Purpose

This document is designed to assist Nagios administrators in understanding and using the Negate plugin in Nagios XI. The Negate plugin allows for any standard plugin output to be reversed and is very useful with hosts or services that are expected to be in a Critical or Warning state but you wish to show them as OK. This function can be used for the opposite effect (i.e. showing a CRITICAL state when the actual state is OK).

Target Audience

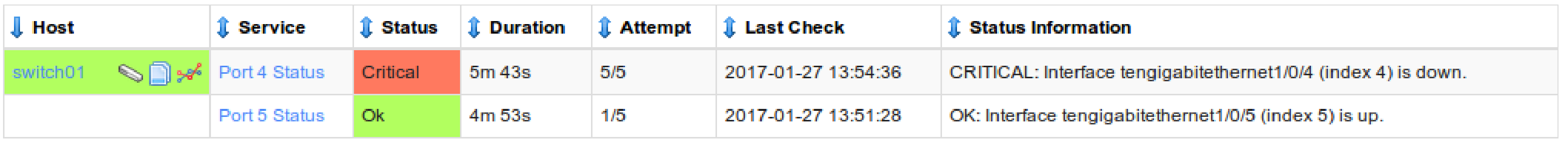
The intended audience for this document is Nagios administrators with hosts or services that are expected to be in a critical or warning state but wish to show them as OK and vice versa. An understanding of how plugins work and return exit codes will help understand the negate plugin.

What Is The Negate Plugin?

Negate is used to execute other plugins, the state returned by the other plugin can be changed by the negate plugin. For example when a check is normally considered to be in a Critical or Warning state, but the system administrator would instead prefer to see an OK when in such a state. Understand that this will not turn any check consistently to an OK state, but will reverse a critical to OK or an OK to critical, depending on the actual check being run.

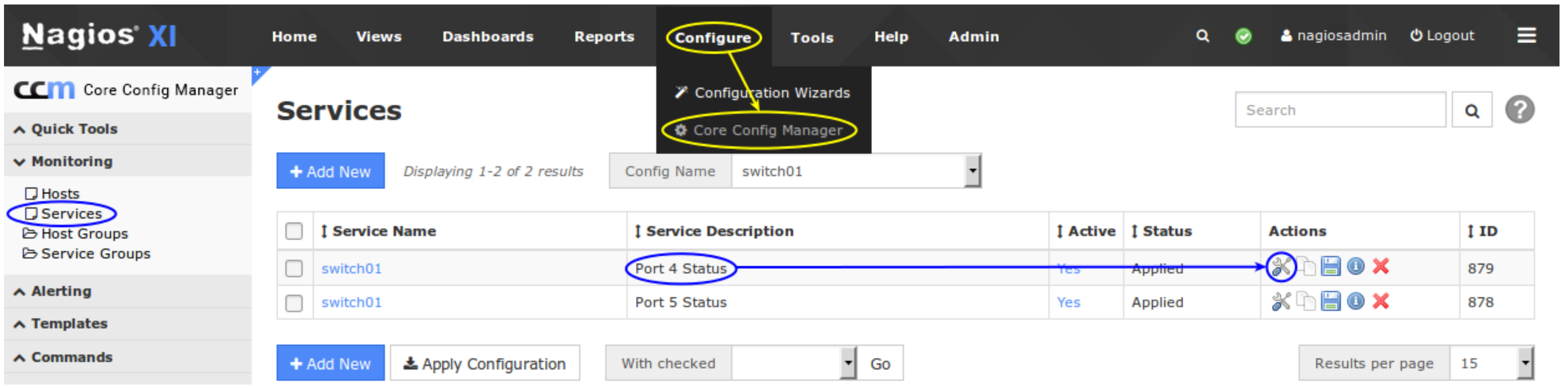
Negate Plugin Example

For our example we will use a service check for Port 4 Status on a network switch. Below is the service check for Port 4 Status which is currently not being used and is in a Critical state.



