Purpose

This document describes how to configure Nagios XI to support multi-tenancy to allow multiple users or clients to share access to a single Nagios XI instance. This ensures those specific users have access only to hosts and services they are authorized to view and maintain.

Target Audience

This document is designed for use by Nagios administrators, hosted service providers, and companies that wish to expose different hosts and services to different departments, different clients, or similar situations where there needs to be segregated access to monitored entities.

Additional Resources

In addition to this document, Nagios administrators should be familiar with the following documentation:

Nagios XI Users and Contacts

This document provides supporting information to successfully implement multi-tenancy with Nagios XI.

Multi-Tenancy Overview

Multi-tenancy allows administrators to configure Nagios XI in such a way that the following criteria can be met:

- A single Nagios XI instance can monitor hosts and services for multiple users (clients)

- Each user (client) can only see the hosts and services they are authorized to view and maintain

Permissions and Multi-Tenancy

A key component of multi-tenancy is the ability to restrict a given user's permissions to allow them to see and control only hosts and services they are authorized to view and maintain. Nagios XI automatically determines what hosts and services a user is authorized to see based on their relationship to those hosts and services.

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By default, Nagios XI grants users permission to see and control hosts and services that are configured to:

- Send alerts to the user (contact)

- Send alerts to a contact group the user (contact) is a member of

A key to understanding the relationships between objects and the corresponding permissions that contacts have is knowing how different types of objects relate to each other:

- Users (contacts) may belong to one or more contact groups

- Hosts and services may be configured to send alerts to multiple contacts or contact groups

- Hosts and services may be members or one or more host groups or service groups, respectively
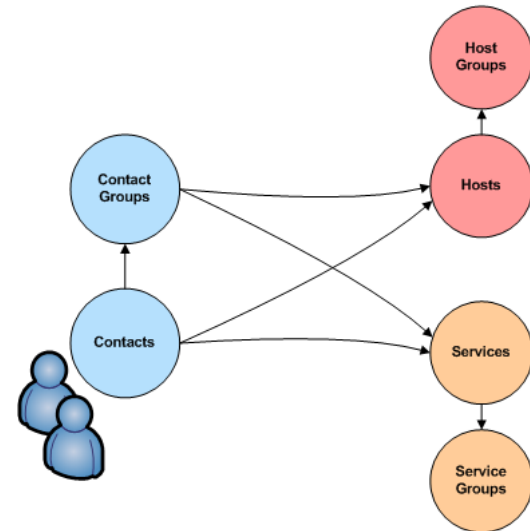
Getting Started

This guide will take you through the steps of configuring Nagios XI to support multi-tenancy, including:

- Creating users / contacts

- Defining contact groups

- Configuring hosts and services

- Defining host groups

Administrative Login

If you haven't already done so, login to Nagios XI as the `nagiosadmin` user. You'll need to perform operations which require administrator access in the following steps.

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Creating Users And Contacts

The first step in creating a multi-tenant Nagios XI installation is the creation of multiple user accounts.

Navigate to **Admin** > **Users** > **Manage Users** and click the **Add New User** button.

Populate the fields as required.

The most important option is the **Create as Monitoring Contact** check-box, this is how the multi-tenancy security model works.

It's also worth mentioning that the **Can see all objects** option will prevent the multi-tenancy from filtering the objects the user is allowed to see.

Create all the users that will be accessing Nagios XI.

Defining Contact Groups

It is considered best practice to define one or more contact groups that can be used to categorize the contacts you create. Contact groups can be used to group contacts by company/client, department, team, or other logical grouping.

Navigate to **Configure** > **Core Config Manager**. Expand **Alerting** and click **Contact Groups**.

Click the **Add New** button to add a new **Contact Group**.

You will define a name and description for the group.

Click the **Manage Contacts** button to add users to the contact group.

Select the members that should belong to the group.

Click **Close** and then **Save** to finish creating the contact group.

Adding an entire contact group is done using the **Manage Contactgroups** button and is similar to the Manage Contacts button.

This allows you to add a sub-group, and allows for multiple group relationships on different levels.

Remember to save your settings after you modify a contact group and **Apply Configuration** when done.

Configuring Hosts and Services

In order to grant users permission to see specific hosts and services, you must configure that user to be a notification contact for those hosts and services.

When configuring new hosts and services using the Monitoring Wizard, you can simply select the appropriate contact(s) and/or contact group(s) that should receive notifications for the host and services on the **Notification Settings** page (step 4).

