



Doku fürs Datacenter und Netzwerk

Sebastian Neuner, Tübix, 2025-07-05

# Ich

- Sebastian Neuner
- Network Engineer bei




praktisch Ehrenamtlich bei





- benutzt/betreibt mehrere NetBox Instanzen
- Achtung: persönliche Meinung

# netbox


- seit 2015 als Dokusystem für DigitalOcean
- OSS seit 2016 (Apache 2 License)
- immernoch stark in Entwicklung
- versteht sich als „source of truth“
- Python, Django, PostgreSQL
- sehr sehr relational
- Fork „nautobot“ von NtC ebenfalls verbreitet

 Organization


 Racks


 Devices


 Connections


 Wireless


 IPAM


 VPN


 Virtualization


 Circuits


 Power

 Provisioning

 Customization

 Operations

 Plugins

 Admin

## Organization

- Sites (Standorte)
- Kunden
- Kontakte

OBJECT TYPE	OBJECT	CONTACT	ROLE
Site	DM-Scranton	Dwight Schrute	Operational
Tunnel	gh	Michael Scott	Administrative
Site	DM-Scranton	Michael Scott	Administrative
Site	DM-Scranton	Pamela Halpert	Administrative

- Organization
- Racks
- Devices
- Connections
- Wireless
- IPAM
- VPN
- Virtualization
- Circuits
- Power
- Provisioning
- Customization
- Operations
- Plugins
- Admin

# Datacenter Inventory Management (DCIM)

- Racks
- Devices, (Types, Platforms), Interfaces, Modules, ...
- Kabel, Verbindungen (Wireless, Konsole)
- Strom (Module, Feeds, ...)

## Devices

+ Add

↑ Import

↓ Export ▾

Results 4

Filters 1

× Site: DM-Yonkers

Save

Quick search

▼

⚙ Configure Table ▾

NAME	STATUS	SITE	ROLE	TYPE	
dmi01-yonkers-pdu01	Active	DM-Yonkers	PDU	AP7901	✎ ▾
dmi01-yonkers-rtr01	Active	DM-Yonkers	Router	ISR 1111-8P	✎ ▾
dmi01-yonkers-sw01	Active	DM-Yonkers	Access Switch	C9200-48P	✎ ▾
Unnamed device	Active	DM-Yonkers	Патч-панель	48-Port Patch Panel	✎ ▾

# dmi01-yonkers-rtr01

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+ Add Components

Bookmark

Subscribe

Clone

Edit

Delete

Device

Interfaces 14

Console Ports 2

Power Ports 1

Config Context

Render Config

Contacts

Journal

Changelog

## Device

Region	—
Site	DM-Yonkers
Location	—
Rack	Comms closet
Position	U4 / Front
GPS Coordinates	—
Tenant	Customers / Dunder-Mifflin, Inc.
Device Type	Cisco ISR 1111-8P (1U)
Description	—
Airflow	—
Serial Number	—
Asset Tag	—
Config Template	—

## Management

Status	Active
Role	Router
Platform	Cisco IOS
Primary IPv4	—
Primary IPv6	—
Out-of-band IP	—

## Comms closet

Front		Rear	
12	48-Port Patch Panel	12	
11		11	
10	dmi01-yonkers-sw01	10	dmi01-yonkers-sw01
9		9	
8		8	
7		7	
6		6	
5		5	
4	dmi01-yonkers-rtr01	4	
3		3	
2		2	
1	dmi01-yonkers-pdu01	1	

# dmi01-yonkers-rtr01

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+ Add Components

Bookmark

Subscribe

Clone

Edit

Delete

Device Interfaces 14 Console Ports 2 Power Ports 1 Config Context Render Config Contacts Journal Changelog

