

# How To Use Nagios XI BPI 2024

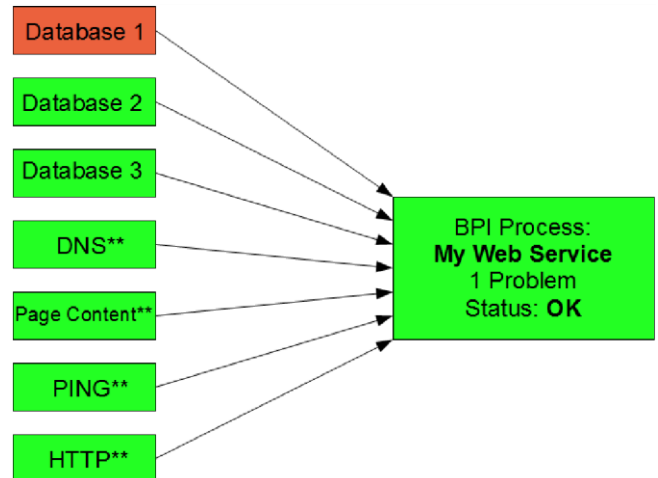
## Purpose

This document describes how to use Nagios XI BPI 2024.

## BPI Overview

Nagios BPI was created to visualize business process health by grouping hosts and services together and creating rules to discern the true health of the network infrastructure as it relates to the business. An admin can define rules for each BPI group and monitor the health of the group's state based on what has been defined. This concept is illustrated in the diagram to the right.

For this business process, a redundant database solution is being used for a web service. If one of the 3 database servers goes down, there are two more servers in place to act as fail-over solutions. Even though the first server is in a critical state, the actual business process of the web service is still in an OK state because all services required for it to run correctly are still in place.



However, if DNS Resolution, Page Content, PING, or HTTP were to stop working for this process, the end user would not be able to utilize the web service. Therefore, we call these services **Essential Members** for this business process, and if any of them fail, the business process would be in a critical state. In Nagios BPI, Essential Members are denoted with a **target** icon (shown as \*\* in the diagram above).

Thresholds can also be set for a group's health percentage. If a "Warning Threshold" of 80% was set for this group, a warning alert would be generated if 2 of the databases were down, even though the business process is still working correctly. The rules for the BPI Group state logic are defined in the [Understanding The BPI Group Logic](#) section of this documentation.

Watch the video below for more information on BPI:

<https://www.youtube.com/embed/YrTII5neRC4>

# How To Use Nagios XI BPI 2024

## The BPI User Interface

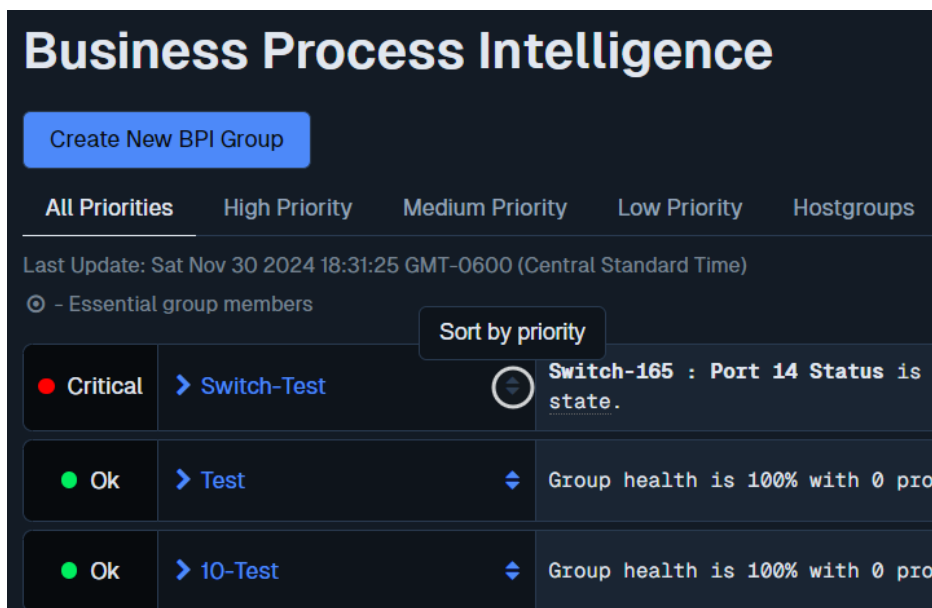
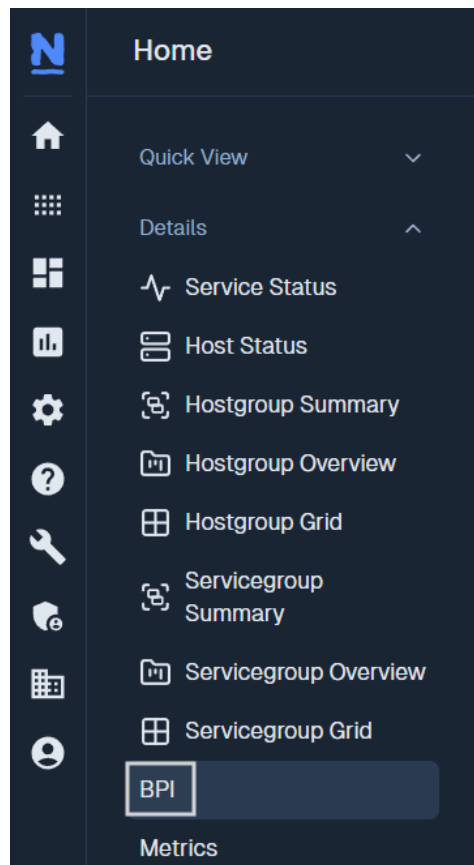
The BPI interface is accessed by navigating to **Home > Details > BPI**.

