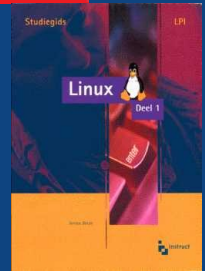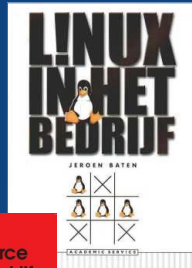# Using Zabbix LLD to save yourself a lot of work!

# Who am I?

- Jeroen Baten (English, Spanish: Yerun)
- Job title : IT Solutionist, company: i2rs
- Author of 8 books (2 more in beta)
- Dad of 5 girls
- (former) volunteer fire fighter
- Scouting
- Trainer, teacher (bachelor level university)
- Member of Angrynerds podcast team

# What do I do?

- Remote systems management
  - Monitoring
  - Backups
  - Sysadmin stuff
- Consultancy
- Teaching/training (Python, Web, Linux, etc)
- Writing (Books, blogs, articles)

# My main project

- LibrePlan
- Web-based project management appl.
- Very cool!

# Let me start with apologies first...

Talking the same language… can still cause a culture clash.
With respect to the code of conduct:
Please forgive me where applicable.
(Trick: Dutch people take everything literally!)

**ANGLO-DUTCH TRANSLATION GUIDE**

| WHAT THE BRITISH SAY | WHAT THE BRITISH MEAN | WHAT THE DUTCH UNDERSTAND |
|---|---|---|
| With all due respect … | I think you are wrong. | He is listening to me. |
| Perhaps you would think about … I would suggest … | This is an order. Do it or be prepared to justify yourself. | Think about this idea and do it if you like. |
| Oh, by the way … | The following criticism of the purpose of the discussion is … | This is not very important. |
| I was a bit disappointed that … | I am very upset and angry that … | It doesn't really matter. |
| Very interesting … | I don't like it. | They are impressed. |
| Could you consider some other options? | Your idea is not a good one. | They have not yet decided. |
| Please think about that some more. | It's a bad idea. Don't do it. | It's a good idea. Keep developing it. |
| I'm sure it's my fault. | It's not my fault. | It was their fault. |
| That is an original point of view. | Your idea is stupid. | They like my ideas! |

SOURCE NANETTE RIPMEESTER

HBR.ORG

# The first reason for this talk

- I get a new client:
  - Former admin used only WebMin
  - 98 Apache ServerAliases
  - 62 Apache ServerNames
  - In 17 config files
  - SSL cert files all over the place
- In short: it's a mess

# The second reason for this talk

- I run a server with multiple websites
- Most are WordPress
- They are all separated instances
- How to know when to update/patch
  - WordPress major update
  - Plugin update
  - Theme update

# So, what is this LLD stuff?

- LLD = Low Level Discovery

- How does this work?

  - You create a check that returns a JSON array

  - You use the returned values in additional/prototype items and -triggers

# Example with WordPress

- Open template:
- Locate "Discovery" and click to open...

# Good to know:

- A LLD has a name
- A LLD has it's own items and triggers
- But these are "prototypes"!
- Let's open the first LLD by it's name...



ZABBIX  Monitoring  Inventory  Reports  Configuration  Administration    🔍  🎧 Support  ⚡Share  ?  👤  ⏻

Host groups  Templates  **Hosts**  Maintenance  Actions  Event correlation  Discovery  Services    zabbix server

## Discovery rules

Create discovery rule

All templates / All i2rs web check    Applications 2    Items 1    Triggers    Graphs    Screens    Discovery rules 1    Web scenarios

| | Name ▲ | Items | Triggers | Graphs | Hosts | Key | Interval | Type | Status |
|---|---|---|---|---|---|---|---|---|---|
| ☐ | LLD wordpress sites on server | Item prototypes 6 | Trigger prototypes 3 | Graph prototypes | Host prototypes | wp.sites | 4h | Zabbix agent | Enabled |