Host	Service	Status	Duration	Attempt	Last Check	Status Information
switch01	Port 4 Status	Critical	5m 43s	5/5	2017-01-27 13:54:36	CRITICAL: Interface tengigabitethernet1/0/4 (index 4) is down.
	Port 5 Status	Ok	4m 53s	1/5	2017-01-27 13:51:28	OK: Interface tengigabitethernet1/0/5 (index 5) is up.

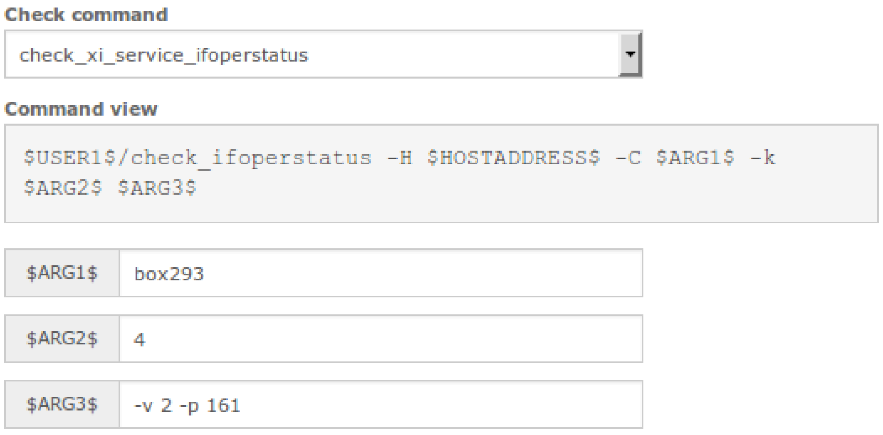
Before showing you how to use the negate plugin with this service, lets understand how the Port 4 Status service works at the command line. To do that we need to view the service definition in Core Config Manager (CCM). Navigate to **Configure** > **Core Config Manager** > **Monitoring** > **Services** and locate the **Port 4 Status** check.



	Service Name	Service Description	Active	Status	Actions	ID
	switch01	Port 4 Status	Yes	Applied		879
	switch01	Port 5 Status	Yes	Applied		878

Click the **modify** icon to view the service configuration.

Notice the **Check command** drop down has **`xi_service_check_ifoperstatus`** selected.



Check command: check_xi_service_ifoperstatus

Command view:

```
$USER1$/check_ifoperstatus -H $HOSTADDRESS$ -C $ARG1$ -k
$ARG2$ $ARG3$
```

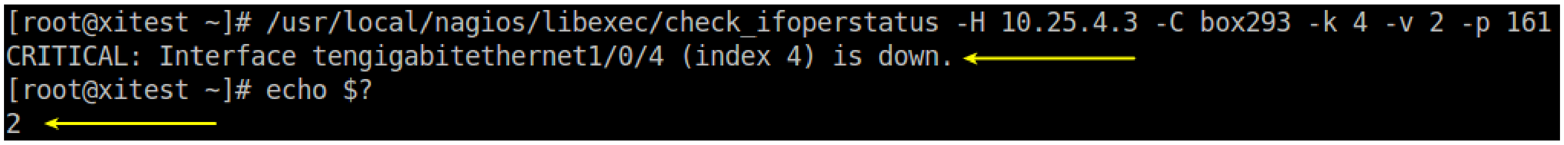
$ARG1$	box293
$ARG2$	4
$ARG3$	-v 2 -p 161

The **Command View** field shows what arguments are used for this command.

The `$ARG`**`x`**`$` fields are the values being used for the command. When Nagios XI executes this command it replaces the *`$variables$`* with actual values, which results in something like:

```
/usr/local/nagios/libexec/check_ifoperstatus -H 10.25.4.3 -C box293 -k 4 -v 2 -p 161
```

When this is executed at the command line, the output is:



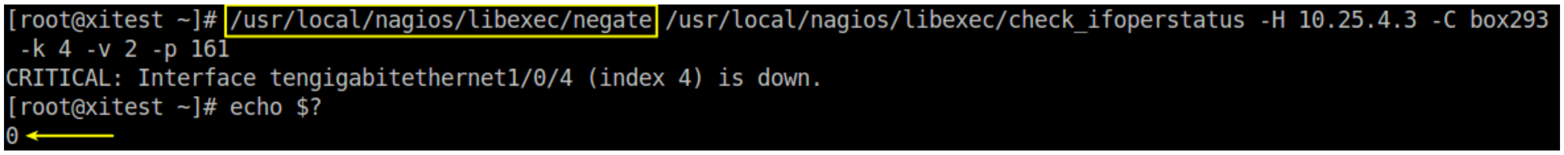
```
[root@xitest ~]# /usr/local/nagios/libexec/check_ifoperstatus -H 10.25.4.3 -C box293 -k 4 -v 2 -p 161
CRITICAL: Interface tengigabitethernet1/0/4 (index 4) is down.
[root@xitest ~]# echo $?
2
```

You'll notice the first line of output is the **CRITICAL: Interface tengigabitethernet1/0/4 (index 4) is down.** This is actually only for us humans to understand what the result of the plugin was.

The second line `echo $?` is telling us what the exit code of the plugin was, which is the value `2`. The exit code is what tells Nagios XI that the service is in a critical state.

Now lets execute that same command again, but this time use the negate command to turn that `2` state into a `0` state. The command below is one long command, it is just wrapped over two lines:

```
/usr/local/nagios/libexec/negate /usr/local/nagios/libexec/check_ifoperstatus
-H 10.25.4.3 -C box293 -k 4 -v 2 -p 161
```

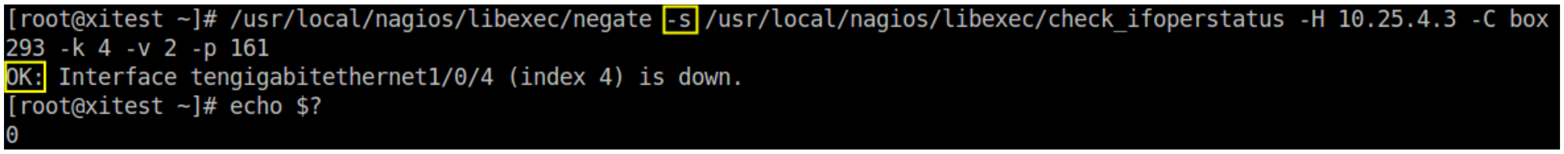


```
[root@xitest ~]# /usr/local/nagios/libexec/negate /usr/local/nagios/libexec/check_ifoperstatus -H 10.25.4.3 -C box293
 -k 4 -v 2 -p 161
CRITICAL: Interface tengigabitethernet1/0/4 (index 4) is down.
[root@xitest ~]# echo $?
0
```

The exit state returned by the plugin is what tells Nagios XI that it's in an OK state, because it's a `0`.

You'll notice that the text is still saying `CRITICAL`, this doesn't affect Nagios but it can be confusing for us humans. There is an additional argument `-s` that will substitute the output text as well:

```
/usr/local/nagios/libexec/negate -s /usr/local/nagios/libexec/check_ifoperstatus -H
10.25.4.3 -C box293 -k 4 -v 2 -p 161
```



```
[root@xitest ~]# /usr/local/nagios/libexec/negate -s /usr/local/nagios/libexec/check_ifoperstatus -H 10.25.4.3 -C box
293 -k 4 -v 2 -p 161
OK: Interface tengigabitethernet1/0/4 (index 4) is down.
[root@xitest ~]# echo $?
0
```

Now you can see the text output says **OK**.

Update Service To Use Negate

Now that you have tested negate from the command line and know how it works you can now implement it in your service definition.

