

Integrating NagVis with Nagios XI 5

Purpose

This document describes how to use the NagVis network status visualization tool with Nagios XI. NagVis is a visualization add-on for Nagios, which allows you to display host and service objects in a visual manner.

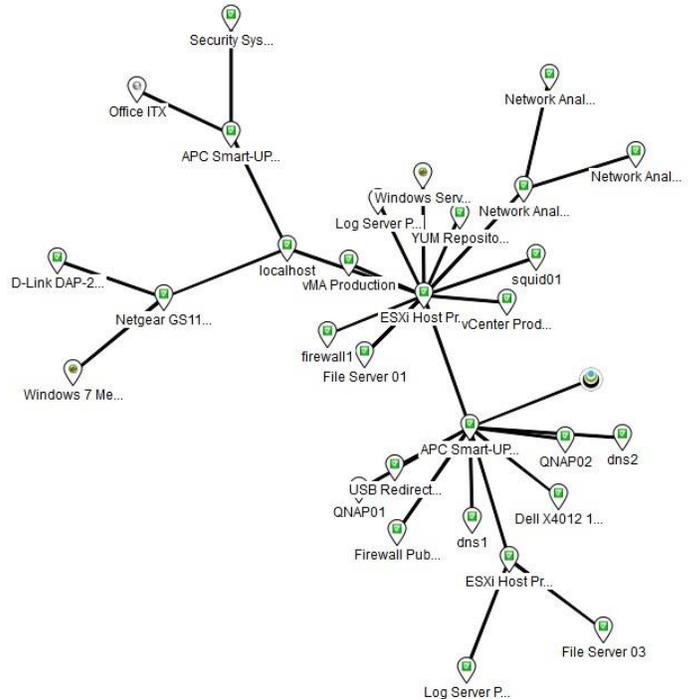
If you are using Nagios XI 2024, see [Integrating NagVis with Nagios XI 2024](#).

Target Audience

This document is intended for use by Nagios XI administrators who wish to use NagVis for visualization of their monitored devices.

Accessing NagVis

To access NagVis navigate to **Home > Maps > NagVis**. The default home screen provides you with some demo maps that give examples of how NagVis can be utilized.



The screenshot shows the Nagios XI interface. The top navigation bar includes 'Home', 'Views', 'Dashboards', 'Reports', 'Configure', 'Tools', 'Help', and 'Admin'. The left sidebar has a 'Maps' section with 'NagVis' circled in red. The main content area shows the 'Map Index' with a grid of demo maps:

Demo Name	Status
Demo: 0 Overview Germany	❌
Demo: 1 Datacenter Hamburg	🟡
Demo: 2 System Load	✅
Demo: 3 Server - muc-srv1	✅
Demo: 4 Worldmap	❌
Demo: 5 Geomap	✅
Demo: 6 Automap	❌
Demo: 7 Automap 2	❌
Demo Overview	❌

Below the map index is a 'Rotation Pools' section with a table:

Pool Name	Pool Name
demo	demo-germany
	demo-ham-racks
	demo-load
	demo-muc-srv1
	demo-geomap
	demo-automap

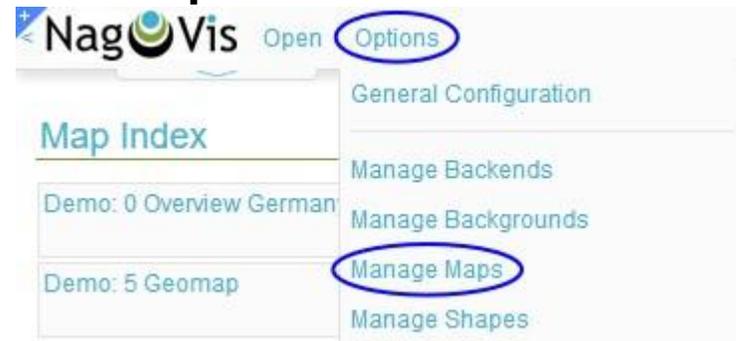
You will also notice the NagVis menus along the top of the screen, how to use these will be explained next.

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Using Automap with Parent/Child Relationships

An Automap is an automatically generated display of defined hosts. We'll show you how to create an Automap which also helps learn how the interface works.

Click the drop-down menu **Options** and select **Manage Maps**.



Under the **Create Map** section provide a **name** in the **ID** field.

From the **Map Type** list select **Automap based on parent/child relations**.

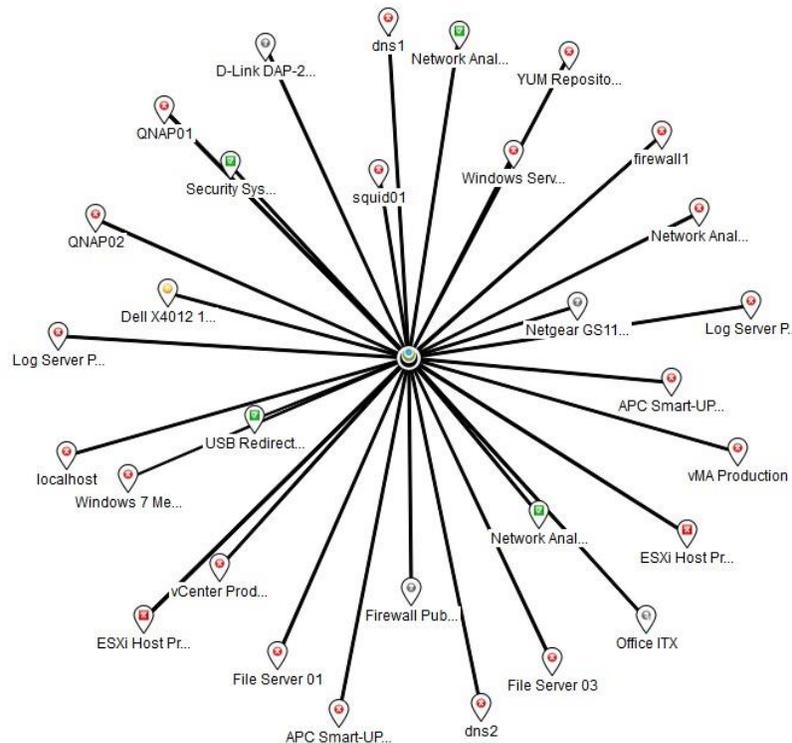
Click the **Create** button to create the Map and the screen will refresh displaying the map.