The contacts and contact groups you select on this screen will have the ability to view the status of these hosts and services when they login to Nagios XI.

In this screenshot, when adding the Delta server we added the Developers contact group. This means that Chase, Emma, Lemont and Maggie will see this host and services when logged into Nagios XI.

If you create your users and/or contact groups after creating hosts and services, you can easily re-configure the hosts or services to use those new contacts and/or contact groups.

This can be accomplished by selecting the **Re-configure this host/service** option under the **Configure** tab when you are viewing detailed information on a specific host or service.

When the *Configure Host* page opens, select the **Notification** tab. This will allow you to change any of the contacts and contact groups associated to this host.

Click **Update** when done making changes.

Host Status Detail

Delta
Alias: Delta

[⚙ Configure]

✂ Re-configure this host

✗ Delete this host

Note: You may update basic settings for the host below or use the Nagios Core Config Manager to modify advanced settings for this host. Host attribute values which are inherited from advanced templates are not shown below.

[Attributes] [Monitoring] [**Notifications**] [Host Groups] [Host Parents]

Specify the parameters that determine how notifications should be sent for the host.

When a problem is detected:

○ Don't send any notifications
◉ Send a notification immediately
○ Wait [15] minutes before sending a notification

If problems persist:

Send a notification every [60] minutes until the problem is resolved.

Send alert notifications to:

☐ Myself (Adjust settings)
☐ Other individual contacts

- ☐ Alice (alice)
- ☐ Bob (bob)
- ☐ Chase (chase)
- ☐ David (david)
- ☐ Default Contact (xi_default_contact)
- ☐ Emma (emma)
- ☐ Fay (fay)
- ☐ Gerard (gerard)
- ☐ Hank (hank)

☒ Specific contact groups

- ☐ Accountants (Accountants)
- ☐ All Contacts (xi_contactgroup_all)
- ☒ Developers (Developers)
- ☐ Helpers (Helpers)
- ☐ Little Guy Personnel (Little Guy Personnel)
- ☐ Managers (Managers)
- ☐ Mega Corp Personnel (Mega Corp Personnel)
- ☐ Nagios Administrators (admins)
- ☐ Owners (Owners)

[Update] [Cancel]

Defining Host Groups

Host groups allow you to group hosts in a logical manner, making it easier for users to get a quick view of their network infrastructure. They will not have an impact on the notifications or access control, but will make it easier for both your users to grasp what they are looking at and for you as the administrator to quickly pinpoint where problems are occurring.

Navigate to **Configure** > **Core Config Manager**. Expand **Monitoring** and click **Host Groups**.

Click the **Add New** button to add a new Host Group.

You will define a name and description for the group.

Click the **Manage Hosts** button to add hosts to the host group.

Select the members that should belong to the group.

Manage Hosts   ✕

Filter...		Assigned	Remove All
Alpha		Bravo	! ☐ ✗
Charlie		Foxtrot	! ☐ ✗
Delta		Romeo	! ☐ ✗
Echo		Tango	! ☐ ✗
Juliet			
Kilo			
localhost			
Qubec			
Sierra			
Uniform			
*			

Add Selected ❯   % *Relationship defined elsewhere*
                         ❶ *Inactive object*

Close

Click **Close** and then **Save** to finish creating the host group.

Similar to contact groups, you can create host groups that have individual hosts and other host groups as their members. Host groups are added with the **Manage Host Groups** button.

Manage Host Groups   ✕

Filter...		Assigned	Remove All
linux-servers		Laptops	! ☐ ✗
❶ windows-servers		Servers	! ☐ ✗
		Workstations	! ☐ ✗

Add Selected ❯   % *Relationship defined elsewhere*
                         ❶ *Inactive object*

Close

Remember to choose the **Apply Configuration** option when you are done making configuration changes.

Service Groups

Service groups work in a similar way to host groups, in that they allow you to group services together in a way that makes sense for users who need to view the status of your infrastructure. The process for creating service groups is similar to that of creating host groups.

Navigate to **Configure** > **Core Config Manager**. Expand **Monitoring** and click **Service Groups**.

Click the **Add New** button to add a new Service Group.

You will define a name and description for the group.

Click the **Manage Services** button to add services to the service group.

Adding members to the service group is the same as in Contact and Host Groups. When you may have a lot of services you can filter the results in the left pane by typing in the Filter field at the top of the left pane. In the screenshot below you can see that the results have been filtered by the word CPU.