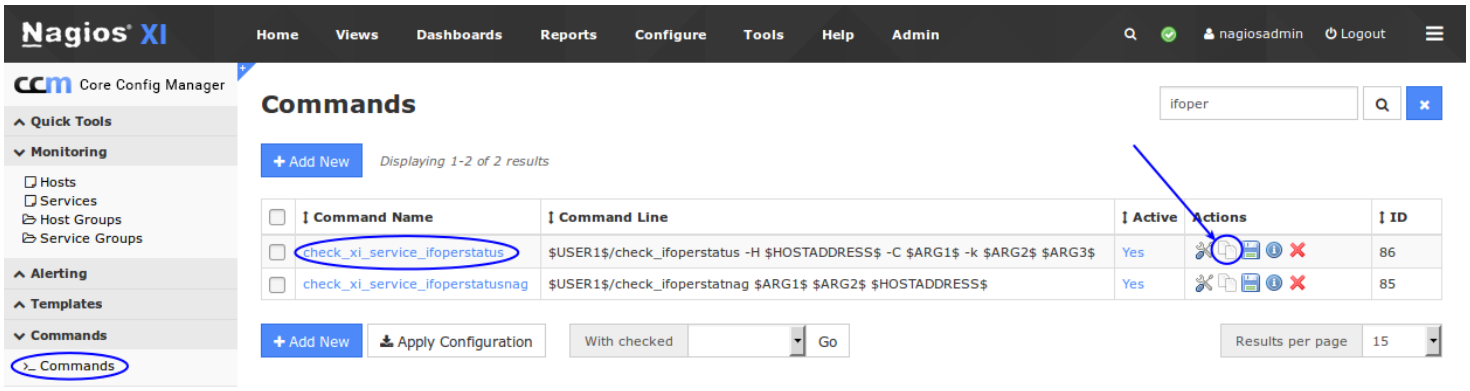
Looking at the original service definition, the command used is `xi_service_check_ifoperstatus`, and the command definition for this is:

```
    $USER1$/check_ifoperstatus -H $HOSTADDRESS$ -C $ARG1$ -k $ARG2$ $ARG3$
```

All that is required is to put the negate command in front of this like so:

```
$USER1$/negate -s $USER1$/check_ifoperstatus -H $HOSTADDRESS$ -C $ARG1$ -k $ARG2$ $ARG3$
```

However you shouldn't change the original `xi_service_check_ifoperstatus` command definition as it'll affect all services, instead you can copy the existing command to create a new command. Navigate to **Configure** > **Core Config Manager** > **Commands** > **>_Commands**.

