

# How To Use The Nagios XI BPI Addon For Nagios Core

## Purpose

This document describes how to use the Nagios XI BPI Addon for Nagios Core.

**IMPORTANT:** Nagios XI comes with Nagios BPI by default! Do NOT try to install or upgrade the component using the steps outlined below. This will break your component! Please refer to the following documentation for Nagios XI:

[Using BPI In Nagios XI](#)

## Downloading And Installing Nagios BPI for Nagios Core

The following steps have been tested on Nagios Core 4.3.4 running on CentOS 7 using the following installation guide:

[Installing Nagios Core From Source](#)

Establish a terminal session to your Nagios Core server as **root** and execute the following commands:

```
cd ~
wget https://github.com/NagiosEnterprises/nagiosbpi/archive/master.tar.gz
tar xzf master.tar.gz
```

Move the entire `nagiosbpi` folder to the location that is accessible by your webserver:

```
mv ~/nagiosbpi-master/nagiosbpi /var/www/html/
```

Set the permissions:

```
cd /var/www/html/nagiosbpi
mkdir tmp
chmod +x set_bpi_perms.sh
./set_bpi_perms.sh
chown -R apache:nagios /var/www/html/nagiosbpi/
```

Edit the contents of the `constants.conf` file to match your directory locations. Use absolute directory locations, for example:

```
STATUSFILE=/usr/local/nagios/var/status.dat
OBJECTSFILE=/usr/local/nagios/var/objects.cache
CONFIGFILE=/var/www/html/nagiosbpi/bpi.conf
CONFIGBACKUP=/var/www/html/nagiosbpi/bpi.conf.backup
```

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```
XMLOUTPUT=/var/www/html/nagiosbpi/tmp/bpi.xml
```

You will now be able to access Nagios BPI from your web browser using the following URL:

