
  gather_facts: false
  connection: network_cli

  tasks:
    - name: Run 'show version' command on remote devices
      eos_command:
        commands: "show version"
      register: show_version

    - name: debug
      debug:
        #msg: "{{ show_version.stdout.0 }}"
        var: show_version.stdout.0
```

https://github.com/kriten-io/kriten-examples/tree/main/netbox-ansible

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Run the playbook locally

```
python3 -m venv venv
source venv/bin/activate
pip install -r requirements.txt
source venv/bin/activate
export NETBOX_TOKEN=a08684c4649c091e201f1eeb4eb5c18123123123
export NETBOX_API=http://192.168.10.55:8000/
export EXTRA_VARS='{"target_hosts": "all"}'
ansible-playbook -i netbox_inv.yml show_version.yml -e EXTRA_VARS
```

```
PLAY [Read extra_vars] *********************************************************************

TASK [Reading target hosts from input vars and storing as localhost fact] ******************
ok: [localhost]

PLAY [Show Version] ************************************************************************

TASK [Run 'show version' command on remote devices] ****************************************
ok: [evo-eos01]

TASK [debug] *******************************************************************************
ok: [evo-eos01] =>
  show_version.stdout.0: |-
    Arista vEOS-lab
    Hardware version:
    Serial number: CA0DFC7A91FA31E6C14199440F9B86C6
    Hardware MAC address: 0050.56f6.9bb9
    System MAC address: 0050.56f6.9bb9

    Software image version: 4.27.0F
    Architecture: x86_64
    Internal build version: 4.27.0F-24308433.4270F
    Internal build ID: 9088210e-613b-47db-b273-7c7b8d45a086
    Image format version: 1.0

    Uptime: 5 days, 23 hours and 13 minutes
    Total memory: 4002360 kB
    Free memory: 2836760 kB

