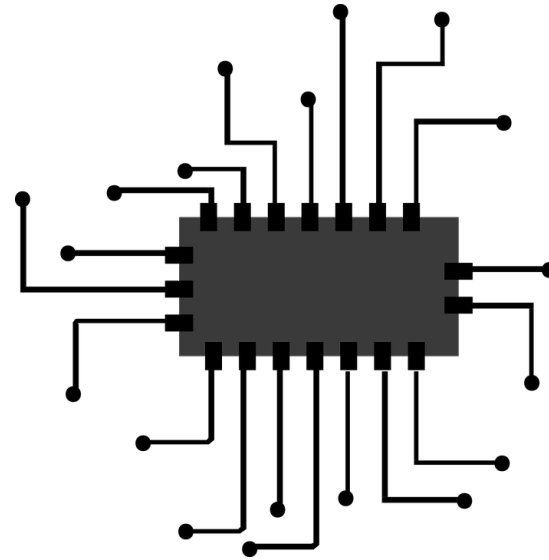


Low Level Discovery with Dependent items



Who am I?



Brian van Baekel
IT Consultant / Zabbix Trainer

Our presentation today

Introduction

1 – Low Level Discovery setup

2 – Dependent items

3 – Combing Low Level Discovery and Dependent items

Let's wrap things up

More content like this



Introduction

☐	Host	Name ▲	Items	Triggers	Graphs	Hosts	Key	Interval	Type	Status	Info
☐	Zabbix server	Template Module Linux block devices by Zabbix agent: Block devices discovery	Item prototypes 9	Trigger prototypes 1	Graph prototypes 3	Host prototypes	vfs.dev.discovery	1h	Zabbix agent	Enabled	
☐	Zabbix server	Template Module Linux filesystems by Zabbix agent: Mounted filesystem discovery	Item prototypes 4	Trigger prototypes 4	Graph prototypes 1	Host prototypes	vfs.fs.discovery	1h	Zabbix agent	Enabled	
☐	Zabbix server	Template Module Linux network interfaces by Zabbix agent: Network interface discovery	Item prototypes 8	Trigger prototypes 3	Graph prototypes 1	Host prototypes	net.if.discovery	1h	Zabbix agent	Enabled	
Displaying 3 of 3 found											

☐	Wizard	Name ▲	Triggers	Key	Interval	History	Trends	Type	Applications	Status	Info
☐		Mounted filesystem discovery: /: Free inodes in %	Triggers 2	vfs.fs.inode[/,pfree]	1m	7d	365d	Zabbix agent	Filesystem /	Enabled	
☐		Mounted filesystem discovery: /: Space utilization	Triggers 2	vfs.fs.size[/,pused]	1m	7d	365d	Zabbix agent	Filesystem /	Enabled	
☐		Mounted filesystem discovery: /: Total space	Triggers 2	vfs.fs.size[/,total]	1m	7d	365d	Zabbix agent	Filesystem /	Enabled	
☐		Mounted filesystem discovery: /: Used space	Triggers 2	vfs.fs.size[/,used]	1m	7d	365d	Zabbix agent	Filesystem /	Enabled	



1 - Low Level Discovery Setup

Discovery rule Preprocessing LLD macros Filters 4 Overrides

Parent discovery rules [Template Module Linux filesystems by Zabbix agent](#) ⇒ [Template OS Linux by Zabbix agent](#)

* Name	Mounted filesystem discovery
Type	Zabbix agent
* Key	vfs.fs.discovery

```
[
{
  "#{FSNAME}":"/sys",
  "#{FSTYPE}":"/sysfs"
},
{
  "#{FSNAME}":"/proc",
  "#{FSTYPE}":"/proc"
},
{
  "#{FSNAME}":"/dev",
  "#{FSTYPE}":"/devtmpfs"
},
{
  "#{FSNAME}":"/sys/kernel/config",
  "#{FSTYPE}":"/configfs"
},
{
  "#{FSNAME}":"/",
  "#{FSTYPE}":"/xfs"
},
{
  "#{FSNAME}":"/boot",
  "#{FSTYPE}":"/ext4"
},
{
  "#{FSNAME}":"/home",
  "#{FSTYPE}":"/xfs"
}
]
```



1 - Item Prototype

- LLD rule provides information
- Item Prototype uses that information to create items
- Items on our host are used for collecting data

