# NETCO

Integrate Zabbix with Netbox

Synchronize Zabbix with a Source of Truth

What are we trying to achieve?

	Name	Status	Tenant	Role	Type	Platform	Site	Rack	IP Address
☐	R08-FW01	Active	—	Firewall	FortiGate 200F	FortiOS	Antwerp	R08	10.88.236.10/24
☐	R08-SW01-0	Active	—	Switch	SRX4100	—	Antwerp	R08	10.88.236.1/24
☐	R08-SW01-1	Active	—	Switch	SRX4100	juniper_junos	Antwerp	R08	10.88.236.2/24
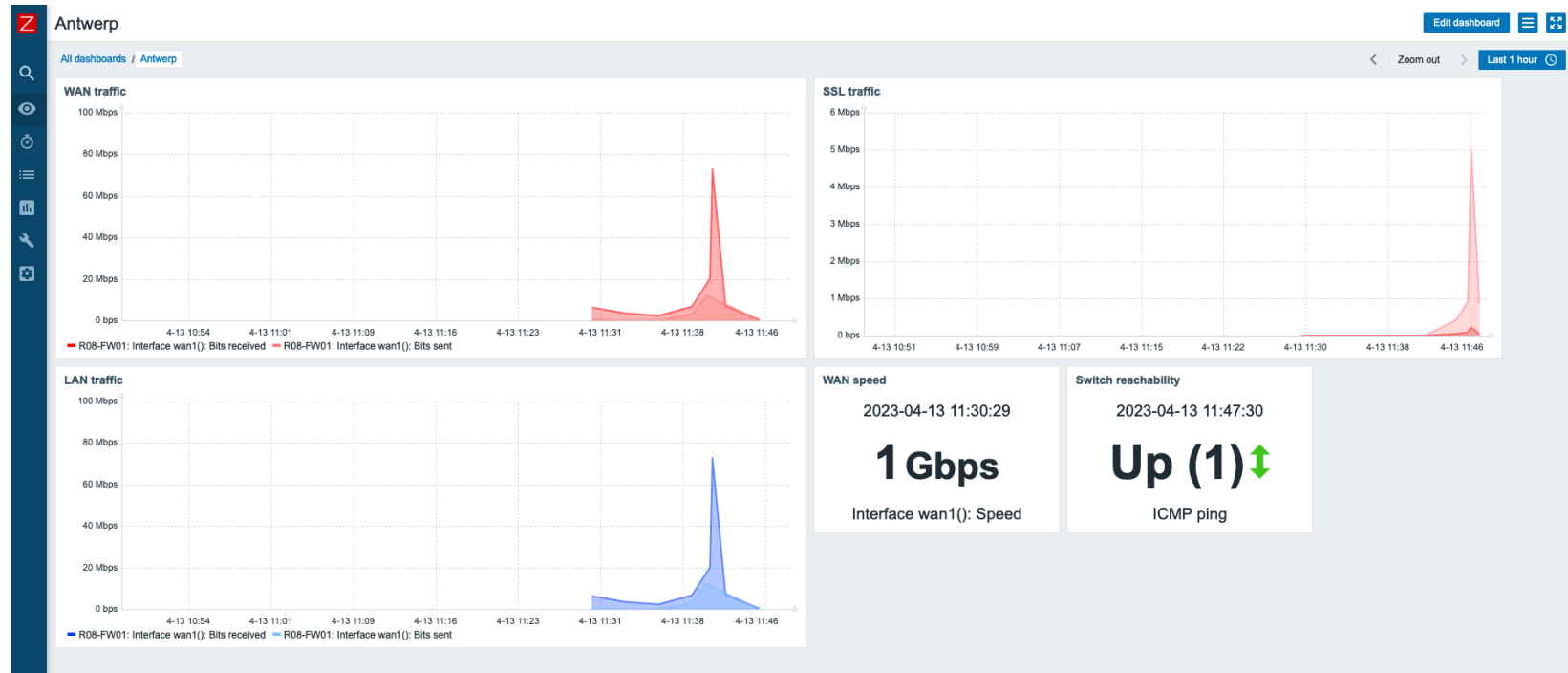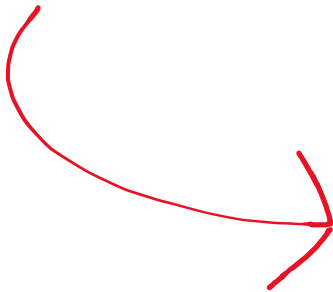
The concept of a Source of Truth

- All your data centralized
- Integrate systems with your SoT
- One reliable place to administrate all data
- Eliminate duplicate data

Netbox as SoT

- DCIM (DataCenter Infrastructure Management)
- IPAM (IP Address Management)
- Circuits
- Cabling
- Power distribution
- Flexible and modulair
- Desired infrastructure state
- Great REST API

What data is required from Netbox

- Hostname

- IP address

- Hostgroup

- Template

- Interface type information (defaults to SNMPv2)