PLAY RECAP *********************************************************************************
evo-eos01                  : ok=2    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
localhost                  : ok=1    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0
```

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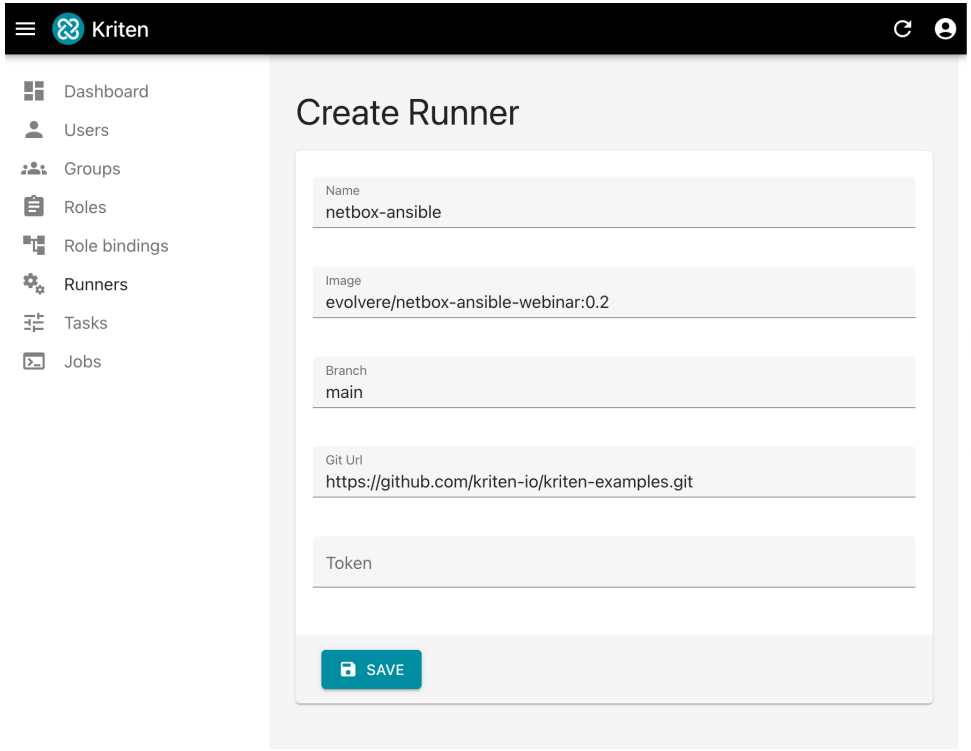
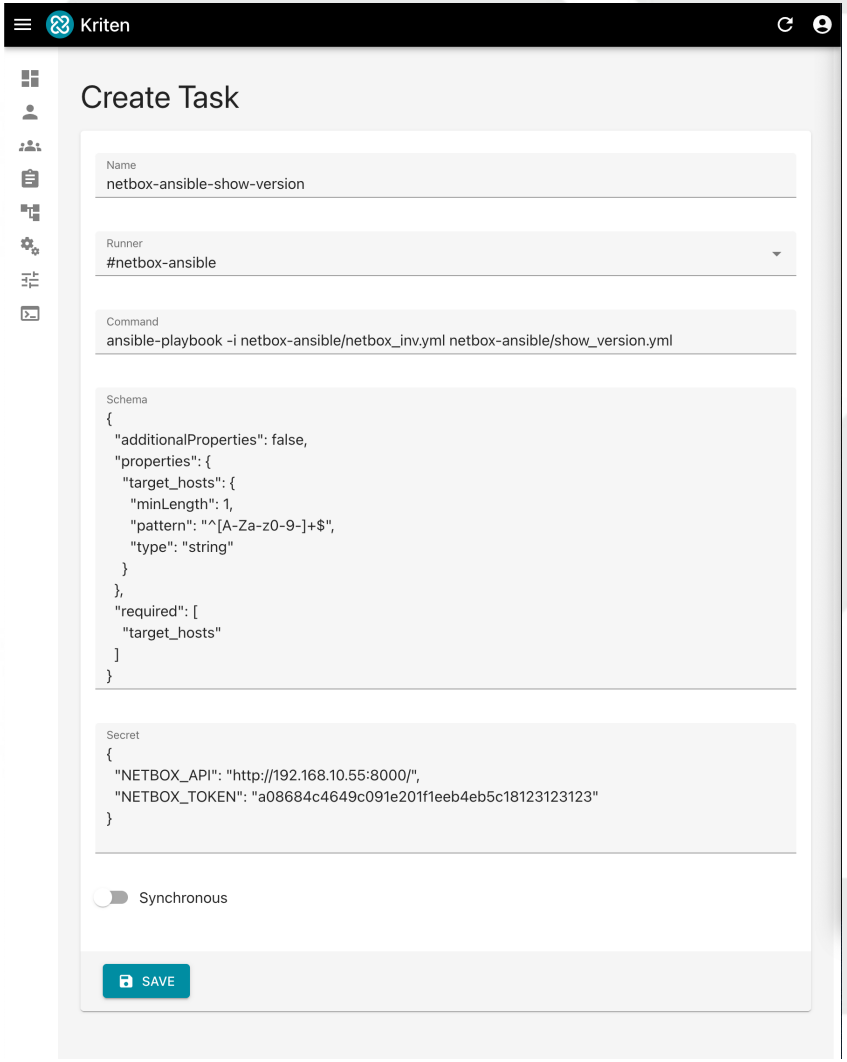
Build a container image

```
FROM python:3.9-slim
RUN mkdir /app
COPY requirements.txt /app
WORKDIR /app
RUN pip3 install -r requirements.txt
ENV ANSIBLE_HOST_KEY_CHECKING=False
CMD ["python", "ansible-playbook -i netbox_inv.yml show_version.yml"]
```

```
docker build -t evolvere/netbox-ansible-webinar:0.2 .
docker push evolvere/netbox-ansible-webinar:0.2
```

Create runner and task





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Run the playbook via Kriten API call

