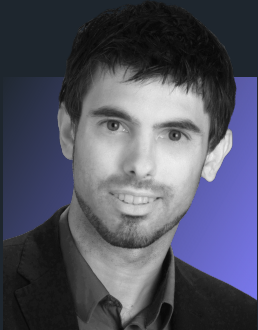




Automatic Label Discovery

Introducing the 'LabelPicker'







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Agenda

- 01  Fundamental concepts between Tags and Labels
- 02  Many roads lead to Labels
- 03  Assign Labels automatically via **LabelPicker**
- 04  Systemd Label Discovery



Tags and Labels

Fundamental concepts

Fundamental concepts



Tags

- Organized in Tag Groups
- Tags must be known to Checkmk before assignment

Fundamental concepts

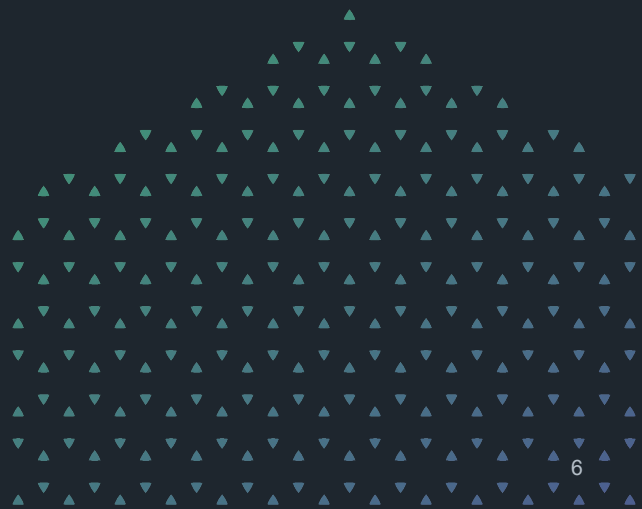


◆ Tags

- Organized in Tag Groups
- Tags must be known to Checkmk before assignment

◆ Labels

- Labels can be assigned individually as free text
→key:value





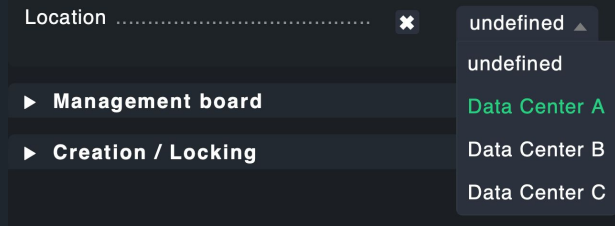
Fundamental concepts between Tags and Labels

Conclusion

- There is no right or wrong!
- Tags** are suitable for implicit configuration by a Checkmk administrator

Consistent

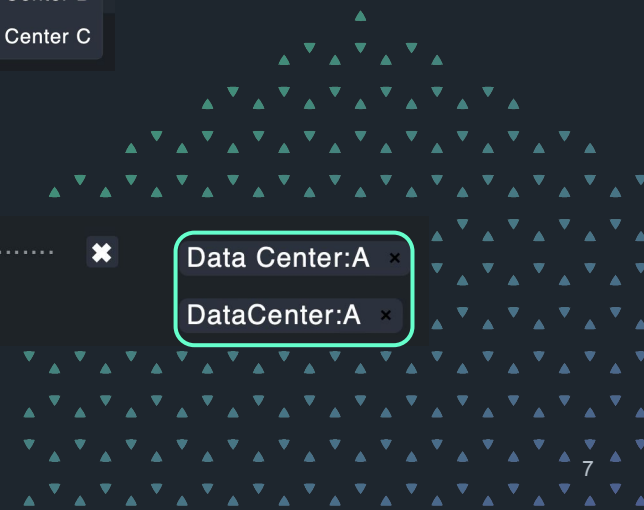
Prevent typing errors



- Labels** are perfect for automatic assignment

Flat hierarchy

Very flexible in the definition





Labels can be used in many areas of Checkmk

- ◆ Assign Agent Plugins via Agent Bakery Rules
- ◆ Assign Checks dynamically via Rules
- ◆ Define Thresholds
- ◆ Adjust Views / Dashboards automatically
- ◆ Notifications
- ◆ And many more places