If you haven't defined any parent/child relationships in Nagios XI, the Automap shows a simple star map like the following screenshot.

For the Automap to be useful, you'll need to define parent/child relationships for your Nagios hosts.

Keep reading for instructions on how to configure parent/child relationships and customize the look of the Automap.



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Defining Parent/Child Relationships

To define parent/child relationships between hosts, you will need to use Nagios XI **Core Config Manager (CCM)**. Login to Nagios XI and navigate to **Configure > Core Config Manager > Monitoring > Hosts**.

Edit a host from the list by clicking it (like *APC Smart-UPS 1500*). You can specify its parent hosts by using the **Manage Parents** button on the **Common Settings** tab.

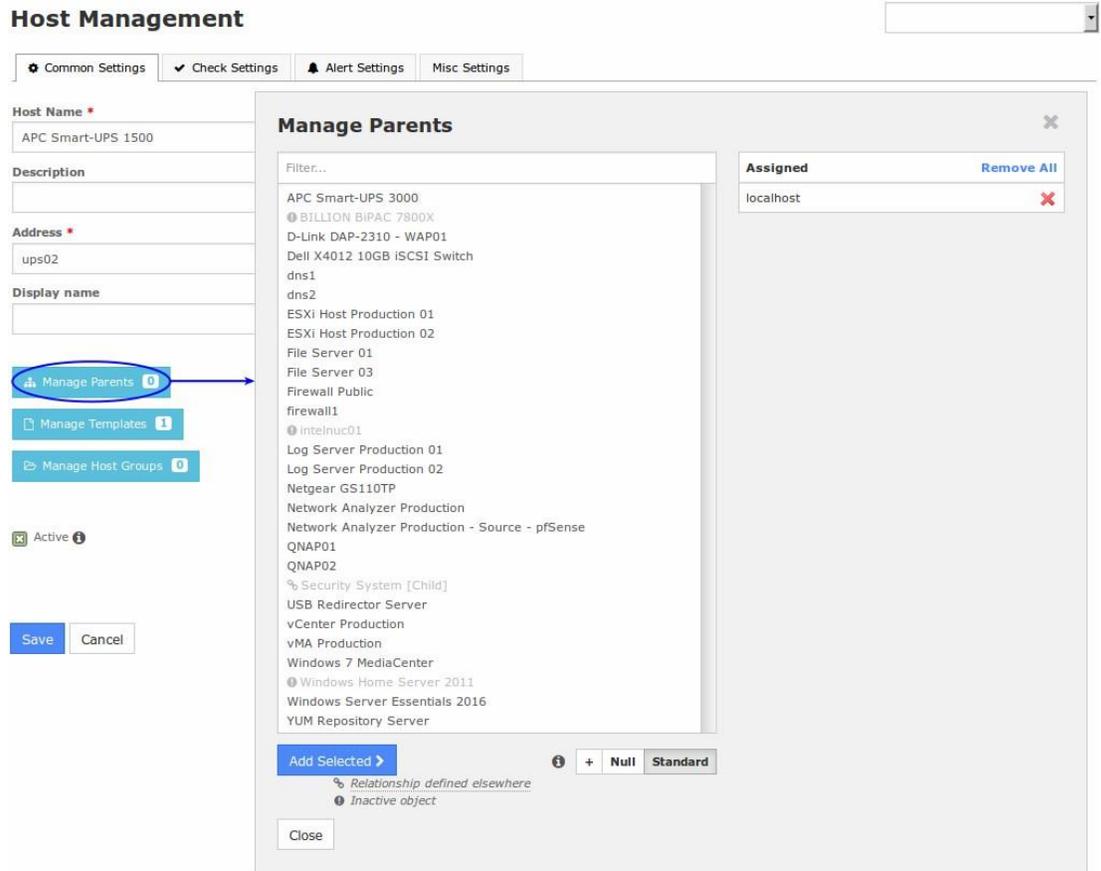
Select the parent host from the list on the left and click **Add Selected >** to move it to the right hand **Assigned list**.

Once finished, click **Close** and then **Save**.

Hosts that are one network

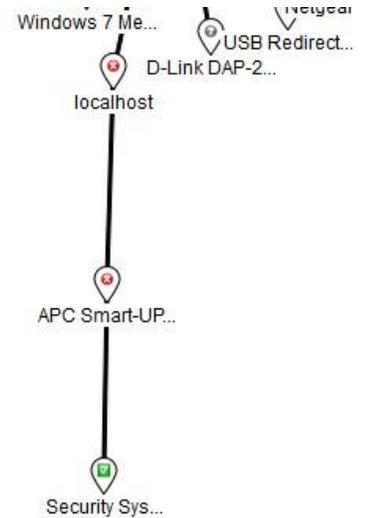
"hop" away from your Nagios XI monitoring server should have localhost as their parent host.

After you have configured some hosts to have localhost as their parent perform an **Apply Configuration** in CCM.



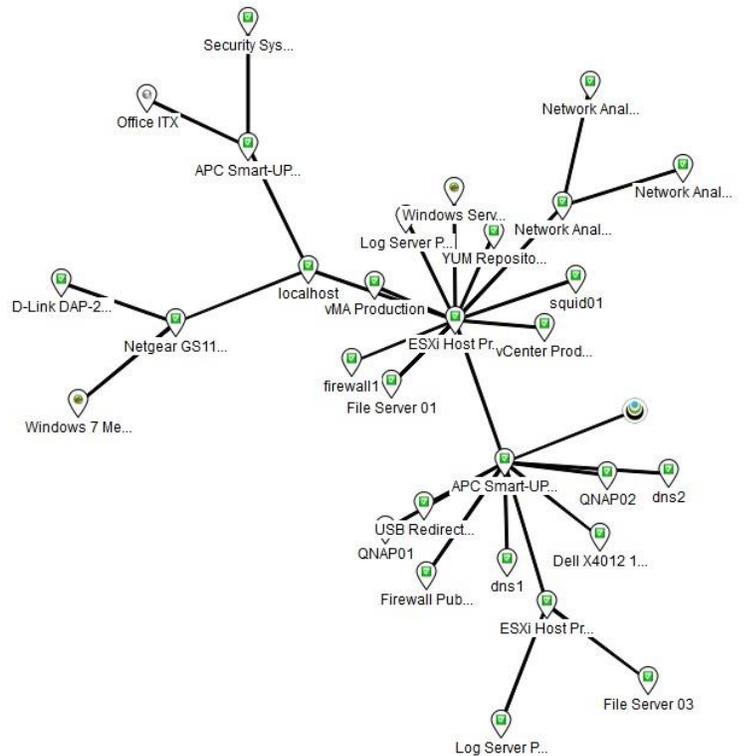
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After defining the parent/child relationships they will show up on the NagVis Automap as per this simple example:



You can define multiple levels of parents, which will result in a more complex map.

