

LABCON

Nagios Installation

LabCon Integration

1 History

Version	Date	Changes	Status
V1.00	02/23/17	Developed	Release

2 Legal

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4 General

This manual describes the integration of LabCon ® into a Nagios environment.

A Ubuntu 16.04.2 LTS system platform has been selected for the installation of LabCon® for Nagios.

4.1 Target Group

This document is intended for system administrators integrating LabCon® in Nagios.

4.2 Criteria

- the ZBG-100 gateway must be accessible
- Linux and the Bash shell experience.

4.3 Software Versions

ZBG-100	4.00.00 - Build 4985
Ubuntu	16.04.2 LTS
Apache	2.4.18
php	7.0
nagios	3.5.1
pn4nagios	0.6.24

5 Server preparation

5.1 Programs and Libraries

5.1.1 Installation from Ubuntu's repository

The following programs and libraries have to be installed:

- nagios3
- nagios-nrpe-plugin
- nagios-nrpe-server
- make
- rrdtool
- librrds-perl
- g++ libapache2-mod-php
- php
- php-cli
- php-gd
- php7.0-simplexml
- unzip

```
sudo apt-get install nagios3 nagios-nrpe-plugin nagios-nrpe-server make rrdtool librrds-perl g++ libapache2-mod-php php php-cli php-gd php7.0-simplexml unzip
```

5.1.2 pnp4nagios

pnp4nagios is not a part of Ubuntu. It has to be compiled and installed manually:

```
mkdir ~/ src
cd ~/ src
wget http://downloads.sourceforge.net/project/pnp4nagios/PNP-0.6/pnp4nagios-0.6.24.tar.gz
tar -xzvf pnp4nagios-0.6.24.tar.gz
cd pnp4nagios-0.6.24/
./configure
make all
sudo make fullinstall
```

The location of the apache server changed. The configuration for the pnp4nagios has to be moved and enabled manually:

```
sudo mv /etc/httpd/conf.d/pnp4nagios.conf /etc/apache2/sites-available/
cd /etc/apache2/sites-enabled/
sudo ln -s ../sites-available/pnp4nagios.conf
```

Change the .htaccess path in this file to:

```
AuthUserFile /etc/nagios3/htpasswd.users
```

Enable the Apache Rewrite Module

```
sudo a2enmod rewrite
```

and restart apache.

```
sudo service apache2 restart
```

Check the installation in your browser:

<http://<ubuntu ip>/pnp4nagios>

PNP4Nagios Environment Tests

The following options are determined by "configure". If any of the tests have failed, consult the [documentation](#) for more information on how to correct the problem.

PNP4Nagios Version	pnp4nagios-0.6.24
Prefix	/usr/local/pnp4nagios
Configure Arguments	./configure
RRD Storage	/usr/local/pnp4nagios/var/perfdata is readable.
RRDtool Binary	/usr/bin/rrdtool is executable by PHP
PHP GD extension	Pass
PHP function proc_open()	Pass
PHP zlib extension	Pass
PHP session extension	Pass
PHP JSON extension	Pass
PHP magic_quotes_gpc	Off
PHP socket extension	Pass
Apache Rewrite Module	Pass

Kohana Environment Tests

The following tests have been run to determine if Kohana will work in your environment. If any of the tests have failed, consult the [documentation](#) for more information on how to correct the problem.

PHP Version	7.0.13-0ubuntu0.16.04.1
System Directory	/usr/local/pnp4nagios/lib/kohana/system/
Application Directory	/usr/local/pnp4nagios/share/application/
Reflection Enabled	Pass
Iconv Extension Loaded	Pass
URI Determination	Pass

Your environment passed all requirements. Remove or rename the /usr/local/pnp4nagios/share/install.php file now.

