Working the API like a Unix Pro

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Quick introduction

- @RaymondKuiper
- Zabbix user since 2006, never looked back
- q1x on Freenode (find me in #zabbix)
- Proud to work for these guys:

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Sysadmins <3 Automation

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Automation in Zabbix

How to automate via the API?

API bash script using Curl

Pros:

- Seems nice and easy at first
- You can show off your mad curl skills

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API bash script using Curl

Cons:

- No object awareness
- Honestly, it's a PITA

Develop an API based tool

Pros:

- Perfect solution to your problem
- Highly efficient code

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Develop an API based tool

Cons:

- Takes time and effort to develop (and debug) a fitting solution
- Not very flexible unless you invest heavily in development (monolithic)
- Gets very complex, very fast. You might need a *developer* to maintain it

Use a CLI tool
(Zabcon and friends)

Pros:

- Can be used in shell scripts
- Can be used quickly, no need for direct API code

Use a CLI tool
(Zabcon and friends)

Cons:

- Learning a new CLI language
- Limited to the functionality the developer thought was useful

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My solution?

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*nix

The IT swiss army knife

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*nix

The IT swiss army knife

“The whole is greater than the sum of its parts.”

— Aristotle

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Introducing: the Zabbix Gnomes

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Zabbix Gnomes

https://github.com/q1x/zabbix-gnomes

Zabbix Gnomes

~/.zbx.conf

```
[Zabbix API]
username=johndoe
password=verysecretpassword
api=https://zabbix.mycompany.com/path/to/zabbix/frontend/
no_verify=true
```

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Zabbix Gnomes

Making them work together

Ex. 1: Hostgroup Templates

Scenario:

- Hosts in the host group 'App Servers' should be linked to 'Template App Customapp'
- $someone keeps forgetting to link that template to newly deployed App servers
- Post-it notes about this don't seem to work

Ex. 1: Hostgroup Templates

```
user@localhost$ ./zghostfinder.py 'App Servers'

app-server-001
app-server-002
...
app-server-042
app-server-043
```

(Finds hosts in a host group)

Ex. 1: Hostgroup Templates

```
user@localhost$ ./zhtmplfinder.py 'app-server-001'

Template OS Linux
Template App Customapp

user@localhost$ ./zhtmplfinder.py 'app-server-042'

Template OS Linux
```

(Finds templates linked to a host)

Ex. 1: Hostgroup Templates

```
user@localhost$ ./zhtmpllinker.py
usage: zhtmpllinker.py [-h]
                       (-H HOSTNAMES [HOSTNAMES ...] | -G
HOSTGROUPS [HOSTGROUPS ...])
                       -t TEMPLATES [TEMPLATES ...]
```

(Links templates to hosts)

Ex. 1: Hostgroup Templates

```
user@localhost$ ./zhtmpllinker.py -G 'App Servers' \
                -t 'Template App Customapp'
```

Pro-tip: Stick it in a crontab!

Ex. 1: Hostgroup Templates

```
user@localhost$ for host in $(./zghostfinder.py 'App Servers');
do echo "$host : $(./zhtmplfinder.py "$host" | tr '\n' ',')";
done

app-server-001 : Template OS Linux,Template App
app-server-002 : Template OS Linux,Template App
...
app-server-042 : Template OS Linux,Template App
app-server-043 : Template OS Linux,Template App
```

Ex. 2: Host Inventory

Scenario:

- $boss has negotiated a new hardware support contract with $vendor
- Demands serial/os/type of all Cisco 800s
- Your template stores this info in the Inventory
- You are a happy user of network discovery

Ex. 2: Host Inventory

(See also ZBXNEXT-1241)

```
user@localhost$ ./zhinvswitcher.py
usage: zhinvswitcher.py [-h] (-H HOSTNAMES [HOSTNAMES ...]
                            | -G HOSTGROUPS [HOSTGROUPS ...]
                            | --all-hosts) … [-m MODE] …
```

```
user@localhost$ ./zhinvswitcher.py -G “Cisco Devices” -m auto
```

(Switches Inv. Mode on hosts)

Ex. 2: Host Inventory

```
user@localhost$ ./zgetinventory.py
usage: zgetinventory.py [-h] (-H HOSTNAMES [HOSTNAMES ...]
                        | -G HOSTGROUPS [HOSTGROUPS …]) …
                       [-m] [-i] … (-A | -F FIELDS [FIELDS ...])
```

(Gets Zabbix inventory information)

Ex. 2: Host Inventory

```
user@localhost$ ./zgetinventory.py -G 'Cisco Devices ' \
                -e -m -i -F serialno_a type os | \
                sed -n -e 1p -e '/C8../'p | \
                cut -d ',' -f 2-

"host","serialno_a","type","os"
"RT01","FCZ999999A","C819G-4G-G-K9","15.4(3)M1, RELEASE SOFTWARE
(fc1)"
"RT02","FCZ999999B","C887VA-K9","15.4(1)T1, RELEASE SOFTWARE
(fc2)"
"RT03","FCZ999999C","C887VA-K9","15.4(3)M1, RELEASE SOFTWARE
(fc1)"
...
```

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Ex. 3: Emailing Graphs

Scenario:

- $colleague needs daily CPU graphs
- Can't be bothered with browsing the GUI every morning before getting coffee
- You'd like to help him reach his mailbox quota

Ex. 3: Emailing Graphs

```
user@localhost$ ./zghostfinder.py 'Linux Servers'

Wakizashi
Kodachi
Katana
```

Ex. 3: Emailing Graphs

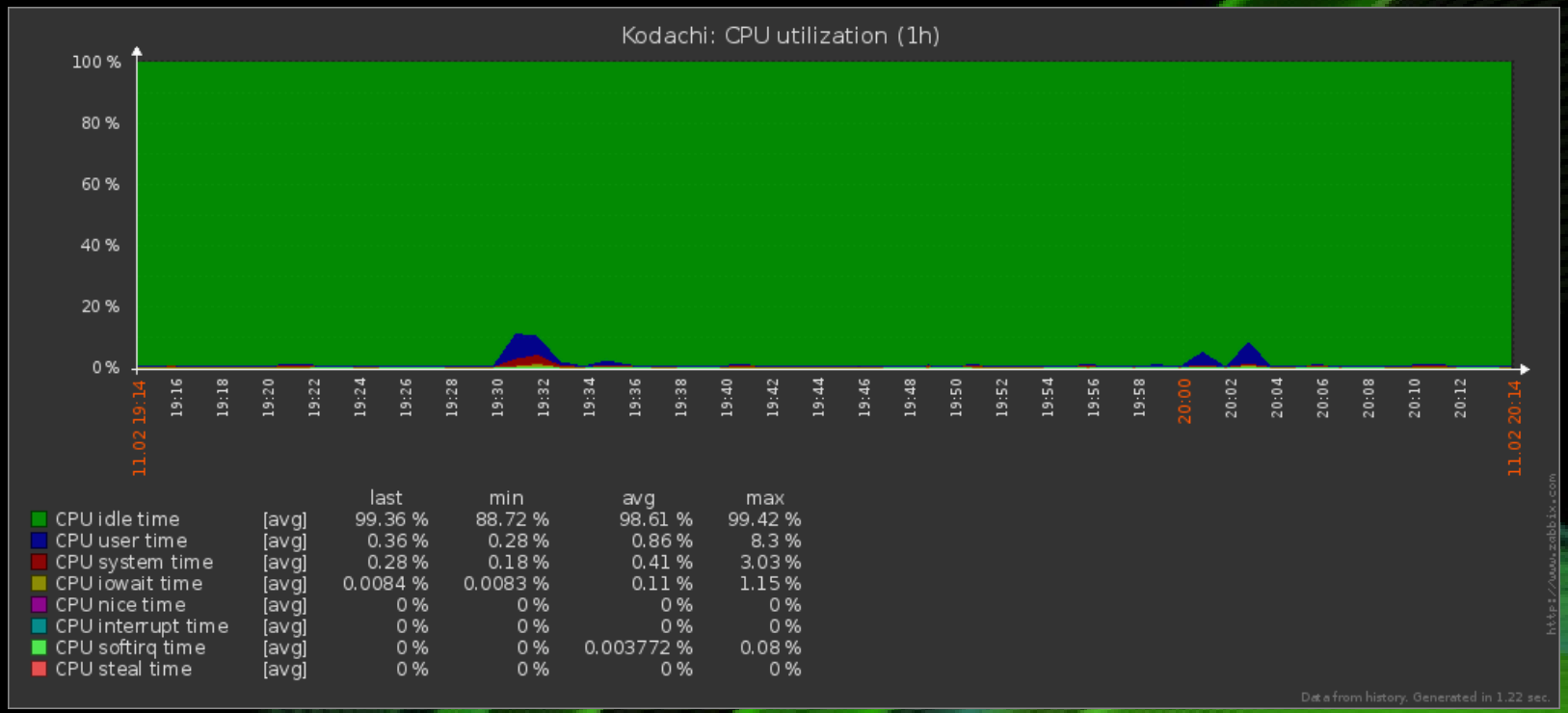
```
user@localhost$ ./zhgraphfinder.py -e Kodachi

568:Network traffic on eth0
555:CPU jumps
556:CPU load
557:CPU utilization
558:Swap usage
569:Disk space usage /
560:Memory usage
```

(Finds graphs configured on a host)

Ex. 3: Emailing Graphs

```
user@localhost$ ./zgetgraph.py -f graph.png 557
```



(Downloads a graph from the ***frontend***)

Ex. 3: Emailing Graphs

```
#!/bin/bash
graphs=""
filelist=""

# find graphs on hosts in group 'Linux Servers'
for host in $(zghostfinder.py "Linux Servers"); do
    hgraphs=$(zhgraphfinder.py -e $host | grep "CPU utilization" \
    | cut -d ':' -f 1 )
    graphs="$graphs $hgraphs"
done

# download graphs
for graph in $graphs; do
    file="/tmp/$graph.png"
    filelist="$filelist -a $file"
    zgetgraph.py -t 86400 -f "$file" "$graph"
done

# Mail the graphs and cleanup
echo "See attached." | mail $filelist -s "Daily graphs"
"user@some.tld"
rm -r $(echo "$filelist" | sed 's/-a\ //g')
```

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Things to think about

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Questions?