Remember to save and choose the **Apply Configuration** option when you are done making configuration changes.

An Example

We configured Nagios XI with a sample setup to test and document the multi-tenancy features available. The information below describes how we setup our Nagios XI instance, and the end-result of our configuration.

The configuration diagrams follow the pattern shown in the image below. Elements of the diagram show the relationships between hosts, host groups, contacts, and contact groups.

Understanding Multi-Tenancy
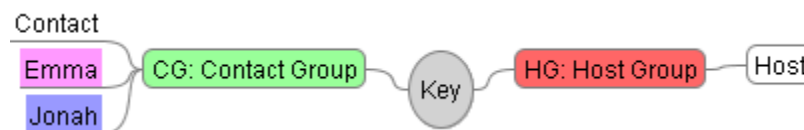
We defined two client companies - "Little Guy" and "Mega Corp" - each of which had a single top-level contact group covering their entire company. Those top-level contact groups then had other sub-groups as their members, which were used to define roles or departments within the company. The sub-groups then had individual employees as their members. The image below represents the configuration we created.
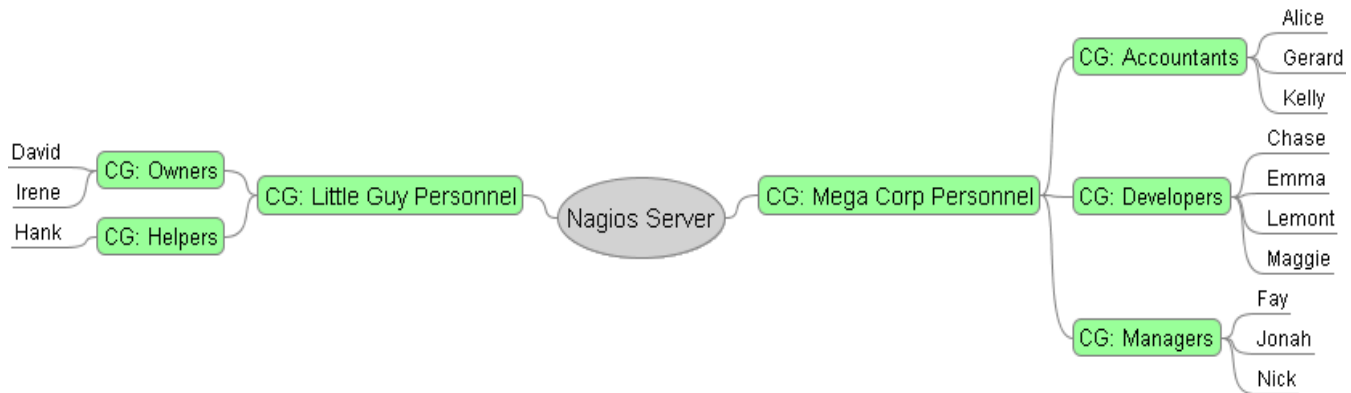
Top-level host groups were configured to contain each company's respective infrastructure elements. Sub-level host groups were defined to narrow the scope of included infrastructure elements for Mega Corp. The diagram below shows the hosts that are defined as members of various hostgroups, along with the the contact(s) and/or contact group(s) that were assigned to each host for notification purposes.