Displaying 1 of 1 found

# The first step in a LLD

- Getting the data!
- I use the normal agent
- I use a new key "wp.sites" created with userparameter file
- I set interval to 4 hours
- let's look at the userparameter "wp.sites"

# Userparameter on client

- UserParameter=wp.sites,/usr/local/sbin/ generate_list_of_wordpress_sites.sh

# Script contents

```bash
#!/bin/bash
echo "{"
echo '"data": ['
fmt="{\"{#%s}\": %s,\"{#%s}\": %s,\"{#%s}\": %s}"
first=0
for file in $( ls /etc/apache2/sites-enabled/*.conf )
do
  while read -a line
  do
   case ${line[0]} in
     \<VirtualHost)
       vhost=${line[1]:0:(-1)}
       if [[ $vhost == *"80"* ]]; then
  prot="http"
fi
       if [[ $vhost == *"443"* ]]; then
  prot="https"
fi
       ;;
     ServerName)
       servername=${line[1]}
       ;;
```

```bash
     DocumentRoot)
docroot=${line[1]}
       \</VirtualHost\>)
if [[ ${#docroot} -gt 0 ]];
;;then
  if [[ $first -ne 0 ]]; then
    echo ","
        fi
  first=1
        printf "$fmt" HOST "\"${servername}\"" PROTO \
                 "\"${prot}\"" DOCROOT "${docroot}"
        printf "\n"
fi
     ;;
   esac
  done < $file
done
echo ""
echo "]"
echo "}"
```

# Script output

- Macro's: #HOST, #PROTO, #DOCROOT
- These macro's are later used in "LLD item prototypes"

```
{
"data": [
{"{#HOST}": "angrynerdspodcast.nl","{#PROTO}": "http","{#DOCROOT}": "/srv/www/default"}

,
{"{#HOST}": "angrynerdspodcast.nl","{#PROTO}": "https","{#DOCROOT}":
"/srv/www/http-angrynerdspodcast.nl/wordpress/"}

,
{"{#HOST}": "www.i2rs.nl","{#PROTO}": "http","{#DOCROOT}": "/srv/www/http-www.i2rs.nl/wordpress/"}

,
{"{#HOST}": "www.i2rs.nl","{#PROTO}": "https","{#DOCROOT}": "/srv/www/http-www.i2rs.nl/wordpress/"}


]
}
```

# Item prototype examples

- Check if site in DNS
- Check WP plugins/themes
- Example: wp.updatecli
- Dependent items: wp.update_plugins



ZABBIX    Monitoring    Inventory    Reports    Configuration    Administration    🔍    🎧 Support    Z Share    ?    👤    ⏻

Host groups    Templates    Hosts    Maintenance    Actions    Event correlation    Discovery    Services    zabbix server

## Item prototypes                                                                                    Create item prototype

All templates / All i2rs web check / Discovery list / LLD wordpress sites on server    Item prototypes 6    Trigger prototypes 3    Graph prototypes    Host prototypes

| | Wizard | Name ▲ | Key | Interval | History | Trends | Type | Applications | Create enabled |
|---|---|---|---|---|---|---|---|---|---|
| ☐ | ••• | Checking DNS existence of {#HOST} | net.dns.record[,{#HOST},A] | 4h | 90d | | Zabbix agent | Apache | Yes |
| ☐ | ••• | Wordpress update info for {#HOST}: Wordpress plugin update info for {#HOST} | wp.update_plugins[{#HOST}] | | 90d | 365d | Dependent item | Apache | Yes |
| ☐ | ••• | Wordpress update info for {#HOST}: Wordpress theme update info for {#HOST} | wp.update_themes[{#HOST}] | | 90d | 365d | Dependent item | Apache | Yes |
| ☐ | ••• | Wordpress update info for {#HOST}: Wordpress total update info for {#HOST} | wp.update_total[{#HOST}] | | 90d | 365d | Dependent item | Apache | Yes |
| ☐ | ••• | Wordpress update info for {#HOST} | wp.updatecli[{#DOCROOT}] | 4h | 90d | | Zabbix agent | Apache | Yes |
| ☐ | ••• | Wordpress update info for {#HOST}: Wordpress wordpress update info for {#HOST} | wp.update_wordpress[{#HOST}] | | 90d | 365d | Dependent item | Apache | Yes |