The interface of BPI is broken down into group categories. Each BPI group can be assigned a priority, and groups can automatically be generated from hostgroups or servicegroups. Groups can be expanded to see each of its members, along with their status. Groups can also be members of other groups, so a business process can consist of many groups and can be many levels deep if necessary.

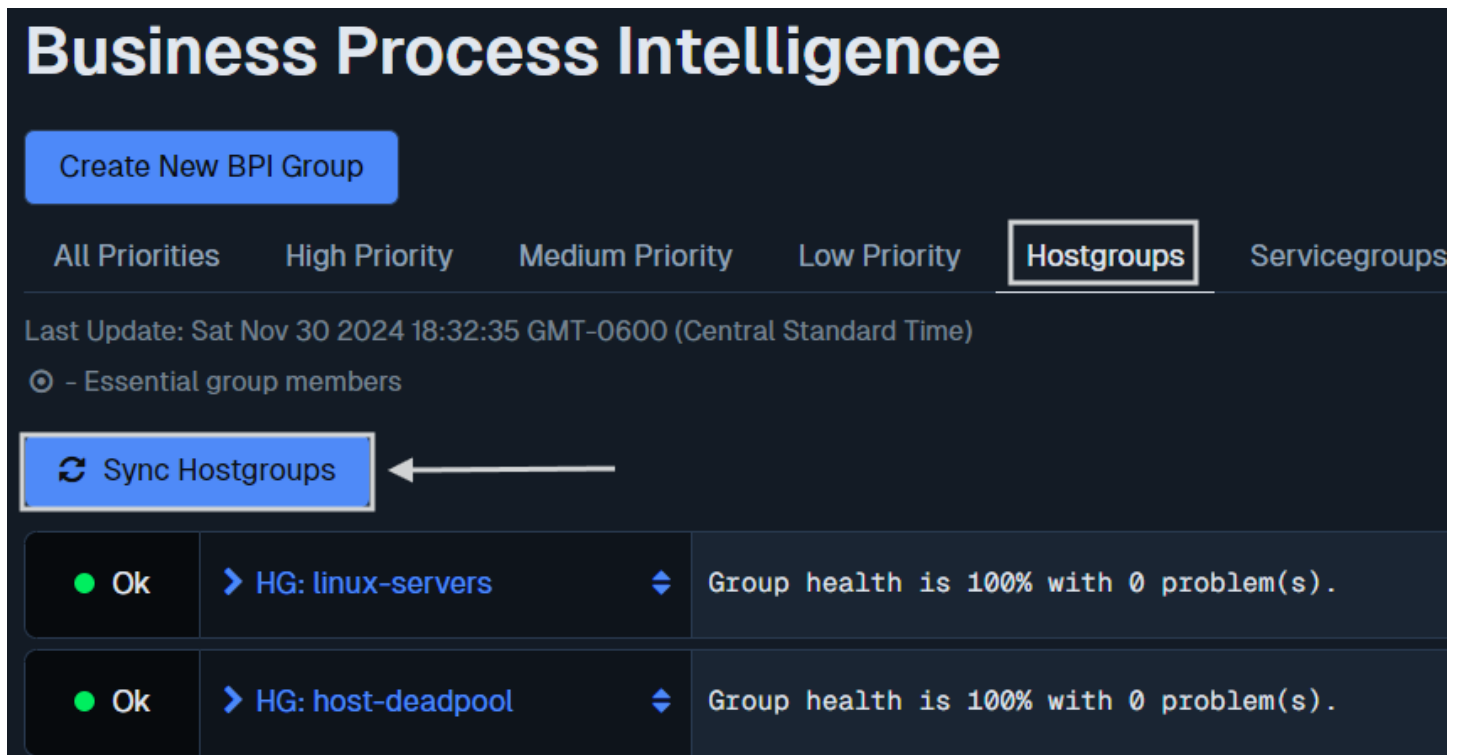
Group members can be sorted by their priority by clicking the **sort** icon.