In this example you can see that the **APC Smart-UPS 3000** appears to be the center of the map. **ESXi Host Production 01** and **ESXi Host Production 02** are children with further children hanging off them.



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Building A Useful Nagios Visualization

Up to now you've seen the automap functionality, but it doesn't scratch the surface of what NagVis can really do. One of the great features of NagVis is the ability to take a picture and place Nagios XI host and service objects on the picture to create something that visually represents what is going on.

In my environment I connect to the internet via a firewall and that firewall is connected to a DSL modem. This example is going to use images of those devices and overlay the Nagios Services that monitor these devices.

In NagVis, an image/picture is called a **Shape**.

Create A New Map

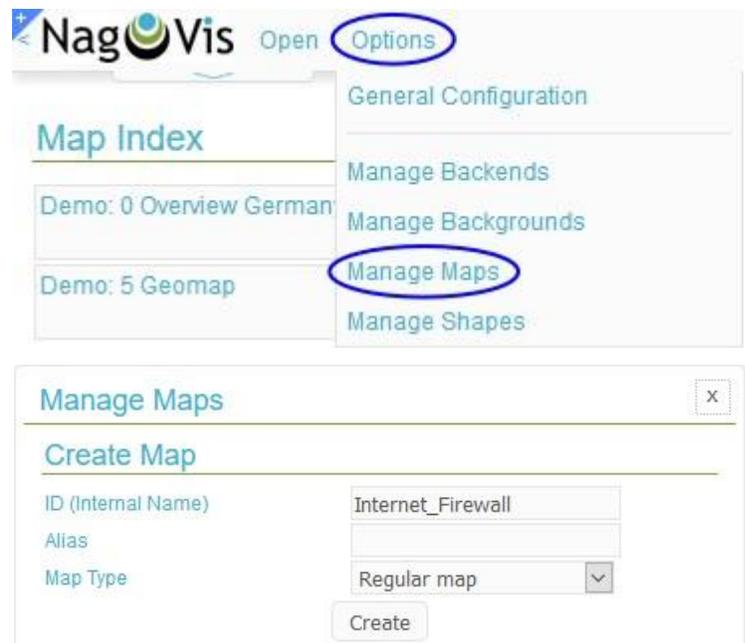
Click the menu **Options** and select **Manage Maps**.

Under the **Create Map** section give it an **ID**, in this example, it is **Internet_Firewall**.

From the **Map Type** list select **Regular map** and click the **Create** button.

Once created, you will be presented with a blank map.

You will also notice a new drop-down menu has appeared called **Edit Map**. This is how the map will be configured.



Upload Shapes

I have four images I am going to upload to NagVis to represent the devices I am visualizing on my map.

Click the menu **Options** and select **Manage Shapes**.



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Use the **Browse** button to select the images you want to upload.

Click **Upload** to upload the image as a Shape into NagVis.

Repeat the steps to upload all the desired images.

Close the window once you've finished uploading the images.

Adding Shapes

The next step is to place the shapes on the map.

Click the drop-down menu **Edit Map** and select **Add Special > Shape**.

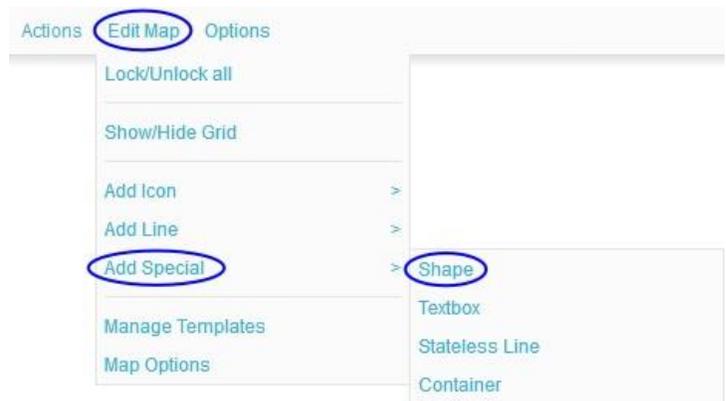
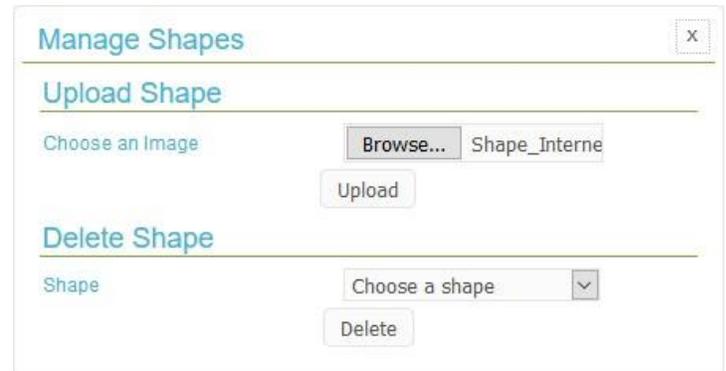
It might appear as if nothing just happened, but you need to click on the map where the shape needs to be placed.

Once you click on the map, the **Create Object** window will appear.

Select one of the shapes from the **icon** drop down list.

Click **Save** to add the shape to the map. The shape will now appear on the map. To re-position it you need to **right-click** the shape and select **Unlock**.