Displaying 6 of 6 found

# wp.updatecli

- Item key= wp.updatecli[{#DOCROOT}]

- UserParameter=wp.updatecli[*],php $1/wp-zabbix.php

- php /srv/www/http-www.i2rs.nl/wordpress/wp-zabbix.php

- Output:
  `{"plugins":3,"themes":0,"wordpress":0,"translations":0,"total":3}`

- Using this for later dependent items

# wp.update_plugins

- Dependent item (depending on wp.updatecli item)
- Needs Preprocessing to find needed valua

# Trigger prototype

Expression:

{All i2rs web check:wp.update_wordpress[{#HOST}].last()}>0

# Results

- Monitoring->Dashboard

| 2020-01-15 23:58:19 | PROBLEM | www-and-mail-server | Wordpress plugins need update for www.jeroenbaten.nl | 1d 15h 39m | No |
| 2020-01-15 19:58:26 | PROBLEM | www-and-mail-server | Wordpress plugins need update for ██████████████ | 1d 19h 39m | No |
| 2020-01-14 03:58:17 | PROBLEM | www-and-mail-server | Wordpress plugins need update for www.i2rs.nl | 3d 11h 39m | No |

# Results

- Configuration→Hosts→Items
- From LLD item prototypes created items.
- Items can be deleted. LDD will create again



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ☐ | LLD wordpress sites on server: Wordpress update info for www.i2rs.nl: Wordpress total update info for www.i2rs.nl | | wp.update_total[www.i2rs.nl] | 90d | 365d | Dependent item | Apache | Enabled |
| ☐ | LLD wordpress sites on server: Wordpress update info for www.i2rs.nl: Wordpress wordpress update info for www.i2rs.nl | Triggers 1 | wp.update_wordpress[www.i2rs.nl] | 90d | 365d | Dependent item | Apache | Enabled |
| ☐ | LLD wordpress sites on server: Wordpress update info for www.i2rs.nl: Wordpress theme update info for www.i2rs.nl | Triggers 1 | wp.update_themes[www.i2rs.nl] | 90d | 365d | Dependent item | Apache | Enabled |
| ☐ | LLD wordpress sites on server: Wordpress update info for www.i2rs.nl: Wordpress plugin update info for www.i2rs.nl | Triggers 1 | wp.update_plugins[www.i2rs.nl] | 90d | 365d | Dependent item | Apache | Enabled |

# Results

- Monitoring→Latest data
- (Yes, this is when I made this presentation)