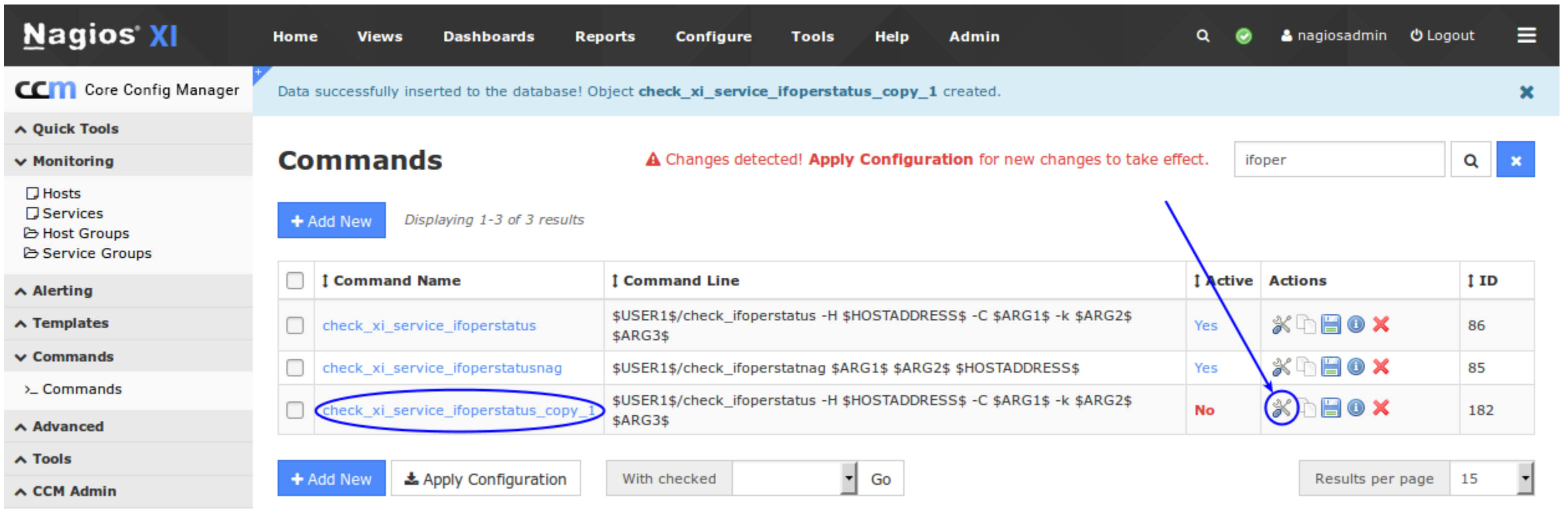


Commands

Displaying 1-2 of 2 results

	Command Name	Command Line	Active	Actions	ID
☐	check_xi_service_ifoperstatus	$USER1$/check_ifoperstatus -H $HOSTADDRESS$ -C $ARG1$ -k $ARG2$ $ARG3$	Yes		86
☐	check_xi_service_ifoperstatusnag	$USER1$/check_ifoperstatnag $ARG1$ $ARG2$ $HOSTADDRESS$	Yes		85

Locate the **xi_service_check_ifoperstatus** command and click the **copy** icon.



Data successfully inserted to the database! Object **check_xi_service_ifoperstatus_copy_1** created.

Commands

Changes detected! **Apply Configuration** for new changes to take effect.

ifoper

Displaying 1-3 of 3 results

Command Name	Command Line	Active	Actions	ID
check_xi_service_ifoperstatus	$USER1$/check_ifoperstatus -H $HOSTADDRESS$ -C $ARG1$ -k $ARG2$ $ARG3$	Yes		86
check_xi_service_ifoperstatusnag	$USER1$/check_ifoperstatnag $ARG1$ $ARG2$ $HOSTADDRESS$	Yes		85
check_xi_service_ifoperstatus_copy_1	$USER1$/check_ifoperstatus -H $HOSTADDRESS$ -C $ARG1$ -k $ARG2$ $ARG3$	No		182

When the screen refreshes you'll have a duplicate command appended with `_copy_1`.

Click the **modify** icon to edit this command.

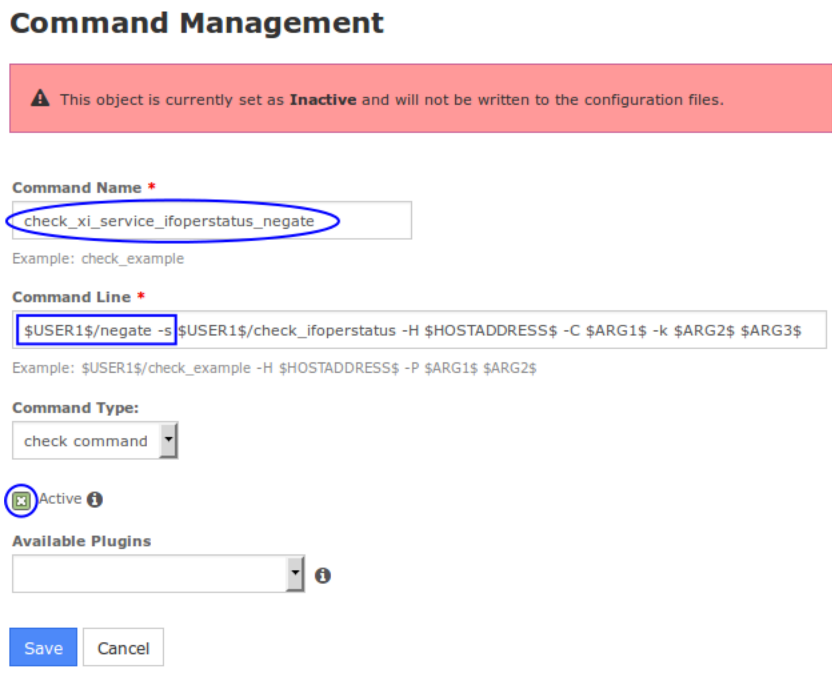
You will need to give the command a new name. In this example it seems logical to append the name with `_negate` so the command name is **`xi_service_check_ifoperstatus_negate`**.

Then you need to add the negate command (`$USER1$/negate -s`) to the beginning of the command line.