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Nagios XI **Understanding Multi-Tenancy**
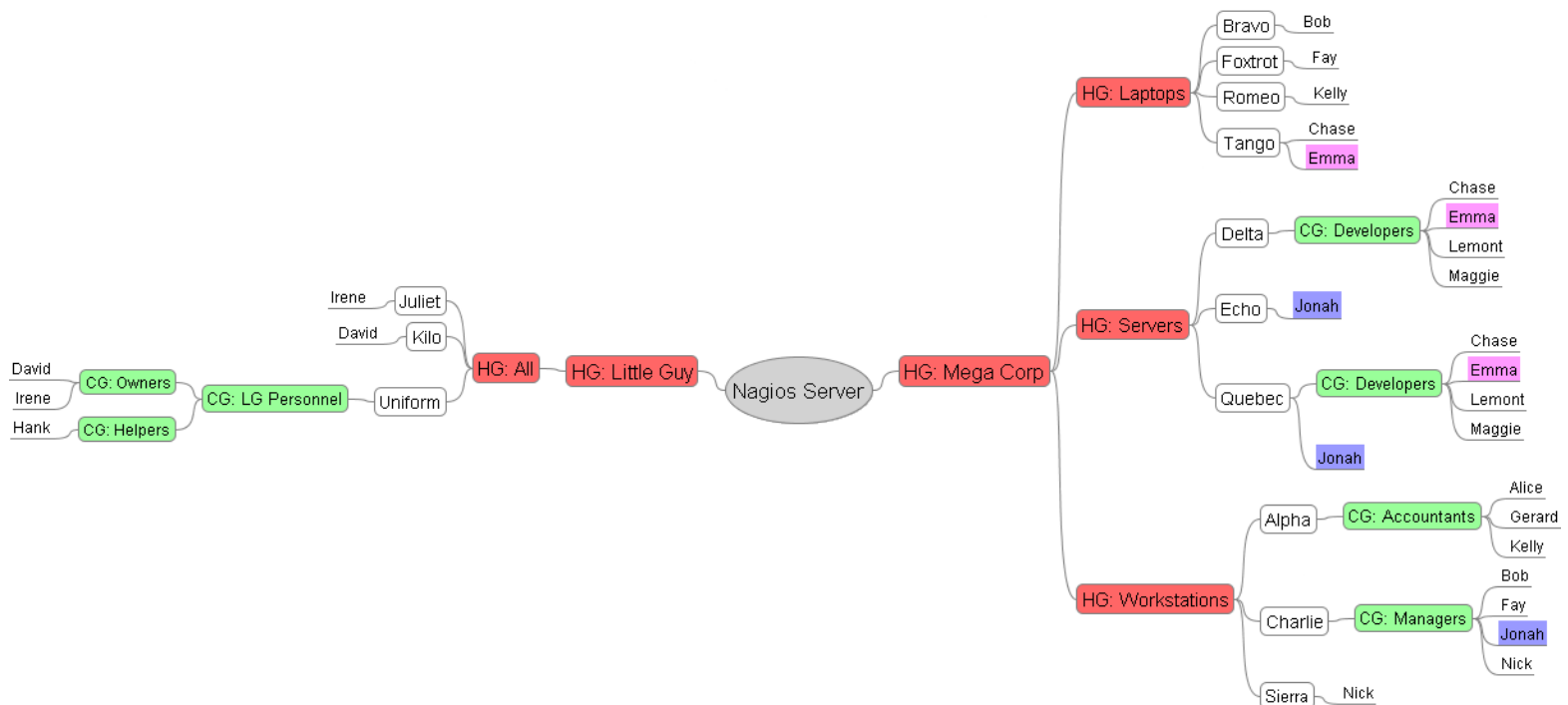
Administrator View

We configured Nagios XI using the `nagiosadmin` account. This account is an administrator, so it has permission to view all hosts, services, and groups that were defined. The following screenshot shows the hostgroups that were visible to the administrator under the Hostgroup Overview screen once we finished configuring everything.

Host Group Status

Overview

Host Status Summary

Up	Down	Unreachable	Pending
14	0	0	0
Unhandled		**Problems**	**All**
0		0	14

Last Updated: 2016-12-21 05:48:09

Service Status Summary

Ok	Warning	Unknown	Critical	Pending
100	5	0	0	0
Unhandled		**Problems**		**All**
5		5		105

Last Updated: 2016-12-21 05:48:09

All (All)

Host	Status	Services
Juliet	Up	11 Ok / 1 Warning
Kilo	Up	11 Ok / 1 Warning
Uniform	Up	11 Ok / 1 Warning

Last Updated: 2016-12-21 05:48:09

Laptops (Laptops)

Host	Status	Services
Bravo	Up	5 Ok
Foxtrot	Up	5 Ok
Romeo	Up	5 Ok
Tango	Up	5 Ok

Last Updated: 2016-12-21 05:48:09

Linux Servers (linux-servers)

Host	Status	Services
localhost	Up	12 Ok

Last Updated: 2016-12-21 05:48:09

Little Guy (Little Guy)

Host	Status	Services
Juliet	Up	11 Ok / 1 Warning
Kilo	Up	11 Ok / 1 Warning
Uniform	Up	11 Ok / 1 Warning

Last Updated: 2016-12-21 05:48:09

Mega Corp (Mega Corp)

Host	Status	Services
Alpha	Up	5 Ok
Bravo	Up	5 Ok
Charlie	Up	5 Ok
Delta	Up	11 Ok / 1 Warning
Echo	Up	5 Ok
Foxtrot	Up	5 Ok
Qubec	Up	5 Ok
Romeo	Up	5 Ok
Sierra	Up	4 Ok / 1 Warning
Tango	Up	5 Ok