Many roads lead to Labels

Many roads lead to Labels



Many roads lead to Labels



Recommendation:
Intensive use of Labels in
combination with Rulesets not
before version:

2.2.0b8 2.1.0p28

Performance →Werk #14200

Define Labels automatically via LabelPicker

LabelPicker is →

- ◆ A tool for automatic assignment of host labels
- ◆ Inspired by Robert Sanders data2label
- ◆ Relies on an extensible architecture
- ◆ An Open Source Success Story
 - ◇ Core Functions (PL Automation Monitoring)
 - ◇ Datasource Plugins:
 - ◇ **Hardware / Software Inventory**
(Landeshauptstadt München)
 - ◇ **Vmware vSphere** (Abraxas Informatik AG)

Use Cases of LabelPicker

- ◆ Synchronize Labels from external data sources to Checkmk

Vmware vSphere

CSV

- ◆ Expanded use of existing Checkmk data sources

HW/SW Inventory

- ◆ Harmonize Labels


- ◇ Renaming values with regex support
- ◇ Case conversion for Label keys & values



Use Case - HW /SW Inventory

Provide the server model as Label in Checkmk

Checkmk Hardware / Software Inventory

Hardware 

Processor ▶

Memory (RAM) ▶


Network Adapters ▶


Storage ▶

System ▼

Manufacturer	HP
Product	Computergehäuse
Serial Number	CZ _■■■■ ■■
Model Name	ProLiant DL380p Gen8
Family	

Graphic Cards ▶

Networking 

Software 

Checkmk Label:

hwsw/model: ProLiant DL380p Gen8

Use Case - Vmware vSphere

Provide Vmware Tags as Labels in Checkmk

Vmware Tags for a VM

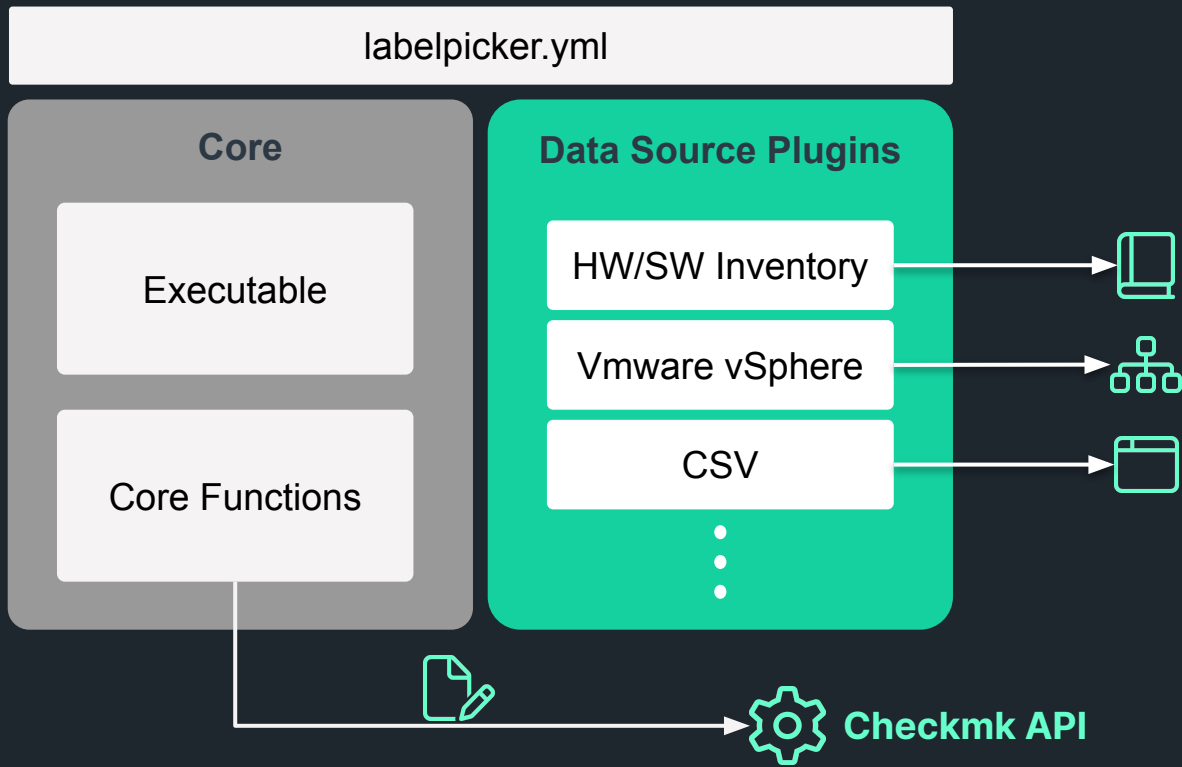
Tags ^

Zugewiesenes Tag	Kategorie	Beschreibung
Marc Meyer	system_responsible	
Data Center A11	location	
Production	environment	Test / Production
Gold	sla	Bronze, Silver, Gold

Checkmk Label:

`vsphere/system_responsible:Marc Meyer`

LabelPicker Architecture






How to configure a datasource Plugin?


LabelPicker - Hardware / Software Inventory

Define Label: Operating System Name

Checkmk Hardware / Software Inventory

- Hardware 
- Networking 
- Software 
- Applications ▶
- BIOS ▶
- Operating System ▼

Kernel Architecture	x86_64
Install Date	2022-02-09
Kernel Version	10.0.17763
Name	Microsoft Windows Server 2019 Standard
Latest Service Pack	0.0
Type	Windows
Vendor	Microsoft

Packages 

Configuration: labelpicker.yml

```
datasources:  
  Hardware-Software-Inventory:  
    module: lpds_hswtree  
    # CMK Label = <label_prefix>/<label>  
    # Example label_name: hsw/os_name  
    label_prefix: hsw  
    mapping:  
      - labelname: os_name  
        tree: [Software, Operating System, Name]
```


Resulting Label

hsw/os_name:Microsoft Windows Server 2019 Standard

LabelPicker - Hardware / Software Inventory

Add Label: Model

Checkmk Hardware / Software Inventory

Hardware 

Processor ▶

Memory (RAM) ▶

Network Adapters ▶

Storage ▶

System ▼

Manufacturer	HP
Product	Computergehäuse
Serial Number	CZ _ ■ ■ ■
Model Name	ProLiant DL380p Gen8
Family	

Graphic Cards ▶

Networking 

Software 

Configuration: labelpicker.yml

```
datasources:
```

```
Hardware-Software-Inventory:
```

```
  module: lpds_hswtree
```

```
  # CMK Label = <label_prefix>/<label>
```

```
  # Example label_name: hsw/os_vendor
```

```
  label_prefix: hsw
```

```
  mapping:
```

```
    - labelname: os_name
```

```
      tree: [Software, Operating System, Name]
```

```
    - labelname: model
```

```
      tree: [Hardware, System, Model Name]
```

Resulting Labels

hsw/os_name:Microsoft Windows Server 2019 Standard

hsw/model: ProLiant DL380p Gen8

LabelPicker - Hardware / Software Inventory

Modify Labels via Regex - Simple Example

Automatic defined Labels

hsw/os_name: Microsoft Windows Server 2019 Standard

hsw/os_name: Microsoft Windows Server 2016 Standard

hsw/os_name: Microsoft Windows Server 2012 R2 Standard



hsw/os_name: Win Server 2019 Standard

hsw/os_name: Win Server 2016 Standard

hsw/os_name: Ancient Server OS

Configuration: labelpicker.yml

mapping:

```
- labelname: os_name
```

```
  tree: [Software, Operating System, Name]
```

```
  match_group_filters:
```

```
    - ['Microsoft Windows Server 2012 R2 Standard', 'Ancient Server OS']
```

```
    - ['Microsoft Windows Server (.*)', 'Win Server \1']
```