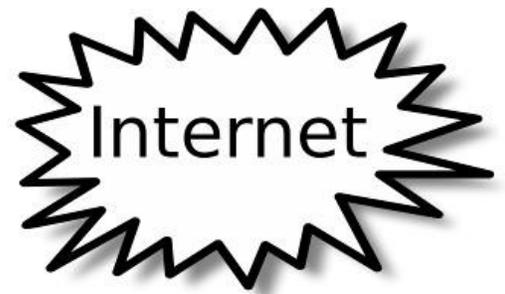
Repeat these steps until all the shapes required shapes have been added to the map.



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The screenshot below shows the four shapes I added.0

- Top left shape is the Internet
- Top left shape is the DSL modem in bridged mode
- Bottom right is the firewall that connects to the DSL modem
- Bottom left is the Nagios XI server



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Host And Service Objects

The next step will be to start adding host and service objects to the map. Nagios XI is monitoring the firewall device and these are the objects that will be placed on the map.

Host	Service	Status	Duration	Attempt	Last Check	Status Information
Firewall Public 	PING - DSL Gateway 	Ok	1h 29m 40s	1/4	2016-11-25 11:26:27	PING OK - Packet loss = 0%, RTA = 38.24 ms
	Port 1 Bandwidth 	Ok	68d 0h 53m 12s	1/5	2016-11-25 11:23:47	OK - Current BW in: .10Mbps Out: .01Mbps
	Port 1 Status	Ok	57d 13h 39m 37s	1/5	2016-11-25 11:24:38	OK: Interface em0 (index 1) is up.
	Port 2 Bandwidth 	Ok	161d 12h 20m 4s	1/5	2016-11-25 11:22:17	OK - Current BW in: .01Mbps Out: .10Mbps
	Port 2 Status	Ok	57d 13h 38m 20s	1/5	2016-11-25 11:24:25	OK: Interface em1 (index 2) is up.

The host and service objects are going to be used in the following way:

- **Firewall Public** host object is an ICMP Ping check, this will be used as a status line to indicate Nagios XI can see the firewall
- Port 1 is the WAN interface on the firewall, it connects to the DSL modem
 - The **Port 1 Status** service will be used to show that the WAN interface is up or down (the cable that connects the DSL modem to the firewall)
 - The **Port 2 Bandwidth** service will be used to show the bandwidth usage from the internet
- I'm using the Port 2 Bandwidth service as it correctly reflects the traffic direction on the service line
- Port 2 is the LAN interface on the firewall, it connects to the internal network switch (not shown)
 - The **Port 2 Status** service will be used to show that the LAN interface is up or down (the cable that connects the firewall to the internal network switch)
- These port status and bandwidth services were created using the Network Switch/Router wizard
- The **PING - DSL Gateway** service will be used to indicate if the internet connection is active

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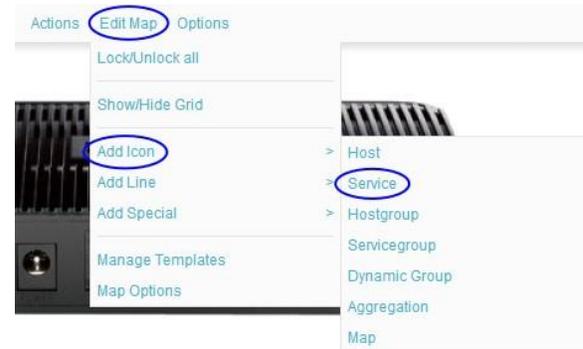
Add Port Status Icons

The Port Status services will be added to the map on top of the firewall shape.

Click the drop-down menu **Edit Map** and select **Add Icon > Service**.

It might appear as if nothing has happened, but you need to click on the map where the icon needs to be placed.

I am clicking above the physical WAN port on the firewall shape.



Once you click on the map, the **Create Object** window will appear on the **General** tab.

Select the **host** from the **host_name** drop down list.

Select the **service** from the **service_description** drop down list.



Click the **Label** tab.

From the **label_show** drop down list select **Yes**.

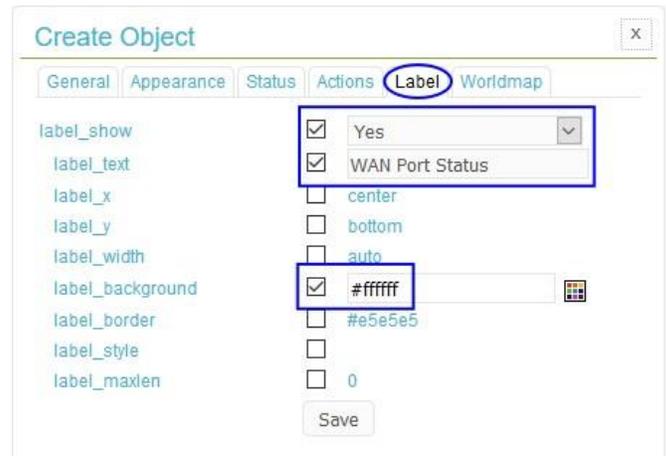
In the **label_text** field type **WAN Port Status**.

In the **label_background** field type **#ffffff**.

Click **Save** to add the icon to the map.

Once the icon has been added to the map, you can move it around with the mouse to correctly position it.

You can also separately move the label to a desired spot on the map. I'm repeating the above step to add the **LAN Port Status** service as well.



The screenshot to the right shows what it looks like so far:



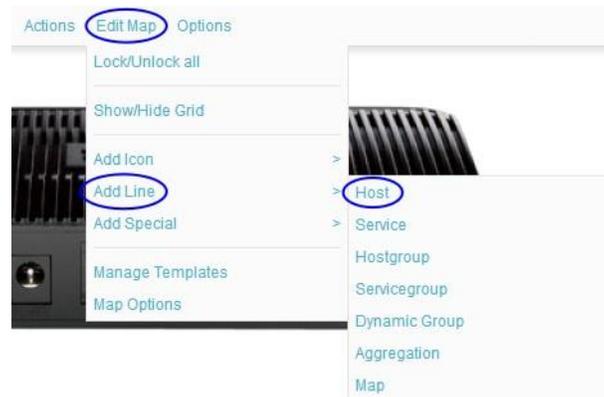
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Add Host Line

Next a host line will be added from the Nagios XI shape to the LAN port on the firewall.