```
http://<yourserver>/nagiosbpi
```

An example config will be shown. From here you can start creating new BPI groups using the built-in configuration tools.

## Understanding the BPI Group Logic

The Nagios BPI groups can be a flexible tool for determining a "real" network state for a group of services.

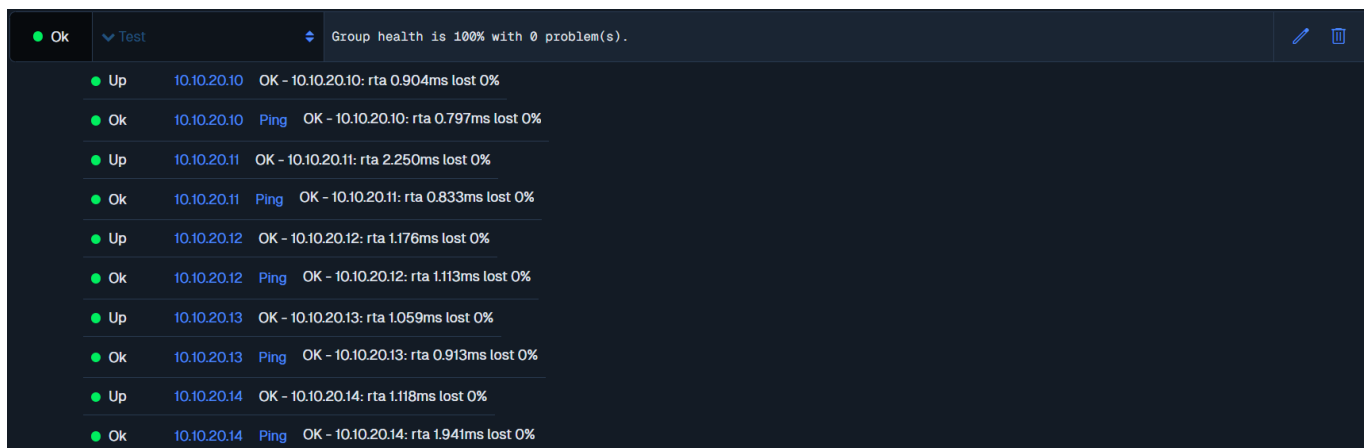
Dependencies are highly customizable and the logic for determining a group state can be defined by the user.

### Factors that create a 'Warning' or 'Critical' state

- All non-essential members are in a problem state
- Any "Essential members" are in a problem state
- The group's problem count exceeds the **Warning Threshold**
- The group's problem count exceeds the **Critical Threshold**

### A Basic BPI Group

This is a test group with 5 hosts. The group has no thresholds set, and there are no essential members. Since there are still some members in an 'Ok' state, the group state is listed as 'Ok.'



Group State	Group Name	Group Health	Group Problems
● Ok	Test	Group health is 100% with 0 problem(s).	0

Host State	Host IP	Host Status	Host Details
● Up	10.10.20.10	OK	10.10.20.10: rta 0.904ms lost 0%
● Ok	10.10.20.10	Ping	OK - 10.10.20.10: rta 0.797ms lost 0%
● Up	10.10.20.11	OK	10.10.20.11: rta 2.250ms lost 0%
● Ok	10.10.20.11	Ping	OK - 10.10.20.11: rta 0.833ms lost 0%
● Up	10.10.20.12	OK	10.10.20.12: rta 1.176ms lost 0%
● Ok	10.10.20.12	Ping	OK - 10.10.20.12: rta 1.113ms lost 0%
● Up	10.10.20.13	OK	10.10.20.13: rta 1.059ms lost 0%
● Ok	10.10.20.13	Ping	OK - 10.10.20.13: rta 0.913ms lost 0%
● Up	10.10.20.14	OK	10.10.20.14: rta 1.118ms lost 0%
● Ok	10.10.20.14	Ping	OK - 10.10.20.14: rta 1.941ms lost 0%

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## A Group Using Thresholds

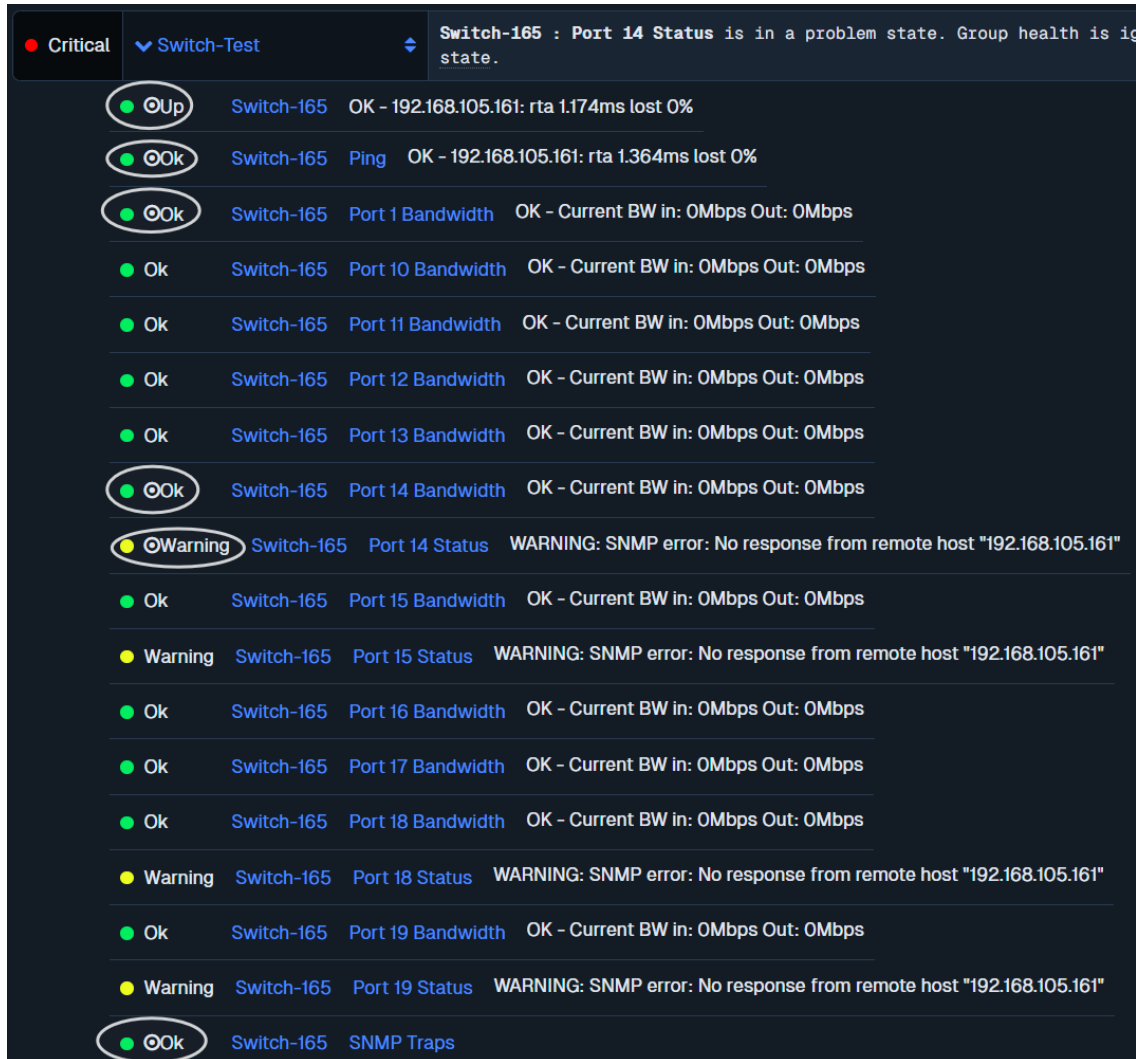
This next group has no essential members, but it has a warning threshold set at 2 problems, and a critical threshold set at 4 problems. Since the problem count of the group's members exceeds the critical threshold, the group state is 'Critical.'

State	Host	Service	Description
Critical	Switch-Test	Group health below critical threshold of 80%! Health is 77.78% with 4 problem(s).	
Up	Switch-165	OK - 192.168.105.161: rta 3.383ms lost 0%	
Ok	Switch-165	Ping	OK - 192.168.105.161: rta 1.164ms lost 0%
Ok	Switch-165	Port 1 Bandwidth	OK - Current BW in: 0Mbps Out: 0Mbps
Ok	Switch-165	Port 10 Bandwidth	OK - Current BW in: 0Mbps Out: 0Mbps
Ok	Switch-165	Port 11 Bandwidth	OK - Current BW in: 0Mbps Out: 0Mbps
Ok	Switch-165	Port 12 Bandwidth	OK - Current BW in: 0Mbps Out: 0Mbps
Ok	Switch-165	Port 13 Bandwidth	OK - Current BW in: 0Mbps Out: 0Mbps
Ok	Switch-165	Port 14 Bandwidth	OK - Current BW in: 0Mbps Out: 0Mbps
Warning	Switch-165	Port 14 Status	WARNING: SNMP error: No response from remote host "192.168.105.161"
Ok	Switch-165	Port 15 Bandwidth	OK - Current BW in: 0Mbps Out: 0Mbps
Warning	Switch-165	Port 15 Status	WARNING: SNMP error: No response from remote host "192.168.105.161"
Ok	Switch-165	Port 16 Bandwidth	OK - Current BW in: 0Mbps Out: 0Mbps
Ok	Switch-165	Port 17 Bandwidth	OK - Current BW in: 0Mbps Out: 0Mbps