If all is OK, remove the install.php:

```
sudo mv /usr/local/pnp4nagios/share/install.php  
/usr/local/pnp4nagios/share/install.php.bak
```

5.2 Nagios Preparation

Create the LabCon working directory:

```
sudo mkdir -p /usr/local/labcon/config
```


Change the Nagios settings:

```
sudo vi /etc/nagios3/nagios.cfg
```

5.2.1 Add

```
# Labcon  
cfg_dir=/usr/local/labcon/config
```

5.2.2 Change Settings

```
process_performance_data=1  
check_external_commands=1  
check_result_reaper_frequency=1
```

5.2.3 Uncomment

```
host_perfdata_command=process-host-perfdata  
service_perfdata_command=process-service-perfdata
```

5.3 Change Performance Data Settings

```
sudo vi /etc/nagios3/commands.cfg
```

Change from:

```
# 'process-host-perfdata' command definition  
define command{  
    command_name    process-host-perfdata  
    command_line    /usr/bin/printf "%b"  
    "$LASTHOSTCHECK$\t$HOSTNAME$\t$HOSTSTATE$\t$HOSTATTEMPT$\t$HOSTSTATETYPE$\t$HOSTEXECUTIO  
NTIME$\t$HOSTOUTPUT$\t$HOSTPERFDATA$\n" >> /var/lib/nagios3/host-perfdata.out  
}  
  
# 'process-service-perfdata' command definition  
define command{  
    command_name    process-service-perfdata  
    command_line    /usr/bin/printf "%b"  
    "$LASTSERVICECHECK$\t$HOSTNAME$\t$SERVICEDESC$\t$SERVICESTATE$\t$SERVICEATTEMPT$\t$SERVI  
CESTATETYPE$\t$SERVICEEXECUTIONTIME$\t$SERVICELATENCY$\t$SERVICEOUTPUT$\t$SERVICEPERFDAT  
A$\n" >> /var/lib/nagios3/service-perfdata.out  
}
```

to:

```
define command {
    command_name    process-service-perfdata
    command_line    /usr/bin/perl /usr/local/pnp4nagios/libexec/process_perfdata.pl
}


define command {
    command_name    process-host-perfdata
    command_line    /usr/bin/perl /usr/local/pnp4nagios/libexec/process_perfdata.pl
}
-d HOSTPERFDATA
}
```

5.4 ZBG-100 Initial configuration

Go to the ZBG website to “Communication” → “Nagios and Icinga” and change the settings to:

Nagios/Icinga Settings:	/usr/local/pnp4nagios/var/perfdata/
PNP4Nagios Server Path from www root:	pnp4nagios
Path to external Command File	/var/lib/nagios3/rw/
Timing Interval Length (nagios.cfg)	60

You are on host labcon-gw
192.168.8.104 Full Version



- Home
- WSN Configuration
- Communication
- SNMP
- CSV
- Nagios and Icinga
- Modbus
- E-Mail
- MQTT
- Monitoring
- System
- About

Nagios/Icinga Settings

PNP4Nagios Performance Data Path	<input type="text" value="/usr/local/pnp4nagios/var/perfdata/"/>
	<small>e.g. /var/lib/pnp4nagios/perfdata/</small>
PNP4Nagios Server Path from www root	<input type="text" value="pnp4nagios"/>
	<small>e.g. pnp4nagios</small>
Path to external Command File (nagios.cmd)	<input type="text" value="/var/lib/nagios3/rw/"/>
	<small>e.g. /var/lib/nagios3/rw/</small>
Timing Interval Length (nagios.cfg)	<input type="text" value="60"/>
	<small>e.g. 60</small>
Initial Config ⚠	<input type="button" value="Generate"/> ✔
	<input type="button" value="Apply"/> <input type="button" value="Download"/>

Then press “Apply”, “Generate” and “Download”.

Copy the zip-archive to the server and unzip it to “/usr/local/labcon”

```
cd /usr/local/labcon/  
sudo unzip ~/<ZBG-100 name>_custom_config.zip
```

5.5 Network name

The LabCon scripts have to know the name of the ZBG-100-Gateway. The easiest way is to add it to the “/ets/hosts”:

```
sudo vi /ets/hosts
```

→ Add e.g.:

```
192.168.0.100    labcon-gw
```

6 Integration of LabCon

6.1 Menu Integration

The LabCon Menu have to be linked into the Nagios menu:

```
sudo ln -s /usr/local/labcon/nagios/labcon_menu.php  
/usr/share/nagios3/htdocs/labcon_menu.php
```

Insert the content of “/usr/local/labcon/nagios/insert_to_side.php.txt” into “/usr/share/nagios3/htdocs/side.php” direct after the line 85.