Clicking the **sort** icon the first time will group the objects by their problem status.

Every additional click will sort the items A-Z or Z-A.



# How To Use Nagios XI BPI 2024



The screenshot displays the Nagios XI Business Process Intelligence (BPI) interface. At the top, the title "Business Process Intelligence" is shown in large white text. Below the title, there is a blue button labeled "Create New BPI Group". A navigation bar contains several tabs: "All Priorities", "High Priority", "Medium Priority", "Low Priority", "Hostgroups" (which is highlighted with a white border), and "Servicegroups". Below the tabs, the text "Last Update: Sat Nov 30 2024 18:32:35 GMT-0600 (Central Standard Time)" is displayed. Underneath, there is a link with a circular icon and the text "- Essential group members". A blue button with a refresh icon and the text "Sync Hostgroups" is highlighted with a white border, and a white arrow points to it from the right. Below this button, there is a table with two rows of hostgroup information:

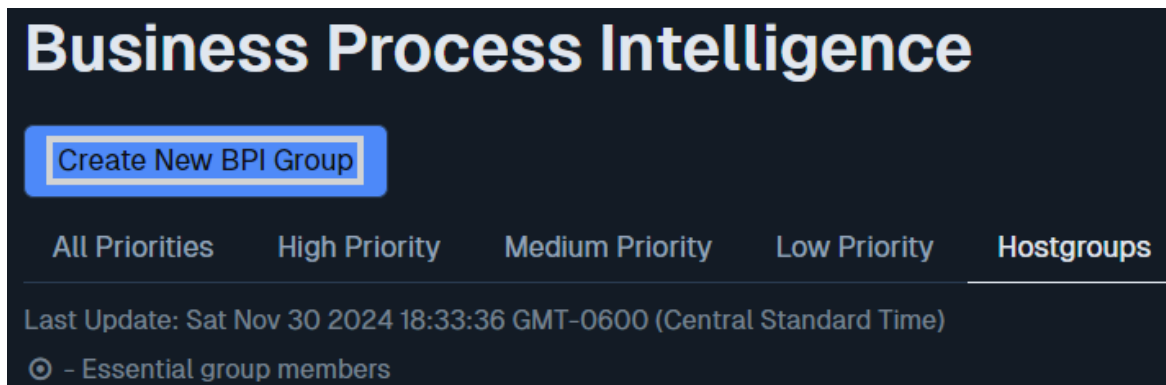
● Ok	> HG: linux-servers	↕	Group health is 100% with 0 problem(s).
● Ok	> HG: host-deadpool	↕	Group health is 100% with 0 problem(s).

Hostgroups and Servicegroups can be automatically generated or synced by selecting the **Sync Hostgroups** or **Sync Servicegroups** link (depending if you are on the Hostgroups or Servicegroups tab).

Keep in mind that any changes you make to a hostgroup or servicegroup in **Configuration Manager** will not be reflected in BPI until you sync the groups again.