Lastly you need to click the **Active** checkbox.

Click the **Save** button.

This screenshot shows the required changes.



Command Management

This object is currently set as **Inactive** and will not be written to the configuration files.

Command Name *

check_xi_service_ifoperstatus_negate

Example: check_example

Command Line *

$USER1$/negate -s $USER1$/check_ifoperstatus -H $HOSTADDRESS$ -C $ARG1$ -k $ARG2$ $ARG3$

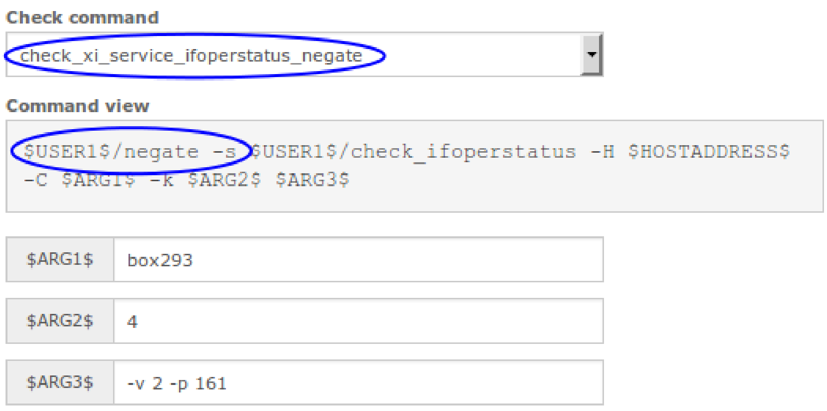
Example: $USER1$/check_example -H $HOSTADDRESS$ -P $ARG1$ $ARG2$

☒ Active

The last step is to update the the Port 4 Status service with the new check command. Navigate to **Configure** > **Core Config Manager** > **Monitoring** > **Services** and edit the **Port 4 Status** check.

Use the Check command drop down list to select the new command **`xi_service_check_ifoperstatus_negate`**.

Once selected you'll see the Command view update, it shows the negate command being used.



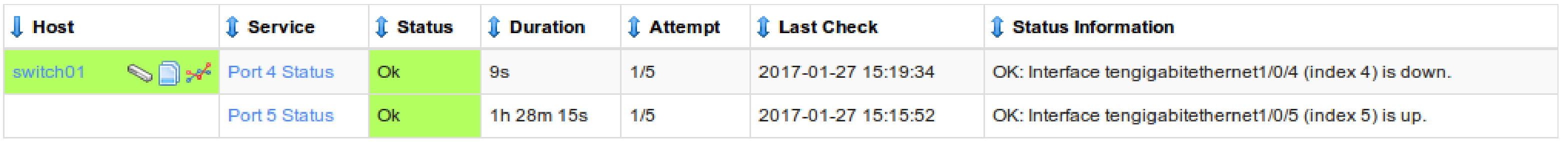
Check command
check_xi_service_ifoperstatus_negate

Command view
```
$USER1$/negate -s $USER1$/check_ifoperstatus -H $HOSTADDRESS$
-C $ARG1$ -k $ARG2$ $ARG3$
```

$ARG1$	box293
$ARG2$	4
$ARG3$	-v 2 -p 161

Click **Save** button and then **Apply Configuration**.

After the configuration is applied and the Port 4 Status service is checked, the service will be in an OK state:



Host	Service	Status	Duration	Attempt	Last Check	Status Information
switch01	Port 4 Status	Ok	9s	1/5	2017-01-27 15:19:34	OK: Interface tengigabitethernet1/0/4 (index 4) is down.
	Port 5 Status	Ok	1h 28m 15s	1/5	2017-01-27 15:15:52	OK: Interface tengigabitethernet1/0/5 (index 5) is up.

You can see that the Port 4 Status service check is in an OK state and the status information shows that the port is down.

Finishing Up

This completes the documentation using the Negate Plugin in Nagios XI.
If you have additional questions or other support related questions, please visit us at our Nagios Support Forums:

https://support.nagios.com/forum

The Nagios Support Knowledgebase is also a great support resource:

https://support.nagios.com/kb