Item prototype Preprocessing

* Name

Type

* Key

Type of information

Units

* Update interval

Custom intervals

Type	Interval	Period	Action
☒ Flexible	Scheduling	50s	1-7,00:00-24:00 Remove

[Add](#)

* History storage period

* Trend storage period

Show value [show value mappings](#)

New application

Applications

- None-
- CPU
- Filesystems
- General
- Memory
- Network interfaces
- OS
- Performance
- Processes
- Security

New application prototype

Application prototypes

- None-

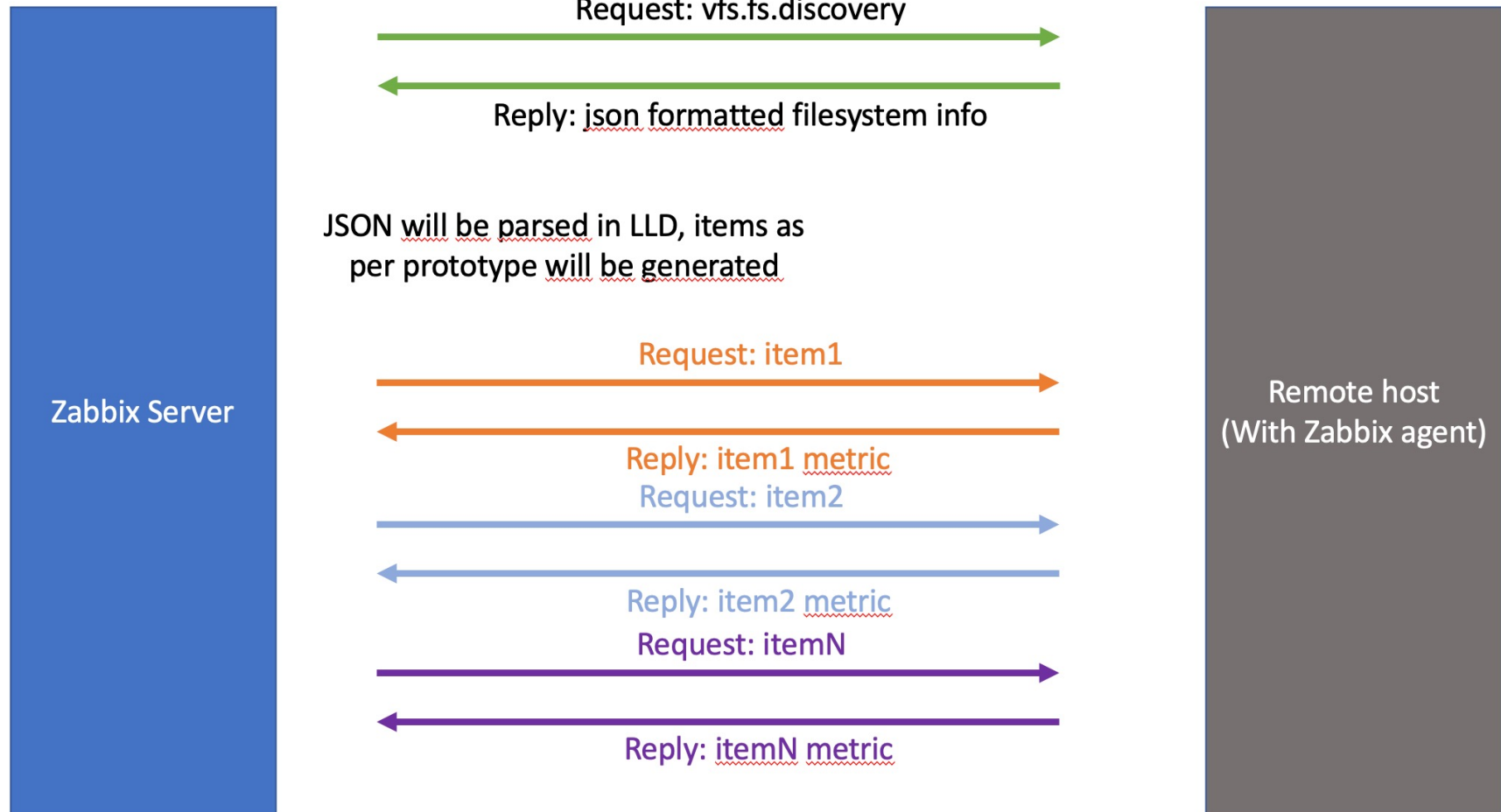
Description

Create enabled ☒

Discover ☒



1 - Overview



2 - Dependent items

- Master item for bulk data collection

```
ServerVersion: Apache/2.4.37 (centos)
ServerMPM: event
Server Built: Nov  4 2020 03:20:37
CurrentTime: Monday, 08-Mar-2021 14:35:20 CET
RestartTime: Monday, 08-Mar-2021 11:04:09 CET
ParentServerConfigGeneration: 1
ParentServerMPMGeneration: 0
ServerUptimeSeconds: 12671
ServerUptime: 3 hours 31 minutes 11 seconds
Load1: 0.01
Load5: 0.03
Load15: 0.00
Total Accesses: 1182
Total kBytes: 10829
Total Duration: 95552
CPUUser: 5.01
CPUSystem: 7.34
CPUChildrenUser: 0
CPUChildrenSystem: 0
CPULoad: .0974667
Uptime: 12671
ReqPerSec: .0932839
BytesPerSec: 875.14
BytesPerReq: 9381.47
DurationPerReq: 80.8393
BusyWorkers: 1
IdleWorkers: 99
Processes: 4
Stopping: 0
```

- Dependent items for filtering bulk data

Item	Preprocessing 1																				
	<table><thead><tr><th>Preprocessing steps</th><th>Name</th><th>Parameters</th><th>Custom on fail</th><th>Actions</th></tr></thead><tbody><tr><td>1:</td><td>Regular expression</td><td>BusyWorkers:\s+(\d+)</td><td>\1</td><td>☐</td></tr><tr><td></td><td></td><td></td><td></td><td>Test Remove</td></tr><tr><td></td><td></td><td></td><td></td><td>Test all steps</td></tr></tbody></table>	Preprocessing steps	Name	Parameters	Custom on fail	Actions	1:	Regular expression	BusyWorkers:\s+(\d+)	\1	☐					Test Remove					Test all steps