# How To Use Nagios XI BPI 2024

## Create BPI Group



**Business Process Intelligence**

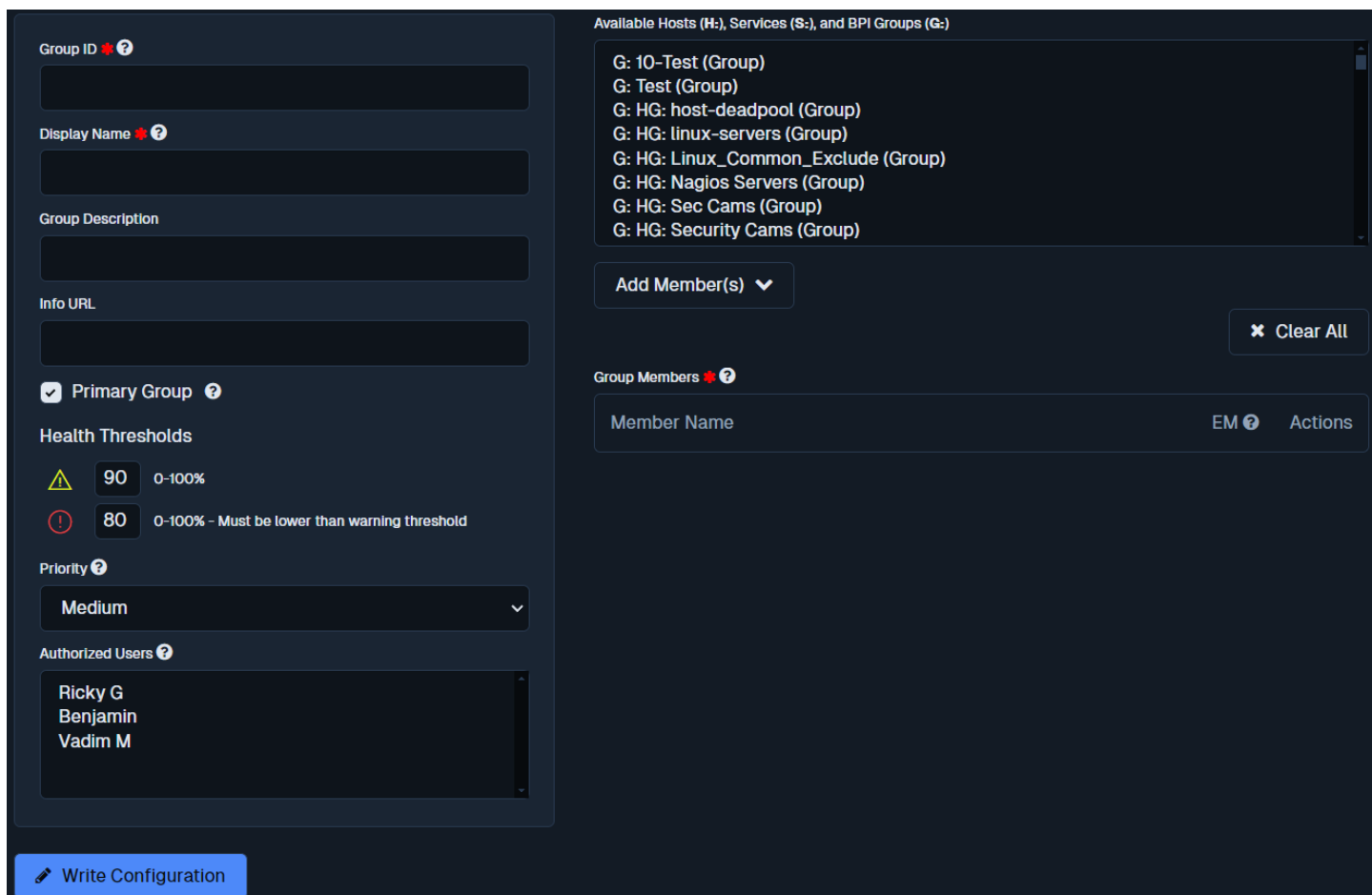
[Create New BPI Group](#)

All Priorities   High Priority   Medium Priority   Low Priority   **Hostgroups**

Last Update: Sat Nov 30 2024 18:33:36 GMT-0600 (Central Standard Time)

[-](#) Essential group members

New BPI Groups can be created by clicking **Create New BPI Group**. Each group property on this page can be explained in detail by clicking the **help** icon next to the form field. These properties are outlined below:



Group ID

Display Name

Group Description

Info URL

Primary Group

Health Thresholds

90 0-100%

80 0-100% - Must be lower than warning threshold

Priority

Medium

Authorized Users

Ricky G  
Benjamin  
Vadim M

Available Hosts (H:), Services (S:), and BPI Groups (G:)

G: 10-Test (Group)  
G: Test (Group)  
G: HG: host-deadpool (Group)  
G: HG: linux-servers (Group)  
G: HG: Linux\_Common\_Exclude (Group)  
G: HG: Nagios Servers (Group)  
G: HG: Sec Cams (Group)  
G: HG: Security Cams (Group)

Add Member(s)