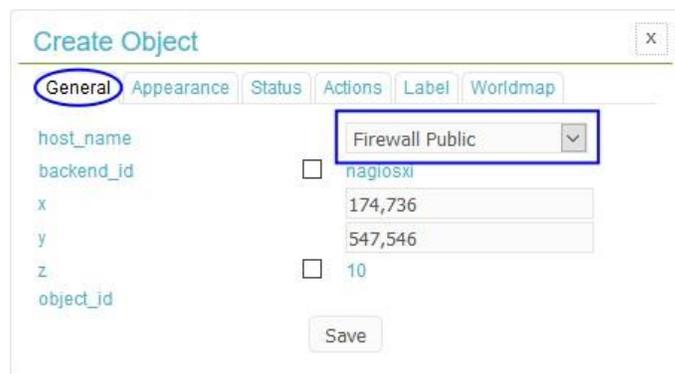
Click the drop-down menu **Edit Map** and select **Add Line > Host**.

Now you need to click on the map where the line starts, in this case I am clicking on the Nagios XI shape. Then you move the mouse to where the line ends (you'll see a line as you move the mouse). I am clicking on the LAN port on the firewall.



Once you do this the **Create Object** window will appear on the **General** tab.

Select the **host** from the **host_name** drop down list.



Click the **Appearance** tab.

Select the **line_type** from the drop-down list.



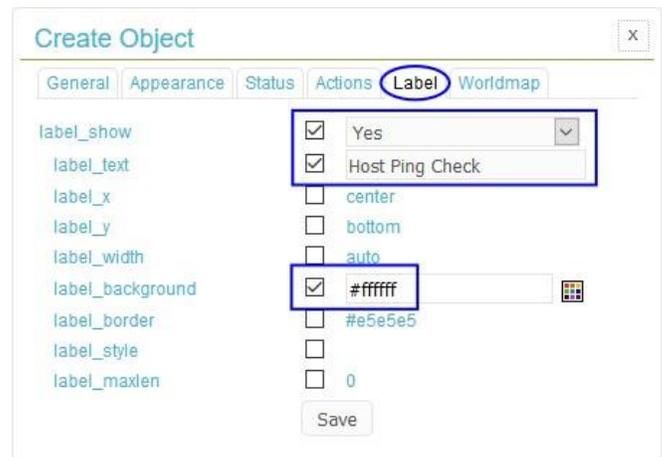
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Click the **Label** tab. From the **label_show** drop down list select **Yes**.

In the **label_text** field type **Host Ping Check**.

In the **label_background** field type **#ffffff**.

Click **Save** to add the line to the map.



Field	Value
label_show	Yes
label_text	Host Ping Check
label_x	center
label_y	bottom
label_width	auto
label_background	#ffffff
label_border	#e5e5e5
label_style	
label_maxlen	0

You can see the line has been added and is the color of the status of the host (green/up).



You can also separately move the label to a desired spot on the map, I've placed it on the line. If the host were to go down, then the line would be red in color.

Add Service Lines

Next a service line will be added from the WAN port on the firewall shape to the LAN port on the DSL modem.

The service will be the **Port 2 Bandwidth** service, so it will represent the internet traffic over that port.

Click the drop-down menu **Edit Map** and select **Add Line > Service**.

Now you need to click on the map where the line starts. In this case, I am clicking on the WAN port on the firewall shape, then moving my mouse to where the line ends (you'll see a line as you move the mouse). I am ending the line by clicking on the LAN port on the DSL modem.

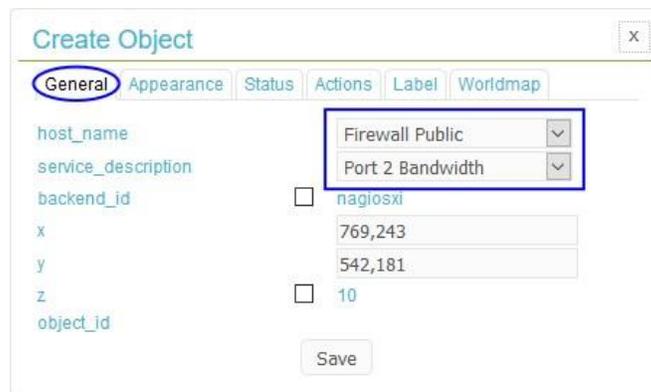
Page

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Once you do this the **Create Object** window will appear on the **General** tab.

Select the **host** from the **host_name** drop down list.

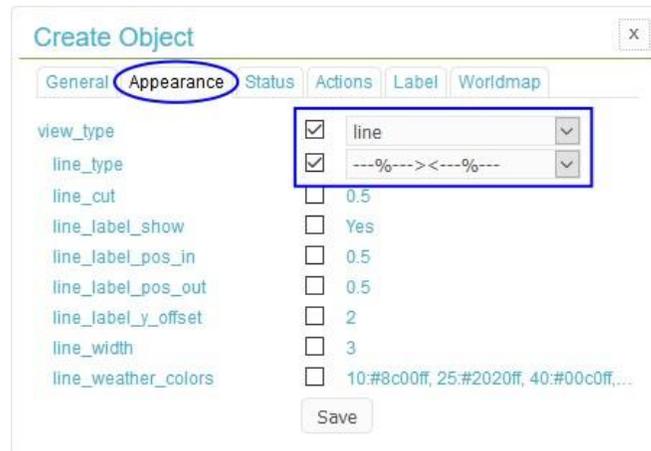
Select the **service** from the **service_description** drop down list.



Click the **Appearance** tab.

Select the **line_type** from the drop-down list.

--%--><--%-- is being used as this will display the numbers from the service on the lines to show the current in/out rate.



Click the **Label** tab.

From the **label_show** drop down list select **Yes**.

In the **label_text** field type **[service_description]**.

In the **label_background** field type **#ffffff**.

Click **Save** to add the line to the map.