```
export KRITEN_URL=http://kriten.192.168.10.102.nip.io

curl -c ./token.txt $KRITEN_URL'/api/v1/login' \
--header 'Content-Type: application/json' \
--data '{
  "username": "root",
  "password": "root",
  "provider": "local"
}'
{"token":"eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ1c2VybmFtZSI6InJvb3QiLCJ1c2VyX2lkIjoiZTc4ZDk3NDYtZTNiZi00MDdiLTk1NmYtNWQwNzg3ZGEyZTczIiwicHJvdmlkZXIiOiJsb2NhbCIsImV4cCI6MTcxMjc0ODgxNn0.oah0MVWXRyfYuF6dsJneV7bOq8HyEfnSo1hf-vQvjYY"}

curl -b ./token.txt $KRITEN_URL'/api/v1/jobs/netbox-ansible-show-version' \
--header 'Content-Type: application/json' \
--data '{
  "target_hosts": "evo-eos01"
}'
{"id":"netbox-ansible-show-version-7vdlf","msg":"job created successfully"}[evolvere@evo-management-05 ~]$

curl -b ./token.txt $KRITEN_URL'/api/v1/jobs/netbox-ansible-show-version-7vdlf' \
--header 'Content-Type: application/json'
{"id":"netbox-ansible-show-version-7vdlf","owner":"root","startTime":"Wed Apr 10 10:34:39 UTC
2024","completionTime":"Wed Apr 10 10:34:56 UTC 2024","failed":0,"completed":1,"stdout":"\nPLAY [Read
extra_vars] ***********************************************************\n\nTASK [Reading target hosts from input
vars and storing as localhost fact] ******\nok: [localhost]\n\nPLAY [Show Version]
***********************************************************\n\nTASK [Run 'show version' command on remote
devices] ***************************\nok: [evo-eos01]\n\nTASK [debug]