Clear All

Group Members

Member Name	EM	Actions
-------------	----	---------

Write Configuration

# How To Use Nagios XI BPI 2024

## \*Required

## \*Group ID

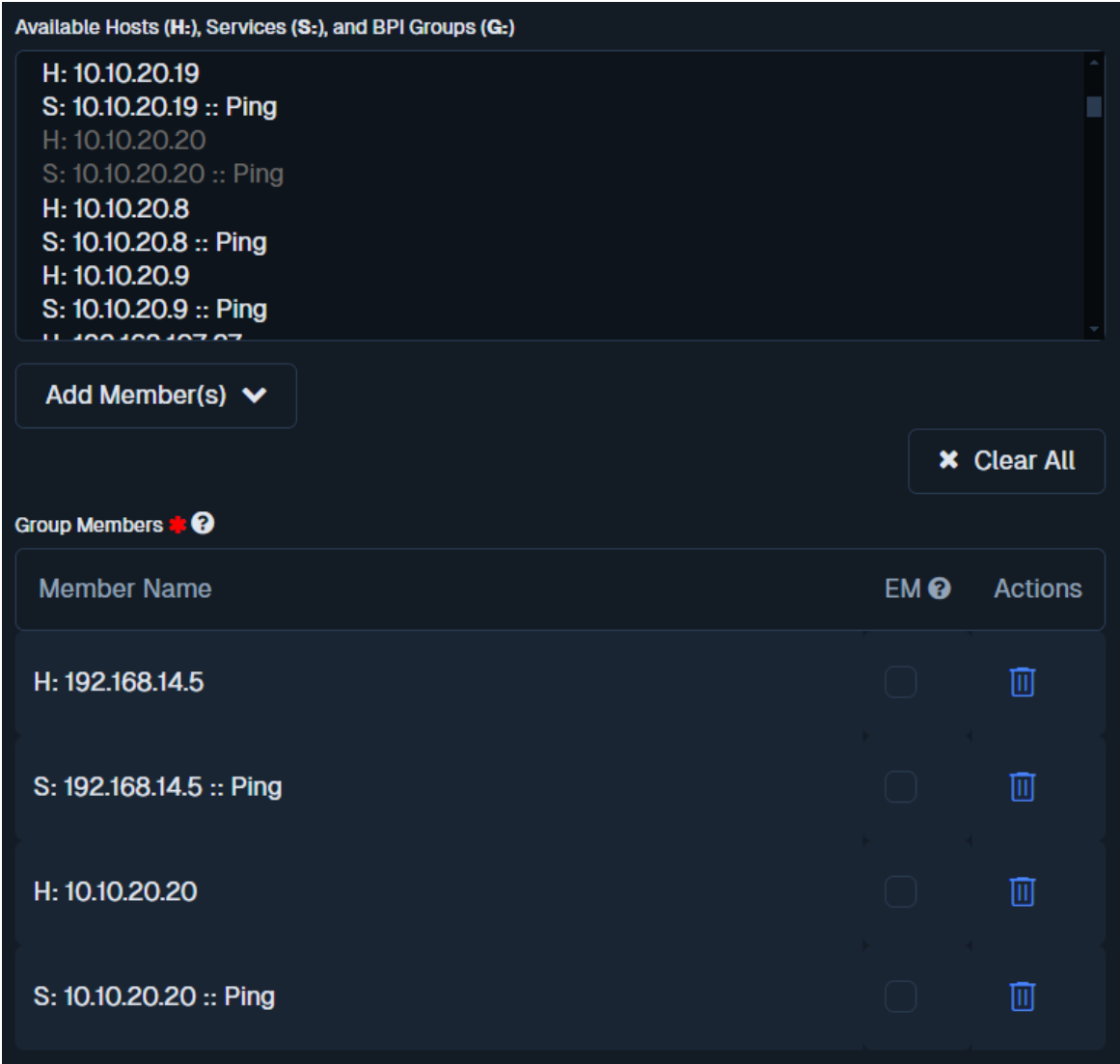
The Group ID is a unique identifier used internally by Nagios BPI and the check plugin. Only alphanumeric characters are allowed. Spaces are not allowed.

## \*Display Name

The group name will be displayed to the end-user in the BPI Interface.

## Group Description

A text description of the group.



Available Hosts (H-), Services (S-), and BPI Groups (G-)

H: 10.10.20.19  
S: 10.10.20.19 :: Ping  
H: 10.10.20.20  
S: 10.10.20.20 :: Ping  
H: 10.10.20.8  
S: 10.10.20.8 :: Ping  
H: 10.10.20.9  
S: 10.10.20.9 :: Ping  
H: 10.10.20.107

Add Member(s) ▾

✕ Clear All

Group Members \* ?

Member Name	EM <span>?</span>	Actions
H: 192.168.14.5	<input type="checkbox"/>	
S: 192.168.14.5 :: Ping	<input type="checkbox"/>	
H: 10.10.20.20	<input type="checkbox"/>	
S: 10.10.20.20 :: Ping	<input type="checkbox"/>	

# How To Use Nagios XI BPI 2024

## Info URL

A web URL for the group.

## Primary Group

Primary Groups are visible on the top level of the tree. Non-primary groups must be added as a child member to a visible group to be displayed in the tree.