Ok	Switch-165	Port 18 Bandwidth	OK - Current BW in: 0Mbps Out: 0Mbps
Warning	Switch-165	Port 18 Status	WARNING: SNMP error: No response from remote host "192.168.105.161"
Ok	Switch-165	Port 19 Bandwidth	OK - Current BW in: 0Mbps Out: 0Mbps
Warning	Switch-165	Port 19 Status	WARNING: SNMP error: No response from remote host "192.168.105.161"
Ok	Switch-165	SNMP Traps	

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## A Group Using Essential Members

This group has 2 essential members defined, which are denoted with a  next to their state. If an essential member has a problem, the entire group will be in a problem state, even though the thresholds have not been exceeded, and there is only one problem.



Group Status	Group Name	Service Name	Service Status	Service Details	
Critical	Switch-Test	Switch-165	OK	OK - 192.168.105.161: rta 1.174ms lost 0%	
		Switch-165	OK	Ping OK - 192.168.105.161: rta 1.364ms lost 0%	
		Switch-165	OK	Port 1 Bandwidth OK - Current BW in: 0Mbps Out: 0Mbps	
		Switch-165	OK	Port 10 Bandwidth OK - Current BW in: 0Mbps Out: 0Mbps	
		Switch-165	OK	Port 11 Bandwidth OK - Current BW in: 0Mbps Out: 0Mbps	
		Switch-165	OK	Port 12 Bandwidth OK - Current BW in: 0Mbps Out: 0Mbps	
		Switch-165	OK	Port 13 Bandwidth OK - Current BW in: 0Mbps Out: 0Mbps	
		Switch-165	OK	Port 14 Bandwidth OK - Current BW in: 0Mbps Out: 0Mbps	
		Switch-165	Warning	Port 14 Status	WARNING: SNMP error: No response from remote host "192.168.105.161"
		Switch-165	OK	Port 15 Bandwidth OK - Current BW in: 0Mbps Out: 0Mbps	
		Switch-165	Warning	Port 15 Status	WARNING: SNMP error: No response from remote host "192.168.105.161"
		Switch-165	OK	Port 16 Bandwidth OK - Current BW in: 0Mbps Out: 0Mbps	
		Switch-165	OK	Port 17 Bandwidth OK - Current BW in: 0Mbps Out: 0Mbps	
		Switch-165	OK	Port 18 Bandwidth OK - Current BW in: 0Mbps Out: 0Mbps	
		Switch-165	Warning	Port 18 Status	WARNING: SNMP error: No response from remote host "192.168.105.161"
		Switch-165	OK	Port 19 Bandwidth OK - Current BW in: 0Mbps Out: 0Mbps	
		Switch-165	Warning	Port 19 Status	WARNING: SNMP error: No response from remote host "192.168.105.161"
		Switch-165	OK	SNMP Traps	

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## Complex BPI Groups

The BPI groups determine state by looking down only one level. The BPI group will essentially look for the worst state trigger in the group, so if the warning threshold is exceeded for a group, but an essential member is "critical", the group will still be "critical". There is no limit to the number of sub-groups that can be created, you can define as many levels in your dependency tree as you want.

The screenshot displays the Nagios XI BPI Addon interface. It shows a hierarchy of BPI groups. The top group is 'Switch-Test', which is in a 'Critical' state. This group contains a sub-group 'Switch-165'. The 'Switch-165' group is in a 'Warning' state and contains 19 individual BPI checks. Most checks are in an 'Ok' state, but three are in a 'Warning' state: 'Port 14 Status', 'Port 15 Status', and 'Port 18 Status'. These warnings are due to 'SNMP error: No response from remote host "192.168.105.161"'. Below the 'Switch-165' group is a 'Test' group, which is in an 'Ok' state and contains 8 individual BPI checks, all of which are in an 'Ok' state.