*********************************************************************\nok: [evo-eos01] =\u003e {\n
\"show_version.stdout.0\": \"Arista vEOS-lab\\nHardware version: \\nSerial number:
CA0DFC7A91FA31E6C14199440F9B86C6\\nHardware MAC address: 0050.56f6.9bb9\\nSystem MAC address:
0050.56f6.9bb9\\n\\nSoftware image version: 4.27.0F\\nArchitecture: x86_64\\nInternal build version:
4.27.0F-24308433.4270F\\nInternal build ID: 9088210e-613b-47db-b273-7c7b8d45a086\\nImage format version:
1.0\\n\\nUptime: 5 days, 23 hours and 52 minutes\\nTotal memory: 4002360 kB\\nFree memory: 2837448
kB\"\n}\n\nPLAY RECAP
*********************************************************************\nevo-eos01                  : ok=2
changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0   \nlocalhost                  :
ok=1    changed=0    unreachable=0    failed=0    skipped=0    rescued=0    ignored=0   \n\n","json_data":null}
```

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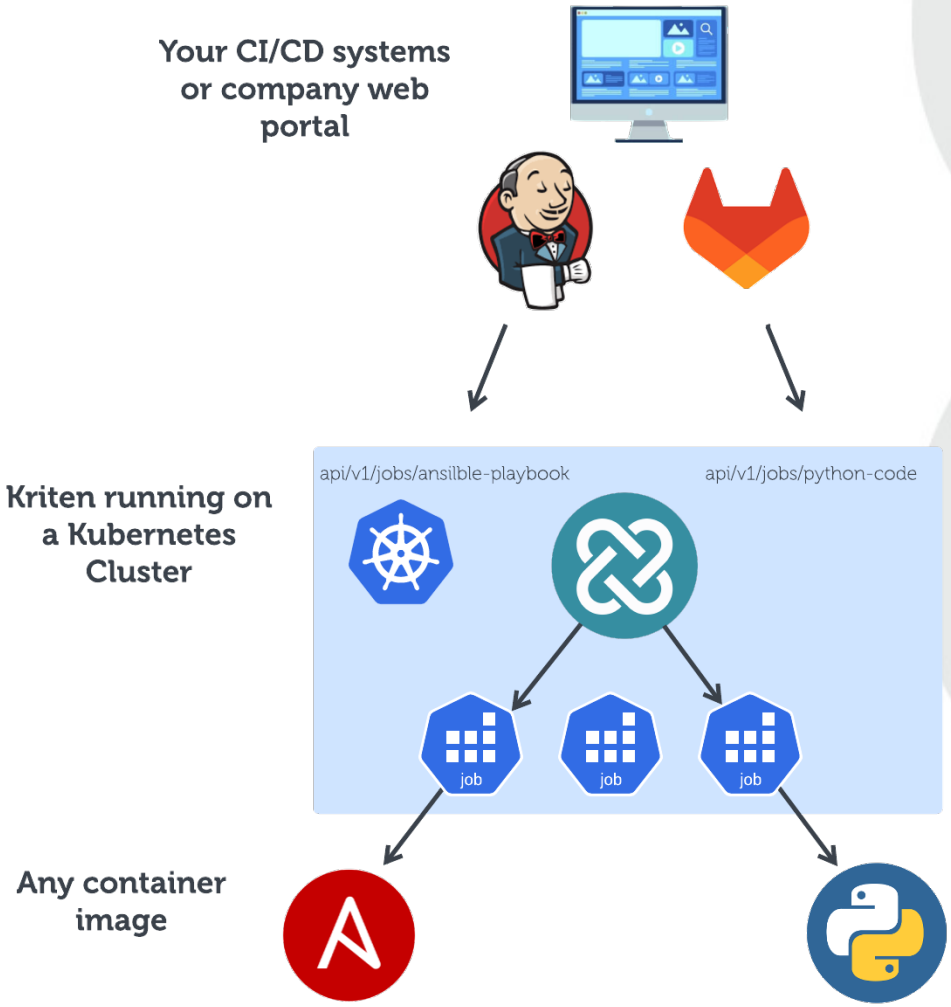
Typical deployment scheme



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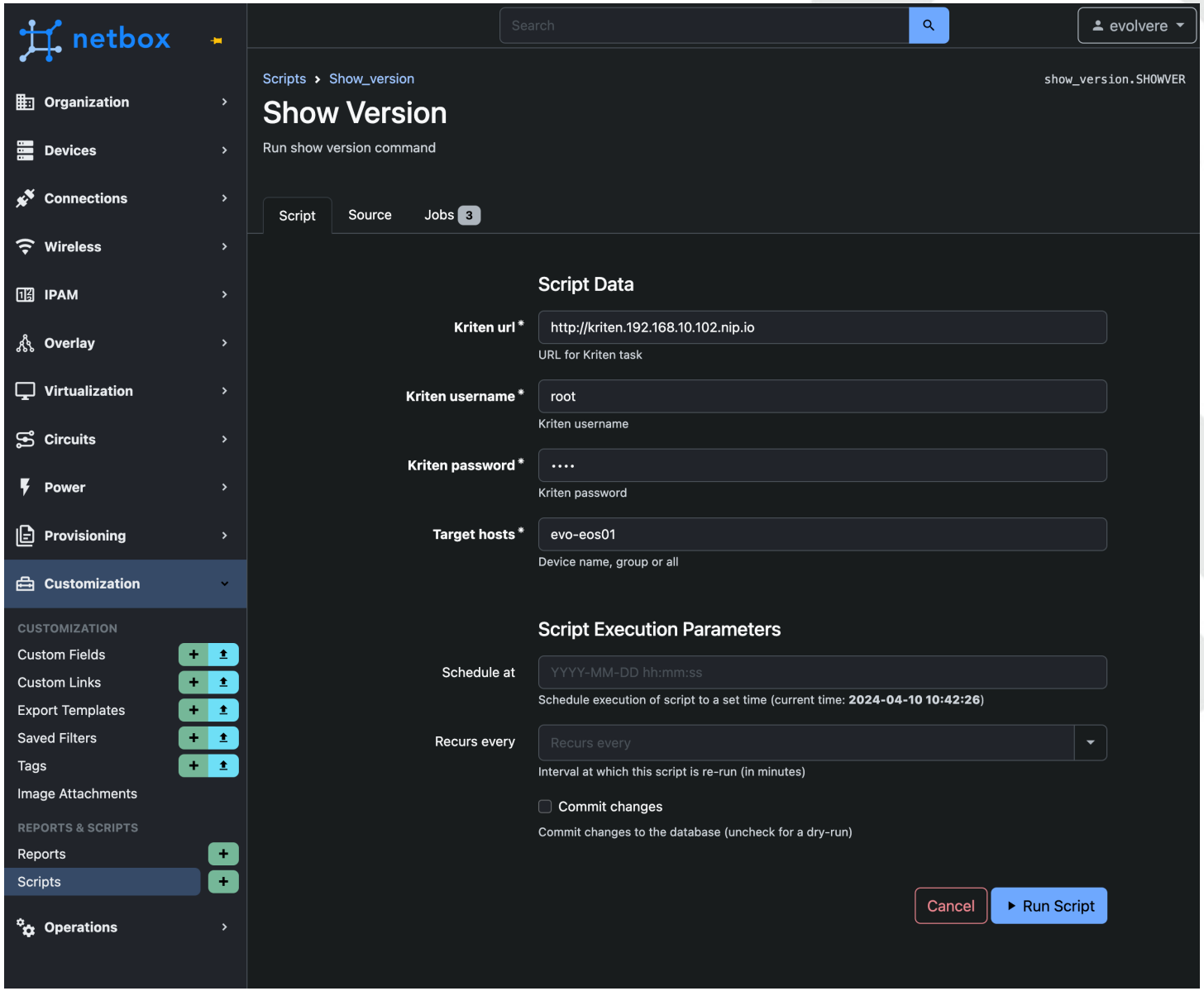
Run from NetBox



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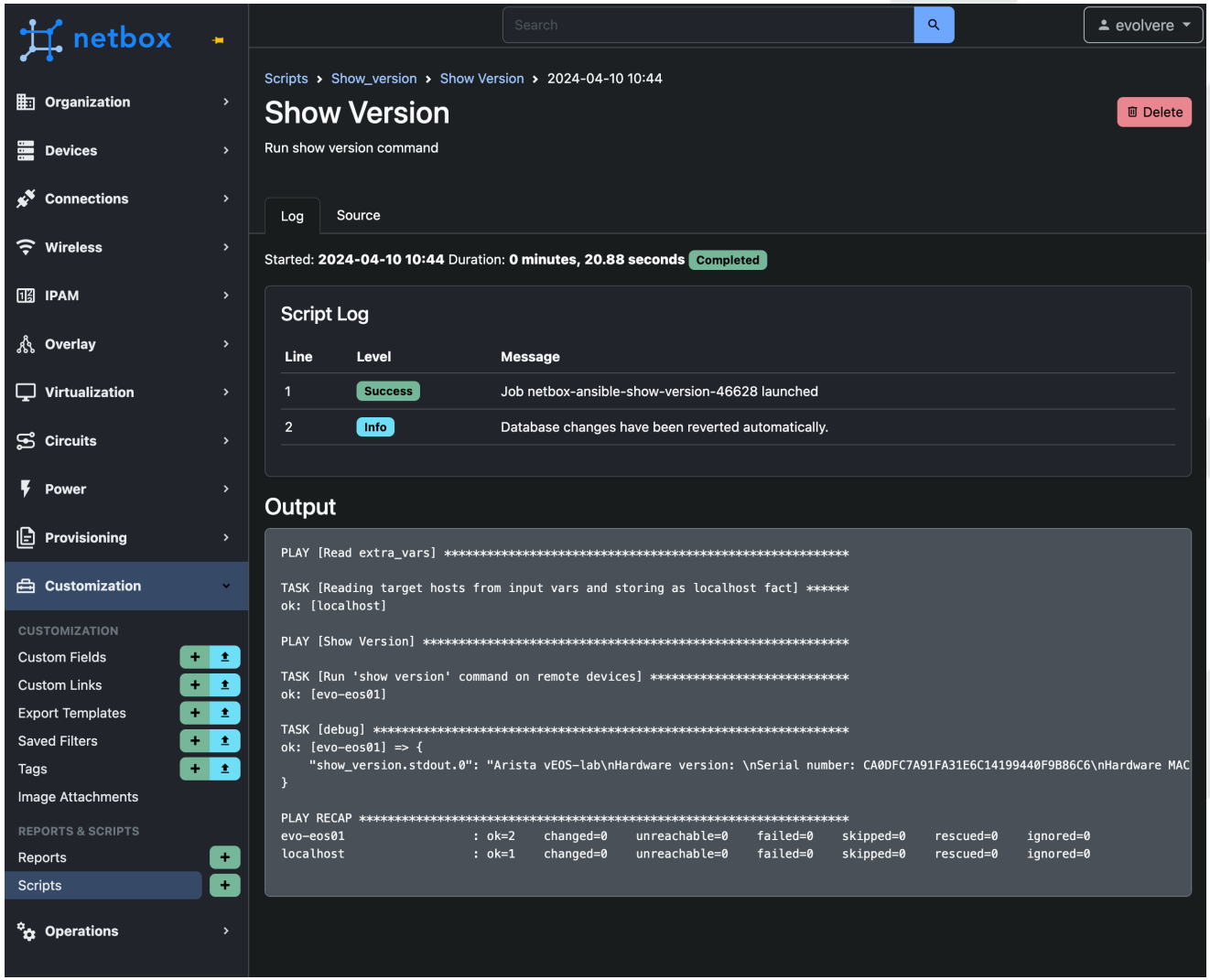
Results from NetBox