LabelPicker - Hardware / Software Inventory

Modify Labels via Regex - more “advanced”

Labels

hsw/os_name:Microsoft Windows Server 2019 Standard

hsw/os_name:Microsoft Windows Server 2016 Standard

hsw/os_name:Microsoft Windows Server 2012 R2 Standard



hsw/os_name:Windows Server 2019 Edition - Standard

hsw/os_name:Windows Server 2016 Edition - Standard

hsw/os_name:Windows Server 2012 Edition - R2 Standard

Configuration: labelpicker.yml

```
- labelname: os_name
  tree: [Software, Operating System, Name]
  match_group_filters:
    - ['Microsoft (Windows Server) (\d{4}) (.*)', '\1\2 Edition - \3']
```

LabelPicker - VMware vSphere

Assign VMware Tags as Labels

VMware Tags for a VM

Tags ^

Zugewiesenes Tag	Kategorie	Beschreibung
Marc Meyer Data Center A11 Production Gold	system_responsible location environment sla	Test / Production Bronze, Silver, Gold

Label Key

Label Value



Example →

system_responsible

Marc Meyer



LabelPicker - VMware vSphere

Assign VMware Tags as Labels

VMware Tags of a VM

Tags

Zugewiesenes Tag	Kategorie
Marc Meyer	system_responsible
Data Center A11	location
Production	environment
Gold	sla

Configuration: labelpicker.yml

```
vcenter-xy:  
  module: lpsd_vsphere  
  label_prefix: vsphere  
  api_url: https://10.1.1.1/rest  
  api_user: cmk_read  
  api_pass: strongpassword
```


LabelPicker - VMware vSphere

Assign VMware Tags as Labels

VMware Tags of a VM

Tags

Zugewiesenes Tag	Kategorie
Marc Meyer	system_responsible
Data Center A11	location
Production	environment
Gold	sla

Configuration: labelpicker.yml

```
vcenter-xy:  
  module: lpsd_vsphere  
  label_prefix: vsphere  
  api_url: https://10.1.1.1/rest  
  api_user: cmk_read  
  api_pass: strongpassword
```

Resulting Labels

```
vsphere/environment:Production  
vsphere/location:Data Center A11  
vsphere/sla:Gold  
vsphere/system_responsible:Marc Meyer
```

Systemd Label Discovery



Examples to assign labels automatically

Systemd single services discovery

- Adding label discovery to the built-in "systemd single service discovery" Checkmk function
- Requested by the city of Munich and authorized for publication as open source → Thanks to it@M
- Currently available as dedicated mkp





Examples to assign labels automatically

Systemd single services discovery

- Extends the the discovery rule set by two fields:

Restrict by state

✘ Automatic generation of Host Labels

i Create Host Labels for each discovered systemd unit in the following format `cmk/systemd/<unit-name>`

active

✘ Explicit Host Label(s)

Examples to assign labels automatically

Systemd single services discovery



▼ Systemd single services discovery

Restrict by description

Restrict by service unit name



Regular expression match



pihole

Add new element

Restrict by state

Automatic generation of Host Labels

active

Explicit Host Label(s)

ad_block:true



Examples to assign labels automatically

Systemd single services discovery

Resulting Labels

cmk/systemd/pihole-FTL:true

ad_block:true



Try it out

Available on:



systemd-unit-labeldiscovery





<https://labelpicker.mk>



<https://github.com/automation-monitoring>



pl@automation-monitoring.com

Thank you!

Vielen Dank!



a
abraxas

Checkmk
Conference

x