Devices in Netbox

Netbox can help us

Zabbix template

Created 2022-11-24 19:01 · Updated 4 months ago

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Custom Field | Changelog

Custom Field

Name	zabbix_template
Label	—
Group Name	—
Type	Text
Description	—
Required	✖
Search Weight	1000
Filter Logic	Loose
Display Weight	100
UI Visibility	Read/Write

Assigned Models

dcim | device type

Validation Rules

Minimum Value	—
Maximum Value	—
Regular Expression	—

Netbox device types

Hostgroup generation

- Dynamic layout
  - Default is site/manufacturer/device role
  - Customizable for different parameters
    - Site
    - Manufacturer
    - Role
    - Tenant
    - Custom field data

Devices in Netbox

Initial run

```
(venv_netbox) twan@Twans-MacBook-Pro netbox-zabbix-sync %
(venv_netbox) twan@Twans-MacBook-Pro netbox-zabbix-sync % python netbox_zabbix_sync.py -vjH
2023-03-31 18:25:49,245 - Netbox-Zabbix-sync - DEBUG - Found group Antwerp/Fortinet/Firewall for host R08-FW01.
2023-03-31 18:25:49,247 - Netbox-Zabbix-sync - DEBUG - Found template ID 10186 for host R08-FW01.
2023-03-31 18:25:49,661 - Netbox-Zabbix-sync - INFO - Created host R08-FW01 in Zabbix.
(venv_netbox) twan@Twans-MacBook-Pro netbox-zabbix-sync %
(venv_netbox) twan@Twans-MacBook-Pro netbox-zabbix-sync %
```

Is a host still in-sync?


```
(venv_netbox) twan@Twans-MacBook-Pro netbox-zabbix-sync %
(venv_netbox) twan@Twans-MacBook-Pro netbox-zabbix-sync % python netbox_zabbix_sync.py -vjH
2023-03-31 18:26:41,097 - Netbox-Zabbix-sync - DEBUG - Found group Antwerp/Fortinet/Firewall for host R08-FW01.
2023-03-31 18:26:41,098 - Netbox-Zabbix-sync - DEBUG - Found template ID 10186 for host R08-FW01.
2023-03-31 18:26:41,181 - Netbox-Zabbix-sync - DEBUG - Device R08-FW01: hostname in-sync.
2023-03-31 18:26:41,181 - Netbox-Zabbix-sync - DEBUG - Device R08-FW01: template in-sync.
2023-03-31 18:26:41,181 - Netbox-Zabbix-sync - DEBUG - Device R08-FW01: hostgroup in-sync.
2023-03-31 18:26:41,181 - Netbox-Zabbix-sync - DEBUG - Device R08-FW01: status in-sync.
2023-03-31 18:26:41,181 - Netbox-Zabbix-sync - DEBUG - Device R08-FW01: interface in-sync.
(venv_netbox) twan@Twans-MacBook-Pro netbox-zabbix-sync %
(venv_netbox) twan@Twans-MacBook-Pro netbox-zabbix-sync %
```

Some data gets modified

```
(venv_netbox) twan@Twans-MacBook-Pro netbox-zabbix-sync %
(venv_netbox) twan@Twans-MacBook-Pro netbox-zabbix-sync % python netbox_zabbix_sync.py -vjH
2023-03-31 19:13:47,836 - Netbox-Zabbix-sync - DEBUG - Found group Antwerp/Fortinet/Firewall for host R08-FW02.
2023-03-31 19:13:47,837 - Netbox-Zabbix-sync - DEBUG - Found template ID 10186 for host R08-FW02.
2023-03-31 19:13:47,926 - Netbox-Zabbix-sync - WARNING - Device R08-FW02: hostname OUT of sync. Received value: R08-FW01
2023-03-31 19:13:48,015 - Netbox-Zabbix-sync - INFO - Updated host R08-FW02 with data {'host': 'R08-FW02'}.
2023-03-31 19:13:48,081 - Netbox-Zabbix-sync - DEBUG - Device R08-FW02: template in-sync.
2023-03-31 19:13:48,082 - Netbox-Zabbix-sync - DEBUG - Device R08-FW02: hostgroup in-sync.
2023-03-31 19:13:48,082 - Netbox-Zabbix-sync - DEBUG - Device R08-FW02: status in-sync.
2023-03-31 19:13:48,082 - Netbox-Zabbix-sync - DEBUG - Device R08-FW02: interface in-sync.
(venv_netbox) twan@Twans-MacBook-Pro netbox-zabbix-sync %
(venv_netbox) twan@Twans-MacBook-Pro netbox-zabbix-sync %
```