Last Updated: 2016-12-21 05:48:09

Servers (Servers)

Host	Status	Services
Delta	Up	11 Ok / 1 Warning
Echo	Up	5 Ok
Qubec	Up	5 Ok

Last Updated: 2016-12-21 05:48:09

Workstations (Workstations)

Host	Status	Services
Alpha	Up	5 Ok
Charlie	Up	5 Ok
Sierra	Up	4 Ok / 1 Warning

Last Updated: 2016-12-21 05:48:09

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Non-Admin View #1: Jonah

We created a Jonah user that appeared in three different places (highlighted in blue) in the diagram on the previous page. Jonah was configured as a direct notification contact for the hosts *Echo* and *Quebec*, and indirectly as a notification contact for *Charlie* via his membership in the *Managers* contact group.

These relationships are summarized in the diagram to the right:

We logged into Nagios XI as *Jonah* and selected the Hostgroup Overview screen to see what hosts and host groups Jonah could see.

The following screenshot shows that *Jonah's* view was limited to include only the hosts *Echo*, *Quebec*, and *Charlie*.

Host Group Status

Overview

Host Status Summary

Up	Down	Unreachable	Pending
3	0	0	0

Unhandled	Problems	All
0	0	3

Last Updated: 2016-12-21 05:53:39

Service Status Summary

Ok	Warning	Unknown	Critical	Pending
15	0	0	0	0

Unhandled	Problems	All
0	0	15

Last Updated: 2016-12-21 05:53:40

Mega Corp (Mega Corp)

Host	Status	Services
Charlie	Up	5 Ok
Echo	Up	5 Ok
Qubec	Up	5 Ok

Last Updated: 2016-12-21 05:53:40

Servers (Servers)

Host	Status	Services
Echo	Up	5 Ok
Qubec	Up	5 Ok

Last Updated: 2016-12-21 05:53:39

Workstations (Workstations)

Host	Status	Services
Charlie	Up	5 Ok

Last Updated: 2016-12-21 05:53:39

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Non-Admin View #2: Emma

Another user *Emma* was directly defined as the notification contact for the host *Tango* and indirectly for *Delta* and *Quebec* through her membership in the *Developers* contact group.

As seen in the following screenshot, *Emma* could only see the *Delta*, *Tango* and *Quebec* servers.

Host Group Status

Overview

Host Status Summary

Up	Down	Unreachable	Pending
3	0	0	0
Unhandled	Problems	All	
0	0	3	

Last Updated: 2016-12-21 05:57:18

Service Status Summary

Ok	Warning	Unknown	Critical	Pending
21	1	0	0	0
Unhandled		Problems		All
1		1		22

Last Updated: 2016-12-21 05:57:18

Laptops (Laptops)

Host	Status	Services
Tango	Up	5 Ok

Last Updated: 2016-12-21 05:57:18

Mega Corp (Mega Corp)

Host	Status	Services
Delta	Up	11 Ok / 1 Warning
Qubec	Up	5 Ok
Tango	Up	5 Ok

Last Updated: 2016-12-21 05:57:18

Servers (Servers)

Host	Status	Services
Delta	Up	11 Ok / 1 Warning
Qubec	Up	5 Ok

Last Updated: 2016-12-21 05:57:18

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Another example is the service group that was created which included CPU Usage services from multiple servers. When *Emma* is logged in and navigates to the Servicegroup Overview page she only sees the services she has access to, as per this screenshot.

Service Group Status

Overview

Host Status Summary

Up	Down	Unreachable	Pending
3	0	0	0

Unhandled	Problems	All
0	0	3

Last Updated: 2016-12-21 06:01:15

Service Status Summary

Ok	Warning	Unknown	Critical	Pending
21	1	0	0	0

Unhandled	Problems	All
1	1	22

Last Updated: 2016-12-21 06:01:15

CPU Usage (CPU Usage)

Host	Status	Services
Tango	Up	1 Ok

Last Updated: 2016-12-21 06:01:15

Finishing Up

As you can see in the examples above, Jonah and Emma only see the hosts they are associated to as a notification contact. Neither sees any indication whatsoever of the other company (Little Guy) or any of their assets, nor of things within their own company that they have not been assigned as a notification contact. This provides both security from the administrator's perspective and simplicity from the end user's perspective. You can easily configure Nagios XI to support the same type of host grouping and user-specific permissions we demonstrated to enable effective multi-tenancy features.

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

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