## Warning Threshold

If the health percentage of the group drops below the Warning Threshold, the group state changes to WARNING.

## Critical Threshold

If the health percentage of the group drops below the Critical Threshold, the group state changes to CRITICAL. Must be a lower number than the Warning Threshold.

## Authorized Users

A list of non-administrative users who can view this group. Non-administrative users will only see hosts and services within the groups that they are authorized for, and the group state will be calculated based on the "visible" group members. Admin-level users can automatically see and modify all groups.

## \*Group Members

Group Members can be hosts, services, or other groups. "Essential" members can decide the entire group's state. If an essential member's state is in a problem state the parent group is listed as "Critical." If all essential members are in a non-problem state, the group's state is then determined by the threshold settings. To add members, select members from the list above and click the Add Member(s) button.

Click the **Write Configuration** button to create the group or update the group if you are editing an existing group.

# How To Use Nagios XI BPI 2024

## BPI Permissions Summary

Only Nagios XI admins can **add**, **edit**, or **remove** groups. Each group can have a list of authorized "read-only" users. Non-admin users can view groups that they are specifically authorized for in the group definition. If a group has hosts or services in it that a read-only user is not authorized to see, the member will be ignored by that user and will not be calculated for the group's state, nor will it be visible in the user interface.

**Note:** Service checks that for BPI groups calculate the group state based on all defined members in the group, as seen by an Admin-level user. It is important in multi-tenancy situations to define BPI groups and service checks in accordance with what the tenant user can see. If a user views a BPI group and some of its members are being hidden from view, these members will be noted in the bpi.log file (defined in the BPI Settings page).

## 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. The logic for determining group states is explained as follows.

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

- Any "Essential members" are in a problem state
- The group's health percentage drops below the Warning Threshold
- The group's health percentage drops below the Critical Threshold

This can be explained clearly with an example. Say you have 3 services for a BPI group in these states:

- OK
- WARNING
- CRITICAL

Nagios BPI will see it like this:

- OK
- PROBLEM
- PROBLEM

Nagios BPI will calculate it like this:

- $100 / \text{Total Number Services In Group} = \text{Individual Item Percent}$

# How To Use Nagios XI BPI 2024

With the example above:

- $100 / 3 = 33.3$

33.3 is the weight that each item has (whether OK or in a problem state), BPI would calculate it like this:

- 0
- 33.33
- 33.3

The final calculation is:

- $100 - \text{TOTAL PROBLEM PERCENTAGE} = \text{Group Overall Health}$
- $100 - (33.3 + 33.3) = 33.3\% \text{ Group Overall Health}$

You can see that it doesn't matter whether it's a WARNING or a CRITICAL, only that it's in a problem state.

The following page has some examples that relate to screenshots.



# How To Use Nagios XI BPI 2024

## A Basic BPI Group

● Ok	▼ Test	Group health is 92.31% with 1 problem(s).	
● ◎Up	10.10.20.10	OK	10.10.20.10: rta 0.767ms lost 0%
● Ok	10.10.20.10	Ping	OK - 10.10.20.10: rta 0.755ms lost 0%
● ◎Up	10.10.20.11	OK	10.10.20.11: rta 2.851ms lost 0%
● Ok	10.10.20.11	Ping	OK - 10.10.20.11: rta 0.782ms lost 0%
● ◎Up	10.10.20.12	OK	10.10.20.12: rta 0.954ms lost 0%
● Ok	10.10.20.12	Ping	OK - 10.10.20.12: rta 1.143ms lost 0%
● ◎Up	10.10.20.13	OK	10.10.20.13: rta 1.355ms lost 0%
● Ok	10.10.20.13	Ping	OK - 10.10.20.13: rta 1.165ms lost 0%
● ◎Up	CentOS9	OK	192.168.0.232: rta 0.303ms lost 0%
● Ok	CentOS9	CPU	OK - load average: 0.00, 0.00, 0.00
● Ok	CentOS9	Current Users	USERS OK - 1 users currently logged in
● Ok	CentOS9	Ping	OK - 192.168.0.232: rta 0.408ms lost 0%
● Warning	CentOS9	Total Processes	PROCS WARNING: 152 processes

This is a basic group with 5 members. The group has a warning threshold of 70%, and a critical threshold of 60%. Even though the group has one member in a Warning state, the group state is still 'OK' because the health percentage is at 80%.