Quick search

👁

⌵

⌵

⚙ Configure Table

	NAME	LAG	IP ADDRESSES	CABLE	CONNECTION	
	GigabitEthernet0/0/1	—		#33	—	+ ⚙ ⚙ ⓘ ⌵ ✎
	GigabitEthernet0/0/99	—		#1	—	+ ⚙ ⚙ ⓘ ⌵ ✎
	GigabitEthernet0/1/0	Po1		#59	dmi01-yonkers-sw01 > GigabitEthernet1/0/1	+ ⚙ ⚙ ⓘ ⌵ ✎
	GigabitEthernet0/1/1	Po1		#60	dmi01-yonkers-sw01 > GigabitEthernet1/0/2	+ ⚙ ⚙ ⓘ ⌵ ✎
	GigabitEthernet0/1/2	—		—	—	+ ⚙ ⚙ ⓘ ⌵ ✎
	GigabitEthernet0/1/3	—		—	—	+ ⚙ ⚙ ⓘ ⌵ ✎
	GigabitEthernet0/1/4	—		—	—	+ ⚙ ⚙ ⓘ ⌵ ✎
	GigabitEthernet0/1/5	—		—	—	+ ⚙ ⚙ ⓘ ⌵ ✎
	GigabitEthernet0/1/6	—		—	—	+ ⚙ ⚙ ⓘ ⌵ ✎
	GigabitEthernet0/1/7	—		—	—	+ ⚙ ⚙ ⓘ ⌵ ✎
	GigabitEthernet0/1/8	—		—	—	+ ⚙ ⚙ ⓘ ⌵ ✎
	Wlan-GigabitEthernet0/1/8	—		—	—	+ ⓘ ⌵ ✎
	Cellular0/2/0	—		—	—	+ ⓘ ⌵ ✎

# IP Address Management (IPAM)

- IP-Adressen, Ranges
- Prefixes
- VRFs, VLANs

VID	NAME	SITE	STATUS
100	Data	DM-Akron	Active
200	Voice	DM-Akron	Active
300	Wireless	DM-Akron	Active

PREFIX	STATUS	VRF	UTILIZATION	TENANT	DESCRIPTION
10.112.0.0/15	Container	Global	50.0%	Dunder-Mifflin, Inc.	—
• 10.112.0.0/17	Container	Global	0.0%	Dunder-Mifflin, Inc.	DM HQ
• 10.112.128.0/17	Container	Global	0.0%	Dunder-Mifflin, Inc.	DM branch offices



- Organization
- Racks
- Devices
- Connections
- Wireless
- IPAM
- VPN
- Virtualization
- Circuits
- Power
- Provisioning
- Customization
- Operations
- Plugins
- Admin

# Connectivity

- VPN Tunnels, IKE/IPSec
- Circuits, Virtual Circuits, (-Types, -Providers)

CIRCUIT ID ▾	✕ PROVIDER ▾	✕ TYPE	STATUS
1002840283	CenturyLink	Internet Access	Active
1002840457	CenturyLink	Internet Access	Active

Termination Z Edit Swap Delete

Termination point	FRA-DECIX Site
Connection	#2300 to [redacted] 4 <span>Trace</span> <span>Edit</span> <span>Disconnect</span>
Speed	—
Cross-Connect	—
Patch Panel/Port	DE.FRA.[redacted] CPR.R02.ODF 18.[redacted]



# Virtualization

- Cluster
- VMs
- Interfaces, Disks

Virtual Machines / DO-AMS3

virtualization.virtualmachine:36

vm1

+ Add Components

Bookmark

Subscribe

Clone

Edit

Delete

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Virtual Machine

Interfaces 4

Virtual Disks

Config Context

Render Config

Contacts

Journal

Changelog

Virtual Machine	
Name	vm1
Status	Active
Role	Application Server
Platform	Ubuntu Linux 20.04
Description	—
Serial Number	—
Tenant	—
Config Template	—
Primary IPv4	—

Cluster	
Site	—
Cluster	EMEA / DO-AMS3
Cluster Type	DigitalOcean
Device	—

Resources

Virtual CPUs

—

Memory

—

Disk Space

—

Organization

Racks

Devices

Connections

Wireless

IPAM

VPN

Virtualization

Circuits

Power

Provisioning

Customization

Operations

Plugins

Admin

## Automation, Customization

- Config Templates/Contexts
- Custom Fields/Links + Tags
- Scripts
- Data Sources, Webhooks
- Logging
- REST, GraphQL

### Tags

Delta

Echo

Zulu

### Custom Fields

Customer ID

CYB01

# Start von 0

- Lerneffekte, z.B.
  - Patchpanels richtig anlegen und verkabeln
  - Was wird kaskadierend gelöscht?
  - Tags vs. Custom Fields
- initialer Aufwand, z.B.
  - Device Types anlegen
  - Doku ist sowieso Aufwand
- es gibt Hilfe
  - <https://github.com/netbox-community/devicetype-library>
  - <https://github.com/netbox-community/awesome-netbox>

# Betrieb

- relativ häufige Updates
  - Breaking Changes sind gut beschrieben
  - Plugins und Custom Scripts werden ggf. inkompatibel und müssen angepasst werden
- Keine Undo-Funktion
  - Backups
  - Sensibilisierung der User
  - Branching plugin
- es gibt NetBox hosted
  - NetBox Cloud
  - auch von Firmen aus der Region

Danke