6.2 Apache

Tell the Apache where to find the LabCon website source:

```
cd /etc/apache2/sites-enabled/  
sudo ln -s /usr/local/labcon/apache2/labcon.conf
```

And change the security rule for Apache version 2.4:

```
sudo vi /usr/local/labcon/apache2/labcon.conf
```

From:

```
Alias /labcon /usr/local/labcon/www
<Directory /usr/local/labcon/www/>
    Options FollowSymLinks MultiViews
    AllowOverride None
    Order allow,deny
    allow from all
</Directory>
```

To:

```
Alias /labcon /usr/local/labcon/www
<Directory /usr/local/labcon/www/>
    Options FollowSymLinks MultiViews
    AllowOverride None
    Require all granted
</Directory>
```

If your NIC name, which is for the apache server, is different than eth0, change it in

```
/usr/local/labcon/www/defaults.py
```

in line 6 to e.g.:

```
NETWORKINTERFACE = 'enp0s3'
```

Restart the Apache and the Nagios

```
sudo service nagis3 restart
sudo service apache2 restart
```

7 Sensor Configuration

Switch to the Nagios page on the Server. The sidebar should now contain the LabCon Menu.

<http://<server ip>/nagios3/>

Under “Sensor / Device” you can now select the devices which should be logged:

The screenshot shows the Nagios web interface. On the left is a sidebar with a menu including 'General', 'Current Status', 'Tactical Overview', 'Map', 'Hosts', 'Services', 'Host Groups', 'Service Groups', 'Problems', 'Configuration', 'Monitoring', and 'Misc'. The main content area is titled 'Physical Device Overview' and contains a table of devices. The table has the following columns: MAC, PID, ID, SN, Nagios Config Gener., Active, Lost Message Counter, Device initialized, and Select. The data rows are as follows:

MAC	PID	ID	SN	Nagios Config Gener.	Active	Lost Message Counter	Device initialized	Select
0013a20040767ee0	ZBS-110	NQ-HALLE-L1	ZBS110000000	No		133	Yes	<input checked="" type="checkbox"/>
0013a200407b5d7b	ZBS-110	Drucker	110V2105716	Yes		2	Yes	<input checked="" type="checkbox"/>
0013a200408a1eba	ZBS-121	LAGER	ZBS121007469	No		0	Yes	<input checked="" type="checkbox"/>
0013a200408a1ebc	ZBS-121	EingangHalle	ZBS121007468	No		3	Yes	<input checked="" type="checkbox"/>
0013a200409c5a01	ZBS-122	SRD-INSIDE	ZBS122000000	No			No	<input type="checkbox"/>

Below the table are buttons: 'Disable Joining', 'Node Discover', 'Refresh', 'Remove Offline Dev', and 'Default'. At the bottom, there is a 'Command:' input field with buttons: 'Send Command', 'Collect Answers', and 'Clear Output'.

After selection scroll down and click on “Save & Next”.

On the next page you can create some virtual sensor. For further information please refer to the Handbook (Chap. “Virtual Devices”).

On the next two pages go on with “Next”

You are on host labcon-gw
192.168.8.104 Full Version

Step 4/4: Generate and Download Nagios Configuration

Here you can generate and download the whole Nagios configuration, consisting of host config, service config and group config.

Generate 

After config file has been generated:

Download

the file **here:** https://192.168.8.104/tmp/labcon-gw_custom_config.zip **or** transfer the file via WinSCP or SSH from **here:** `/var/www/tmp/labcon-gw_custom_config.zip`

Back

On step 4/4 press the “Generate” button. If it is successfully generated switch to the server console for an update.

```
cd /usr/local/labcon/  
sudo ./update_config.sh
```

Confirm the replacement of all files with “A”.

Now the services are in Nagios and will be monitored.

You can check the services in Nagios under “Current Status” → “Services”

8 Troubleshooting

8.1 *No Graphs in LanCon*

- Check if PNP4Nagios is working
`http://<server ip>/pnp4nagios`
- Check the round robin database
`/usr/local/pnp4nagios/var/perfdata/<host name>/<service name>.rrd`
- Check if the apache's listen nic the same who is named in
`/usr/local/labcon/www/defaults.py`