Preprocessing steps	Name	Parameters	Custom on fail	Actions																	
1:	Regular expression	BusyWorkers:\s+(\d+)	\1	☐																	
				Test Remove																	
				Test all steps																	



3 - Combing Low Level Discovery and Dependent items

Item Preprocessing

* Name

Type

* Key

* Host interface

Type of information

* Update interval

Custom intervals

Type	Interval	Period	Action
☒ Flexible ☐ Scheduling	50s	1-7,00:00-24:00	Remove
Add			

* History storage period

New application

Applications

```
[
{
  "fsname": "/",
  "fstype": "xfs",
  "bytes": {
    "total": 95516360704,
    "free": 55329644544,
    "used": 40186716160,
    "pfree": 57.926877,
    "pused": 42.073123
  },
  "inodes": {
    "total": 46661632,
    "free": 46535047,
    "used": 126585,
    "pfree": 99.728717,
    "pused": 0.271283
  }
},
{
  "fsname": "/home",
  "fstype": "xfs",
  "bytes": {
    "total": 5358223360,
    "free": 5286903808,
    "used": 71319552,
    "pfree": 98.668970,
    "pused": 1.331030
  },
  "inodes": {
    "total": 2621440,
    "free": 2621428,
    "used": 12,
    "pfree": 99.999542,
    "pused": 0.000458
  }
}
]
```

3 - Combing Low Level Discovery and Dependent items

Discovery rule

Preprocessing

LLD macros

Filters

Overrides

* Name

LLD filesystem

Type

Dependent item

* Key

discovery.filesystem

* Master item

Apache server status: Discovery - raw filesystem info

Select

* Keep lost resources period

30d

Description

Enabled

☒

3 - Combing Low Level Discovery and Dependent items

Discovery rule Preprocessing **LLD macros 2** Filters Overrides

LLD macros

LLD macro	JSONPath	
{#FSNAME}	\$.\$fsname	Remove
{#FSTYPE}	\$.\$fstype	Remove
Add		

Received JSON:

```
[
  {
    "fsname": "/",
    "fstype": "xfs",
    "bytes": {
      "total": 95516360704,
      "free": 55329644544,
      "used": 40186716160,
      "pfree": 57.926877,
      "pused": 42.073123
    }
  }
]
```