Cleaning up

```
(venv_netbox) twan@Twans-MacBook-Pro netbox-zabbix-sync %
(venv_netbox) twan@Twans-MacBook-Pro netbox-zabbix-sync % python netbox_zabbix_sync.py -vjH
2023-03-31 18:27:43,093 - Netbox-Zabbix-sync - INFO - Deleted host R08-FW01 from Zabbix.
2023-03-31 18:27:43,155 - Netbox-Zabbix-sync - INFO - Cleaned up host R08-FW01.
(venv_netbox) twan@Twans-MacBook-Pro netbox-zabbix-sync %
(venv_netbox) twan@Twans-MacBook-Pro netbox-zabbix-sync %
```

Journal

dcim.device:92

R08-FW01

+ Add Components ▾   🗐 Clone   ✏ Edit   🗑 Delete

Created 2023-03-31 15:55 · Updated 0 minutes ago

Device   **Interfaces** `30`   **Console Ports** `1`   **Power Ports** `2`   **Config Context**   **Journal** `2`   **Changelog**

Created	Created by	Kind	Comments	
2023-03-31 16:27	twan	**Warning**	Deleted host from Zabbix	✏ ▾
2023-03-31 16:25	twan	**Success**	Created host R08-FW01 in Zabbix.	✏ ▾

Per Page ▴

Showing 1–2 of 2

Virtual chassis

What happens now?

```
(venv_netbox) twan@Twans-MacBook-Pro netbox-zabbix-sync %
(venv_netbox) twan@Twans-MacBook-Pro netbox-zabbix-sync % python netbox_zabbix_sync.py -vjHc
2023-03-31 18:31:49,888 - Netbox-Zabbix-sync - DEBUG - Found group Antwerp/Fortinet/Firewall for host R08-FW01.
2023-03-31 18:31:49,890 - Netbox-Zabbix-sync - DEBUG - Found template ID 10186 for host R08-FW01.
2023-03-31 18:31:50,301 - Netbox-Zabbix-sync - INFO - Created host R08-FW01 in Zabbix.
2023-03-31 18:31:50,405 - Netbox-Zabbix-sync - DEBUG - Device R08-SW01-0 is primary cluster member. Modifying hostname from R08-SW01-0 to R08-SW01.
2023-03-31 18:31:50,405 - Netbox-Zabbix-sync - INFO - Device R08-SW01 is part of cluster and primary.
2023-03-31 18:31:50,480 - Netbox-Zabbix-sync - INFO - Added hostgroup 'Antwerp/Juniper/Switch'.
2023-03-31 18:31:50,555 - Netbox-Zabbix-sync - DEBUG - Found group Antwerp/Juniper/Switch for host R08-SW01.
2023-03-31 18:31:50,556 - Netbox-Zabbix-sync - DEBUG - Found template ID 10190 for host R08-SW01.
2023-03-31 18:31:51,068 - Netbox-Zabbix-sync - INFO - Created host R08-SW01 in Zabbix.
2023-03-31 18:31:51,166 - Netbox-Zabbix-sync - DEBUG - Device R08-SW01-1 is non-primary cluster member.
2023-03-31 18:31:51,166 - Netbox-Zabbix-sync - INFO - Device R08-SW01-1 is part of cluster but not primary. Skipping this host...
(venv_netbox) twan@Twans-MacBook-Pro netbox-zabbix-sync %
(venv_netbox) twan@Twans-MacBook-Pro netbox-zabbix-sync %
```

Hostgroups

Name ▲	Hosts	Templates	Members
Antwerp/Fortinet/Firewall	Hosts 1	Templates	R08-FW01
Antwerp/Juniper/Switch	Hosts 1	Templates	R08-SW01

Name ▲	Items	Triggers	Graphs	Discovery	Web	Interface	Proxy	Templates	Status
R08-FW01	Items 3	Triggers 3	Graphs	Discovery	Web	10.88.236.10:161		ICMP Ping	Enabled
R08-SW01	Items	Triggers	Graphs	Discovery 1	Web	10.88.236.1:161		Interfaces SNMP	Enabled

Under the hood

R08-FW01

Created 2023-03-31 15:55 · Updated 2 minutes ago

Device	Interfaces 30	Console Ports 1	Power Ports 2	Config Context	Status

Device

Region	—
Site	Antwerp
Location	First floor
Rack	R08
Position	U30 / Front
Tenant	—
Device Type	Fortinet FortiGate 200F (1U)
Description	—
Airflow	Front to rear
Serial Number	ABC123
Asset Tag	—

Custom Fields

Zabbix hostid	10543

Netbox custom link

Templates

```
{% if obj.cf["zabbix_hostid"] %}Show host in Zabbix{% endif %}
```

Jinja2 template code for the link text. Reference the object as {{ object }}. Links which render as empty text will not be displayed.

```
https://ShowingThisAtAConferenceSoundsLikeAPrettyStupidIdea.local
/zabbix.php?action=latest.view&hostids[]={{ obj.cf["zabbix_hostid"] }}
```

dcim.device:92

Add Components ▾   □ Clone   ✎ Edit   🗑 Delete

Show host in Zabbix

Changelog

Open source

- https://github.com/TheNetworkGuy/netbox-zabbix-sync

Thank you for your attention