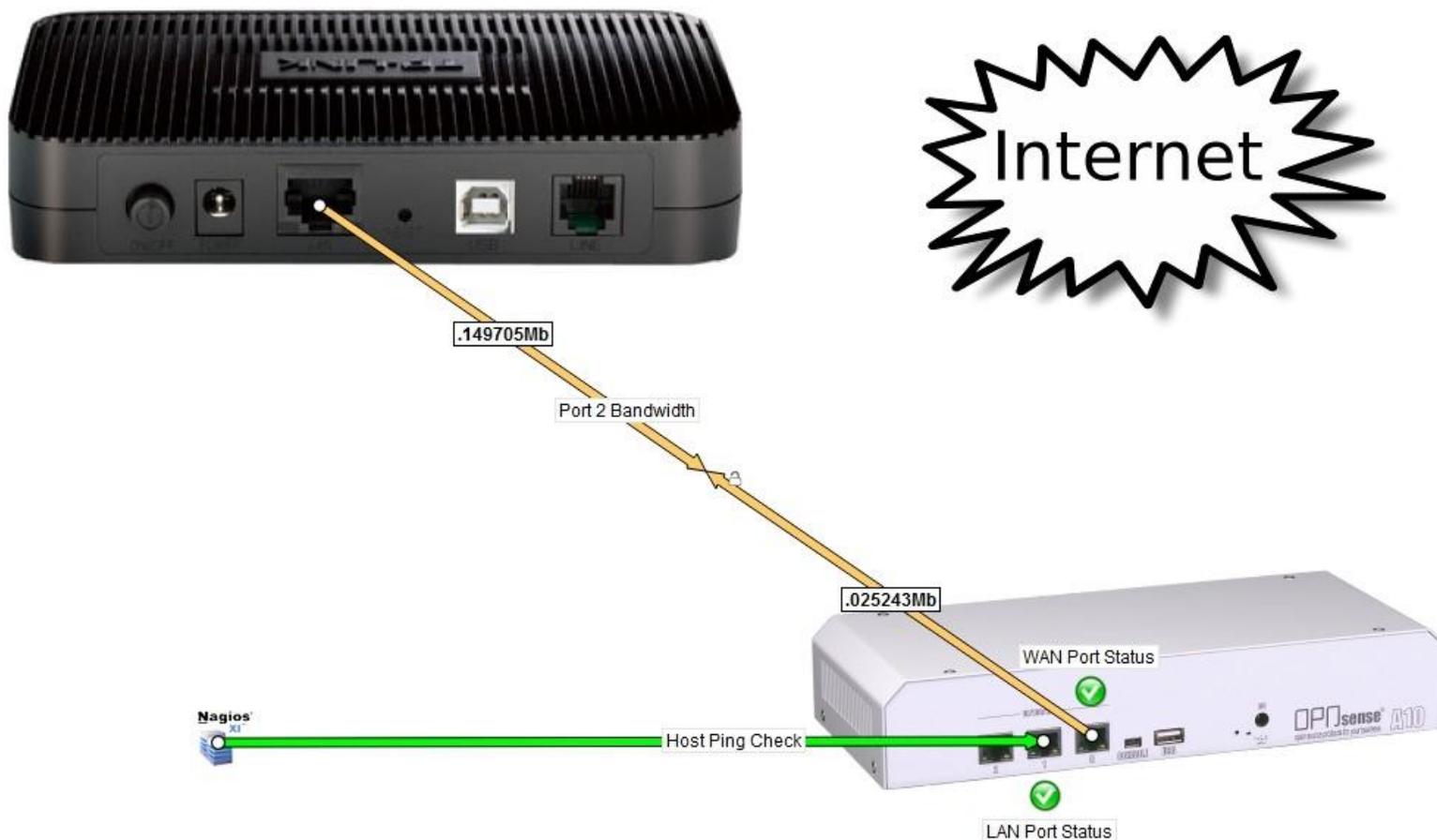
You can see the line has been added and is the color of the status of the host (green/up).

You can also separately move the label to a desired spot on the map, I've moved it just up from the arrows.



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Here's a screenshot showing the service line that was added:



You can see the line has two arrows that meet in the middle and on each part of the line there are the bandwidth numbers from the current service output. You can see the number on the upper part of the line is the download from the internet and the number on the lower part of the line is the upload to the internet.

The last service line to add is the **PING - DSL Gateway** service, which will be used to indicate that the internet connection is active.

Click the drop-down menu **Edit Map** and select **Add Line > Service**.

Now you need to click on the map where the line starts. I am clicking on the phone line port on the DSL modem shape. Then you move the mouse to where the line ends (you'll see a line as you move the mouse), I am clicking on the Internet shape.

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Once you do this the **Create Object** window will appear on the **General** tab.

Select the **host** from the **host_name** drop down list.

Select the **service** from the **service_description** drop down list.

The screenshot shows the 'Create Object' window with the 'General' tab selected. The 'host_name' dropdown is set to 'Firewall Public' and the 'service_description' dropdown is set to 'PING IPv4 - DSL Gateway'. Other fields include 'backend_id' (nagiosxi), 'x' (424,773), 'y' (182,180), and 'z' (10). A 'Save' button is at the bottom.

Click the **Appearance** tab.

Select the desired **line_type** from the drop-down list.

The screenshot shows the 'Create Object' window with the 'Appearance' tab selected. The 'view_type' is checked and set to 'line'. The 'line_type' dropdown is set to a dashed line with an arrow. Other options include 'line_cut' (0.5), 'line_width' (3), and 'line_weather_colors' (10:#8c00ff, 25:#2020ff, 40:#00c0ff, ...). A 'Save' button is at the bottom.

Click the **Label** tab.

From the **label_show** drop down list select **Yes**.

In the **label_text** field type **[service_description]**.