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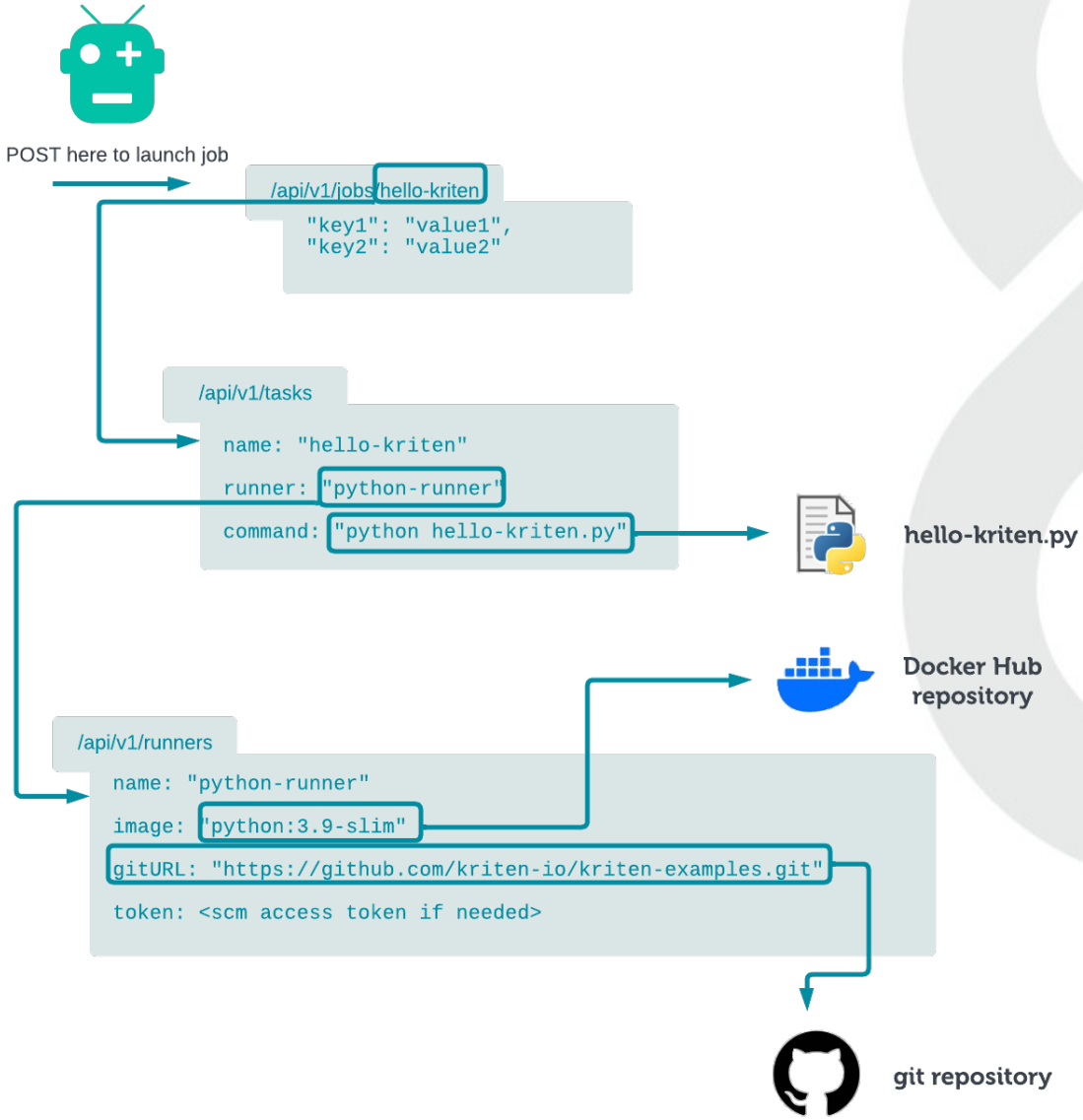
Kriten runners and tasks



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Kriten Backlog

We have several features in the backlog for future release.

Scheduling
Deployments
Administrstion UI
Kritctl

New feature and enhancement suggestions welcome.

Contact us at support@kriten.io

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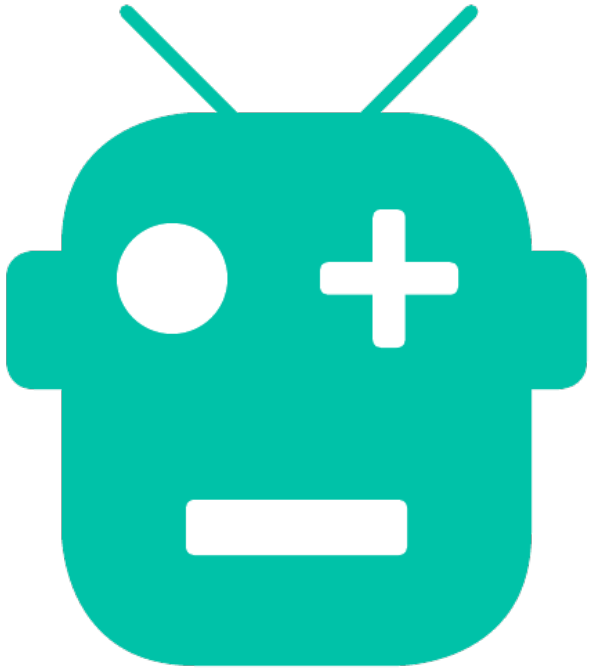
Need some help?

We have Network Automation and DevOps capabilities and a flexible approach to help wherever you are in the automation maturity model.



Contact us at info@evolvere-tech.co.uk.

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