3 - Combing Low Level Discovery and Dependent items

Item prototype Preprocessing

* Name

Type

* Key

* Master item

Type of information

Units

* History storage period

* Trend storage period

Value mapping

New application

Applications

-None-

New application prototype

Application prototypes

-None-

Preprocessing step :

JSONPath:

`$.[?(@.fsname=='{#FSNAME}')].bytes.total.first()`

3 - Combing Low Level Discovery and Dependent items

Item Preprocessing

Discovered by LLD filesystem

* Name

Type

* Key

* Master item

Type of information

Units

* History storage period

* Trend storage period

Show value

Applications

Description

Enabled ☒

Resolved Preprocessing:

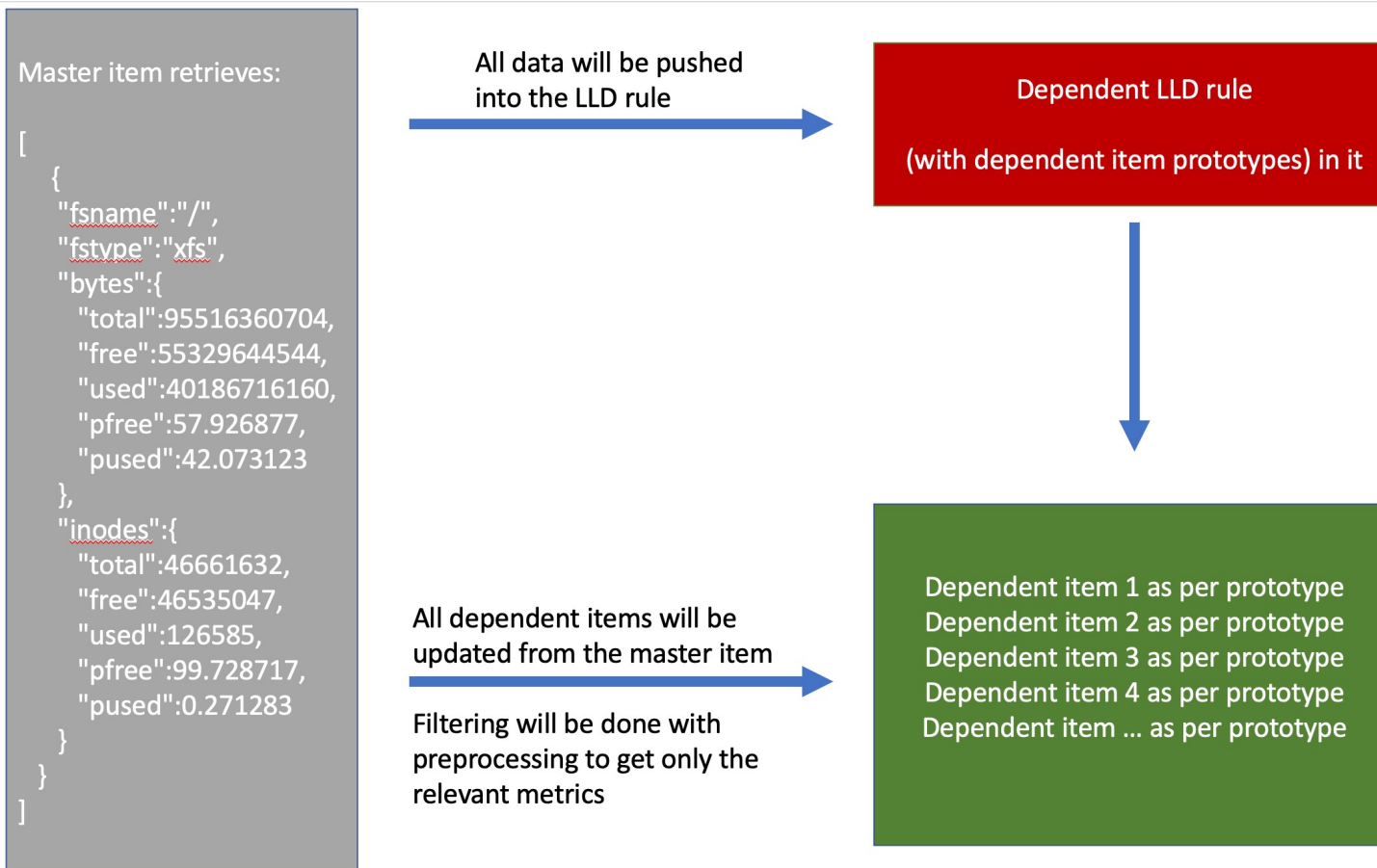
Name	Parameters
1: JSONPath	\$.[?(@.fsname=='/')].bytes.total.first()