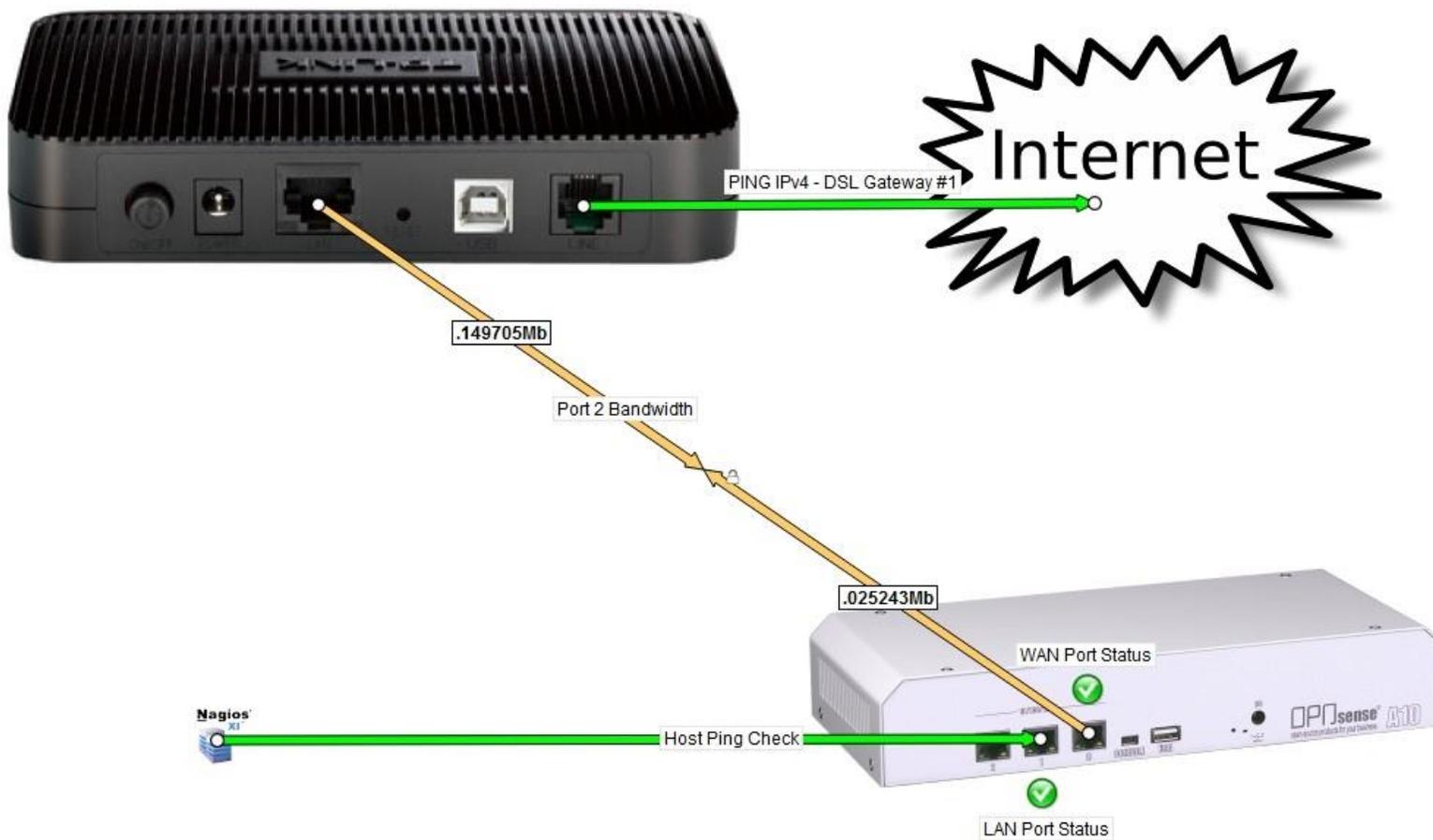
In the **label_background** field type **#ffffff**.

Click **Save** to add the line to the map.

The screenshot shows the 'Create Object' window with the 'Label' tab selected. The 'label_show' dropdown is set to 'Yes' and the 'label_text' field contains '[service_description]'. The 'label_background' dropdown is set to '#ffffff'. Other options include 'label_x' (center), 'label_y' (bottom), 'label_width' (auto), 'label_border' (#e5e5e5), 'label_style', and 'label_maxlen' (0). A 'Save' button is at the bottom.

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Here's a screenshot showing the service line that was added.