# How To Use Nagios XI BPI 2024

## A Group Using Essential Members

The screenshot shows a Nagios XI BPI interface for a group. At the top, there is a status bar with a green dot and 'Ok', a dropdown menu set to 'Test', and a summary: 'Group health is 92.31% with 1 problem(s)'. Below this, a list of members is shown. The first member, '10.10.20.10', is marked as 'Ok' with a green dot and a 'target' icon (a circle with a dot) next to its state. The other members are also marked as 'Ok' with green dots. The members listed are:

State	IP	Test	Details
Ok	10.10.20.10	Ping	OK - 10.10.20.10: rta 0.970ms lost 0%
Ok	10.10.20.11	Ping	OK - 10.10.20.11: rta 0.782ms lost 0%
Ok	10.10.20.12	Ping	OK - 10.10.20.12: rta 0.954ms lost 0%

This group has one Essential Member defined, which is denoted with a **target** icon next to its 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.

## 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 subgroups that can be created, you can define as many levels in your dependency tree as you want.

The screenshot shows a Nagios XI BPI interface for a complex BPI group. At the top, there is a status bar with a green dot and 'Ok', a dropdown menu set to 'Main', and a summary: 'Group health is 100% with 0 problem(s)'. Below this, a list of subgroups is shown. The first subgroup, '10-Test', is marked as 'Ok' with a green dot and a summary: 'Group health is 100% with 0 problem(s)'. The other subgroups are also marked as 'Ok' with green dots. The subgroups listed are:

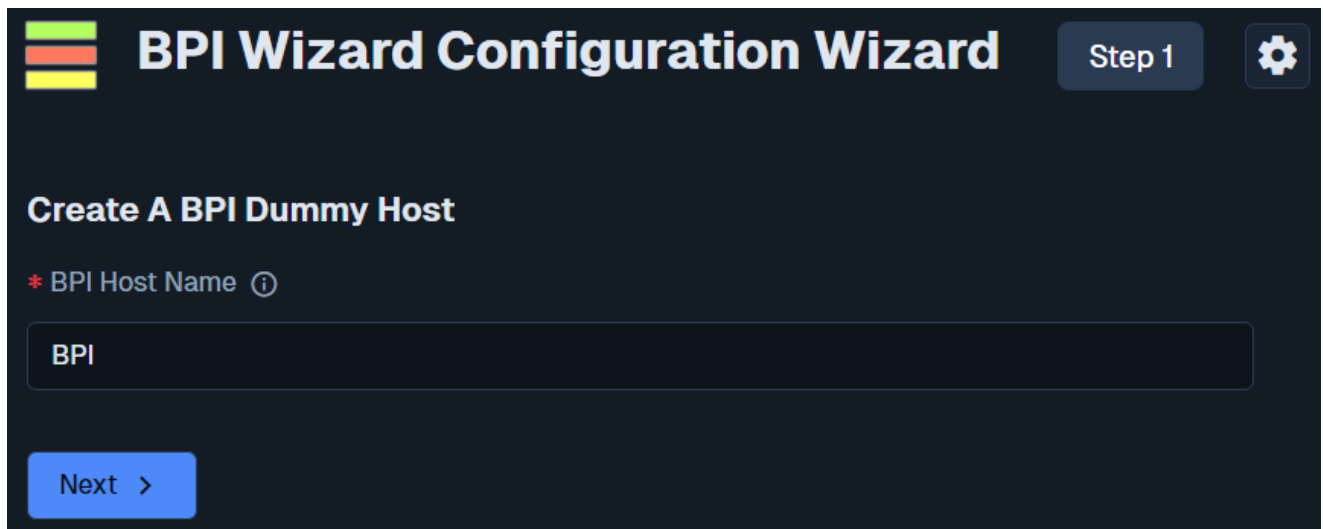
State	Subgroup	Test	Details
Ok	10-Test		Group health is 100% with 0 problem(s).
Ok	10.10.20.10	Ping	OK - 10.10.20.10: rta 0.627ms lost 0%
Ok	10.10.20.11	Ping	OK - 10.10.20.11: rta 0.970ms lost 0%
Ok	10.10.20.12	Ping	OK - 10.10.20.12: rta 1.157ms lost 0%
Ok	10.10.20.13	Ping	OK - 10.10.20.13: rta 1.278ms lost 0%
Ok	10.10.20.14	Ping	OK - 10.10.20.14: rta 1.508ms lost 0%
Ok	Test		Group health is 92.31% with 1 problem(s).
Ok	10.10.20.10	Ping	OK - 10.10.20.10: rta 0.970ms lost 0%
Ok	10.10.20.10	Ping	OK - 10.10.20.10: rta 0.627ms lost 0%
Ok	10.10.20.11	Ping	OK - 10.10.20.11: rta 1.509ms lost 0%
Ok	10.10.20.11	Ping	OK - 10.10.20.11: rta 0.970ms lost 0%
Ok	10.10.20.12	Ping	OK - 10.10.20.12: rta 0.954ms lost 0%
Ok	10.10.20.12	Ping	OK - 10.10.20.12: rta 1.157ms lost 0%
Ok	10.10.20.13	Ping	OK - 10.10.20.13: rta 1.258ms lost 0%
Ok	10.10.20.13	Ping	OK - 10.10.20.13: rta 1.278ms lost 0%
Ok	CentOS9	OK	OK - 192.168.0.232: rta 0.303ms lost 0%
Ok	CentOS9	CPU	OK - load average: 0.00, 0.00, 0.00
Ok	CentOS9	Current Users	USERS OK - 1 users currently logged in
Ok	CentOS9	Ping	OK - 192.168.0.232: rta 0.343ms lost 0%
Warning	CentOS9	Total Processes	PROCS WARNING: 151 processes