Add

Received JSON:

```
[
  {
    "fsname":"/",
    "fstype":"xfs",
    "bytes":{
      "total":95516360704,
      "free":55329644544,
      "used":40186716160,
      "pfree":57.926877,
      "pused":42.073123
    }
  }
]
```

3 - Combing Low Level Discovery and Dependent items



3 - Combing Low Level Discovery and Dependent items

[Discovery rule](#) [Preprocessing 1](#) [LLD macros 2](#) [Filters](#) [Overrides](#)

Preprocessing steps	Name	Parameters	Custom on fail	Actions
1:	Discard unchanged with heartbeat	1h	☐	Test Remove
Add				
Update Clone Execute now Test Delete Cancel				

Let's wrap things up

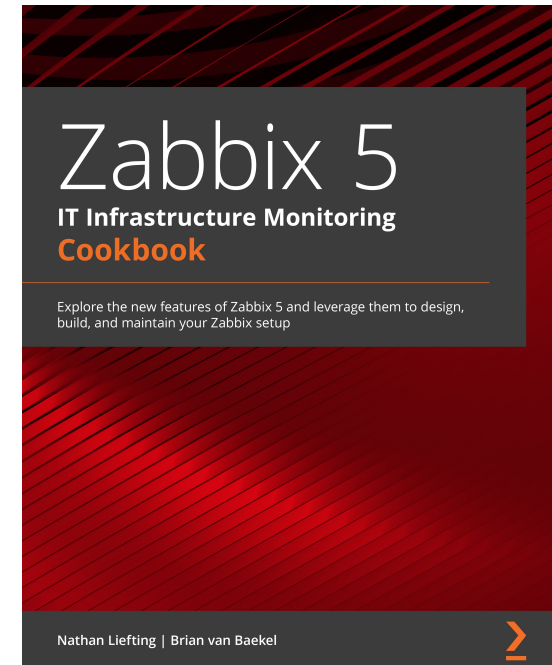
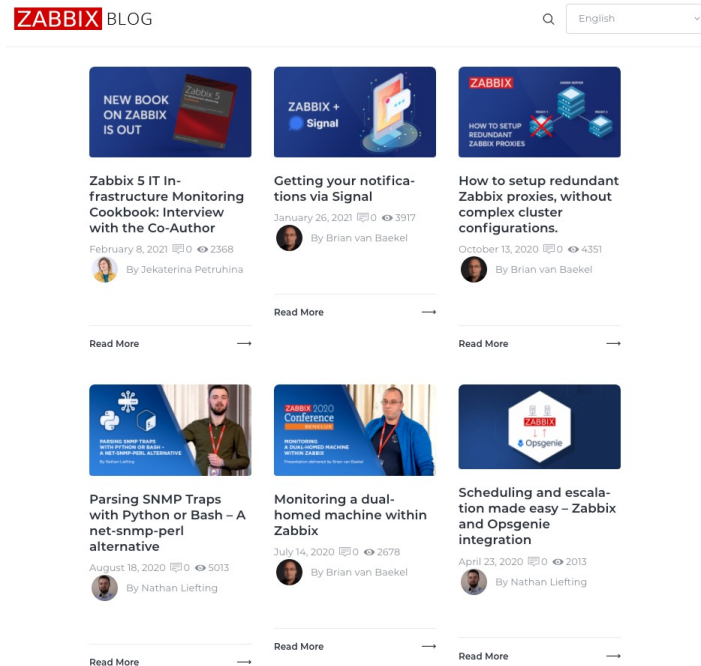
- Setup your normal Master item
- Setup your Low Level Discovery rule with LLD macros
- Setup Item Prototypes
- Filter using JSONPath and Preprocessing
- Enjoy!

For a complete text guide see:

<https://blog.zabbix.com/>



More content like this



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Questions?