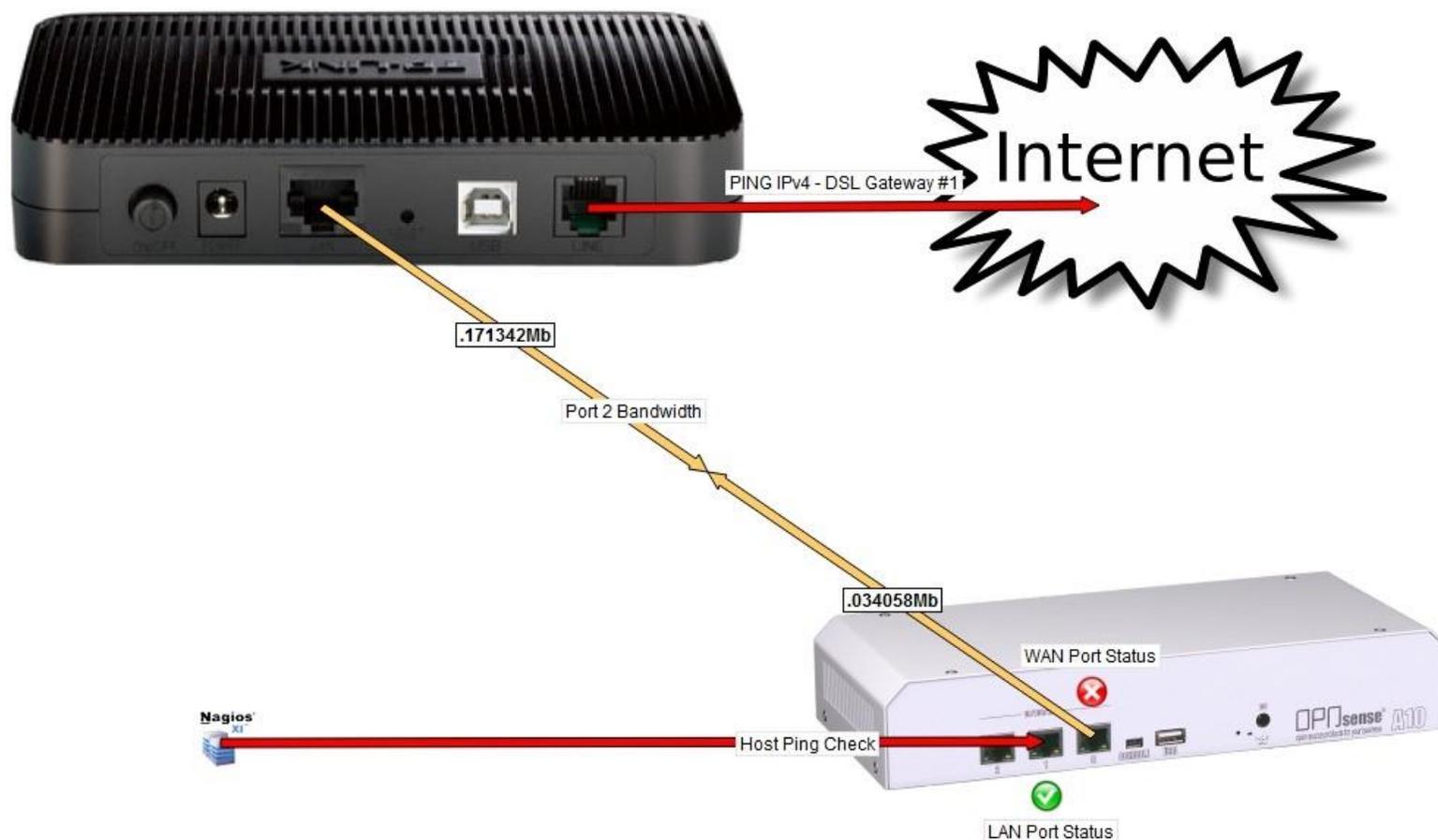


Now I have a visual representation of the physical equipment in relation to the services being monitored in Nagios XI.

- I can see the port up/down status for the firewall.
- There is a line indicating the in/out bandwidth from the internet.
- There is a line indicating if the internet is active.
- There is a line indicating if Nagios XI can connect to the firewall.

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Now to generate an issue, we can see what the map looks like when there is a problem. I'm disconnecting the cable that connects the WAN port on the firewall to the LAN port on the DSL modem.



The **WAN Port Status** icon is an **X**, indicating that the Port Status service is in a critical state.

The **Ping IPv4 - DSL Gateway** service line is **RED** which indicates the service is in a critical state.

The Host Ping Check line is RED; however, the LAN Port Status service is green. The reason why the Host Ping Check line is RED is because the HOST object was used and the host has services in a non-OK state, which forces it to go into a RED state. To overcome this, you could modify the Host Ping Check line and configure the **Status** (tab) option **recognize_services** to **No**.

You can also hover your mouse over the lines and icons, which will let you see a summary of the objects. Clicking on the lines or icons will take you to the Nagios XI Status Detail page for that object.

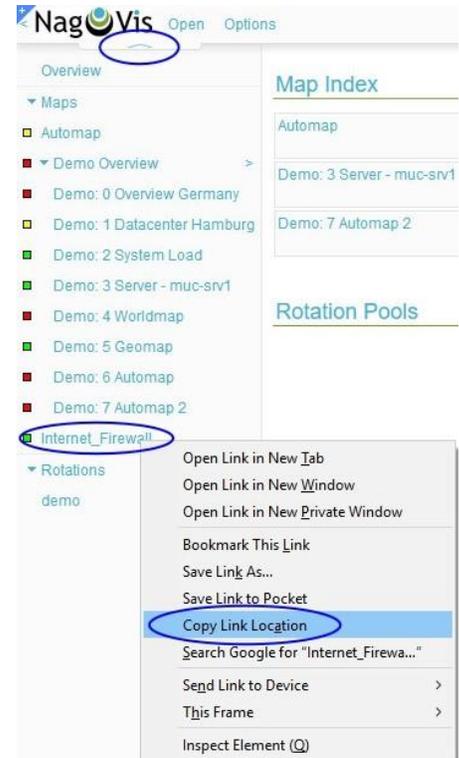
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Add NagVis Map as A View

You can add your NagVis maps to the Nagios XI View rotation list, this allows you to see the maps periodically on a monitoring wall.

The first step is to obtain the URL for the map. In the top left corner of NagVis click the **v** tab to display the left horizontal menu.

Right click on the NagVis map you want and select **Copy Link Address**.



In this example, the URL it copied is:

```
http://nagios_xi_address/nagvis/frontend/nagvisjs/index.php?mod=Map&act=view&show=Internet_Firewall
```

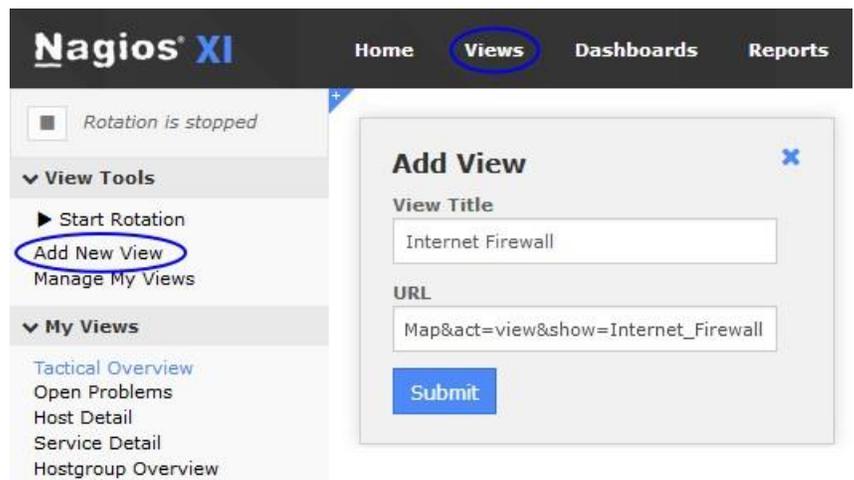
The most important part of that URL is `&show=Internet_Firewall`, which is the Map being shown.

Now click the **Views** menu on the top navigation bar and then select **View Tools > Add New View**.

Provide a title for the view and paste the URL from the clipboard into the **URL** field.

Click the **Submit** button to create the View.

This will now be displayed in the Views rotations list.



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Further Reading

Refer to the official NagVis documentation for usage, configuration, and map creation information at: <https://nagvis.org/documentation/>

Finishing Up

This completes the documentation on integrating NagVis with 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](#)