# How To Use Nagios XI BPI 2024

## Service Checks for BPI Groups

Once you've created your BPI groups, to receive notifications when their thresholds are exceeded you need to create services. The BPI wizard can be used to create these services.

1. Navigate via the top menu bar to **Configure > Run a configuring wizard** and select the **BPI wizard**.
2. On **Step 1** you will be asked to supply the **BPI Host Name**. This is a "dummy" host object your BPI service(s) will be assigned to.
3. Click **Next** to progress to **Step 2**.



The screenshot shows the 'BPI Wizard Configuration Wizard' interface. At the top, there is a title bar with a hamburger menu icon, the text 'BPI Wizard Configuration Wizard', a 'Step 1' indicator, and a settings gear icon. Below the title bar, the main heading is 'Create A BPI Dummy Host'. Underneath, there is a label '\* BPI Host Name' with an information icon. A text input field contains the value 'BPI'. At the bottom left, there is a blue button labeled 'Next >'.

# How To Use Nagios XI BPI 2024

4. On **Step 2** the wizard will automatically populate your list of BPI groups that you can run checks against, and group states will be determined by the same logic and thresholds used in the BPI user interface.

**BPI Wizard Configuration Wizard** Step 2

### Add Services

Prepend for Service Descriptions (optional)

BPI Process:

### Groups

Specify which groups should be running or stopped. ⓘ

Make your group Selections ⓘ

Group ID	Display Name	Description
10-Test	10-Test	
Main	Main	

< Back Next > Finish with Template

5. You can also define some text that will be prepended to the names of the services created.
6. Click **Next** and then complete the wizard by choosing the required options in **Step 3 – Step 5**.
7. To finish up, click on **Finish** in the final step of the wizard, this will create the new hosts and service and begin monitoring.
8. You can see that the service is in a critical condition, which means a notification will be sent to the appropriate recipients.

# How To Use Nagios XI BPI 2024

## BPI Settings

If you require to change any of the BPI settings, they can be accessed using the **Edit BPI Settings** button.

Most of these settings do not require modification, they are here for advanced users of BPI. However, a setting worth mentioning is the **Logic Handling For Problem States**. If this box is checked, Nagios BPI will ignore any problems states that are either **Acknowledged** or in **Scheduled Downtime**.

You can also change the format of the **Status Text** that BPI uses in its screens. The information on the settings screen is self-explanatory and does not need duplicating here.

After making any changes, click **Apply Settings**.

## Manually Edit Config

Advanced BPI users may find the manual edit feature helpful. This is the raw config file, and as per the warning on the page, "Advanced Users Only: Do NOT make changes to this file unless you know what you're doing!".

After making any changes, click **Save Configuration**.

## XML Output

When service checks are run, the first time a BPI service check is run the BPI Group states are dumped to the `/usr/local/nagiosxi/var/components/bpi.xml` file. The service check tests the file age of the XML file, and if the age threshold is exceeded, a new file will be made. Otherwise, the check plugin will use the cached results in the XML file. This file can also be used as a data API for use with external applications.

## Troubleshooting

For administrative users, Nagios BPI will dump error output to the browser and will generate links to fix the configuration issues. For read-only user, the errors will be suppressed and sent to the `/usr/local/nagiosxi/var/components/bpi.log` file.

# How To Use Nagios XI BPI 2024

## Finishing Up

This completes the documentation on the BPI in Nagios XI.. If you have additional questions or other support-related questions, please visit us at our Nagios Support Forum, Nagios Knowledge Base, or Nagios Library:

[Visit Nagios Support Forum](#)

[Visit Nagios Knowledge Base](#)

[Visit Nagios Library](#)