Group State	Group Name	Check Name	Check State	Check Details
Critical	Switch-Test	Switch-165	OK	192.168.105.161: rta 1.174ms lost 0%
Warning	Switch-165	Ping	OK	192.168.105.161: rta 1.364ms lost 0%
Warning	Switch-165	Port 1 Bandwidth	OK	Current BW in: 0Mbps Out: 0Mbps
Warning	Switch-165	Port 10 Bandwidth	OK	Current BW in: 0Mbps Out: 0Mbps
Warning	Switch-165	Port 11 Bandwidth	OK	Current BW in: 0Mbps Out: 0Mbps
Warning	Switch-165	Port 12 Bandwidth	OK	Current BW in: 0Mbps Out: 0Mbps
Warning	Switch-165	Port 13 Bandwidth	OK	Current BW in: 0Mbps Out: 0Mbps
Warning	Switch-165	Port 14 Bandwidth	OK	Current BW in: 0Mbps Out: 0Mbps
Warning	Switch-165	Port 14 Status	WARNING	SNMP error: No response from remote host "192.168.105.161"
Warning	Switch-165	Port 15 Bandwidth	OK	Current BW in: 0Mbps Out: 0Mbps
Warning	Switch-165	Port 15 Status	WARNING	SNMP error: No response from remote host "192.168.105.161"
Warning	Switch-165	Port 16 Bandwidth	OK	Current BW in: 0Mbps Out: 0Mbps
Warning	Switch-165	Port 17 Bandwidth	OK	Current BW in: 0Mbps Out: 0Mbps
Warning	Switch-165	Port 18 Bandwidth	OK	Current BW in: 0Mbps Out: 0Mbps
Warning	Switch-165	Port 18 Status	WARNING	SNMP error: No response from remote host "192.168.105.161"
Warning	Switch-165	Port 19 Bandwidth	OK	Current BW in: 0Mbps Out: 0Mbps
Warning	Switch-165	Port 19 Status	WARNING	SNMP error: No response from remote host "192.168.105.161"
Warning	Switch-165	SNMP Traps	OK	
Ok	Test	Group health	100%	with 0 problem(s).
Ok	Test	10.10.20.10	Up	10.10.20.10: rta 1.008ms lost 0%
Ok	Test	10.10.20.10	Ping	10.10.20.10: rta 0.625ms lost 0%
Ok	Test	10.10.20.11	Up	10.10.20.11: rta 0.838ms lost 0%
Ok	Test	10.10.20.11	Ping	10.10.20.11: rta 0.856ms lost 0%
Ok	Test	10.10.20.12	Up	10.10.20.12: rta 0.942ms lost 0%
Ok	Test	10.10.20.12	Ping	10.10.20.12: rta 1.166ms lost 0%
Ok	Test	10.10.20.13	Up	10.10.20.13: rta 1.170ms lost 0%

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## Primary Groups

"Primary" BPI groups are seen from the top level of BPI page, while a non-primary group must have a visible parent group in order to be seen on the display. If a non-primary group is defined but never assigned as a member somewhere else, it will not be visible on the display.

**Business Process Intelligence**

Create New BPI Group

All Priorities High Priority Medium Priority Low Priority Hostgroups Servicegroups

Last Update: Sat Nov 30 2024 18:13:07 GMT-0600 (Central Standard Time)

⊙ - Essential group members

● Critical	➤ Switch-Test	Switch-165 : Port 14 Status is in a problem state.
● Ok	➤ Test	Group health is 100% with 0 problem(s).
● Ok	➤ 10-Test	Group health is 100% with 0 problem(s).

## Finishing Up

This completes the documentation on How To Use the Nagios XI BPI Addon for Nagios Core. If you have additional questions or other support-related questions, please visit us at our Nagios Support Forum, Nagios Documentation Hub, or Nagios Library:

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