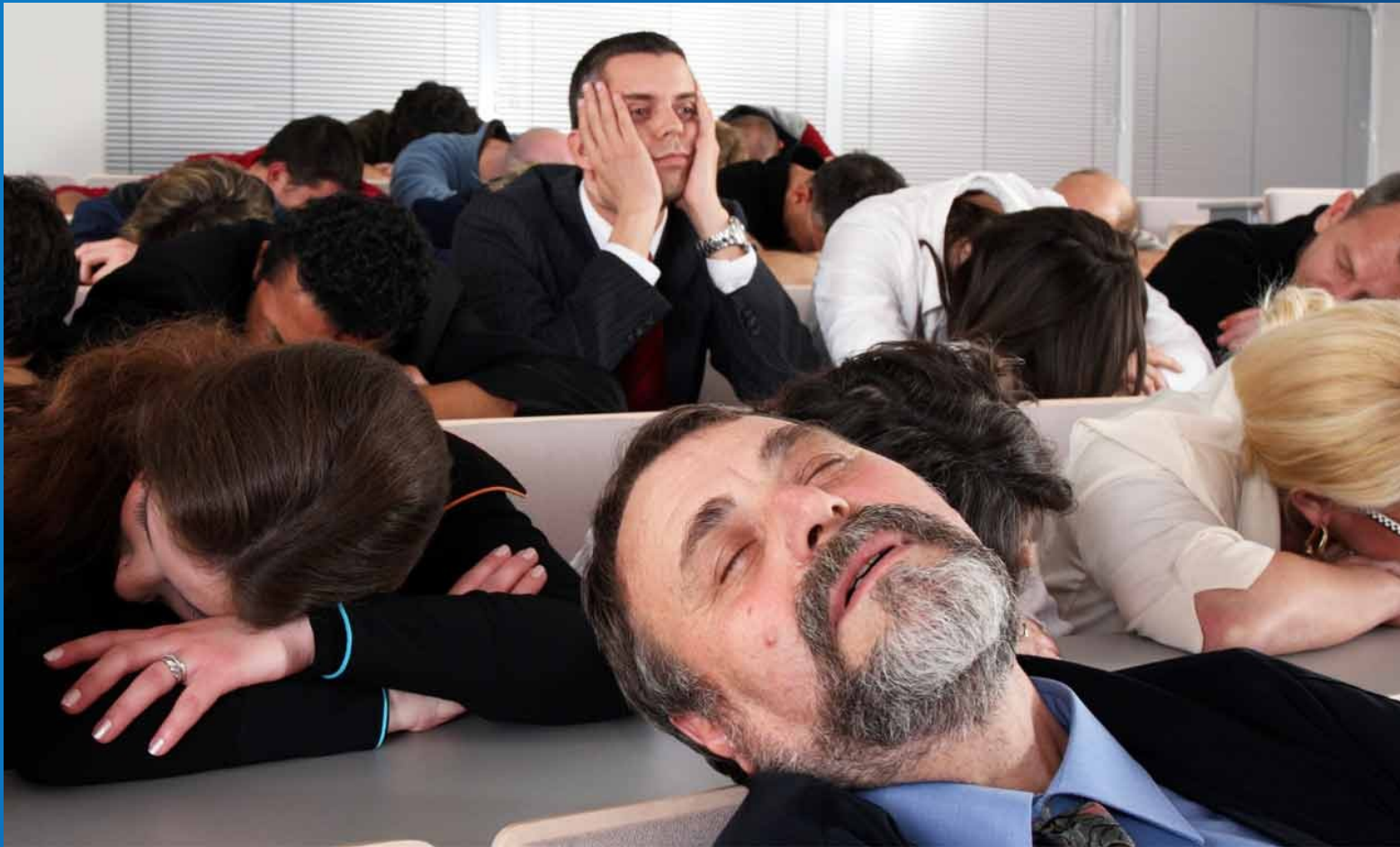| | Wordpress plugin update info for ww... wp.update_plugins[www.i2rs.nl] | 365d | 365d | Dependent i... | 2020-01-17 11:58:17 | 3 |
|---|---|---|---|---|---|---|
| | Wordpress theme update info for w... wp.update_themes[www.i2rs.nl] | 365d | 365d | Dependent i... | 2020-01-17 11:58:17 | 0 |
| | Wordpress total update info for www... wp.update_total[www.i2rs.nl] | 365d | 365d | Dependent i... | 2020-01-17 11:58:17 | 3 |

# Since that day…

- I solved the client case with the crappy Apache config to monitor all their sites.

- Keep track of remaining lifetime of SSL certs for that client

- Keep track of remaining lifetime of SSL certs for my own sites

- New brain rule: how can I make this into a LDD?

# Tools you (really!)need

- Zabbix (duh)
- The "jq" program to check JSON output

# Thank you for your attention



## Questions for me?: jeroen@i2rs.nl