Organize Services and Elements

In this module, you will work with Elements and service monitors, and create Element Groups and Service Groups for them, respectively.

On a practical level, doing these exercises will get you accustomed to using the Uptime Infrastructure Monitor interface to create different types of groups, and assign service monitors to Elements. At a conceptual level, you will learn how inheritance occurs in groups in Uptime Infrastructure Monitor, and gain an understanding about how you can focus on structuring your monitored inventory, while Uptime Infrastructure Monitor takes care of tracking Element-level relationships.

This module consists of the following exercises:

Exercise	Description	Time required
Create a Service Monitor and Service Group	Learn about service monitors in Uptime Infrastructure Monitor. Create one as the foundation to a Service Group. Learn how Service Groups work by linking one to all of your Elements in one step.	1 slice
Create Element Groups	Begin organizing your monitored inventory by creating an Element Group and a pair of child Element Groups.	1 slice
Learn About Inheritance	Create a new Service Group (including a service monitor) and assign it to a top-level Element Group. Examine the services of an Element in a child group to learn about inheritance.	1 slice

Before You Begin

In the first module, if you followed all three tracks, your inventory should now include a VMware vCenter Server (along with its inventory of ESX hosts and VMs), a pair of physical servers (one agent-based Linux system, and a WMI-based Windows system), and an SNMP network device. The screenshots used in this module reflect this.

For the exercises in this module, the two physical servers are used as examples. If you did not add physical servers to your inventory, you can either just follow along, or consider adding physical servers so that you can do every exercise.

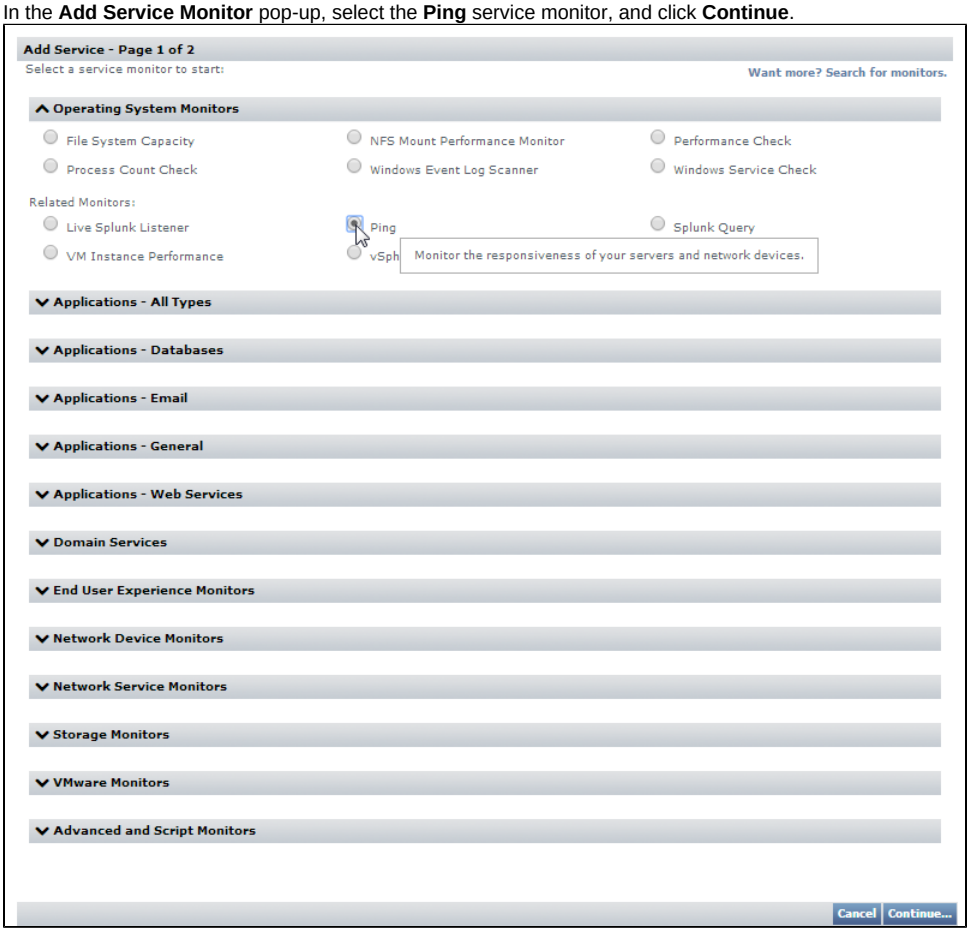
Create a Service Monitor and Service Group

As a default way to report server uptime, for every server-type Element that is added to Uptime Infrastructure Monitor's inventory, a Ping service monitor is also created and assigned to it, in a one-to-one relationship. In this exercise, we will replicate this functionality, but instead using a single service monitor. We will be able to create a one-to-many relationship between a service monitor and all of your Elements using a *Service Group*. A Service Group is a group of service monitors that can be assigned to Elements or groups of Elements.

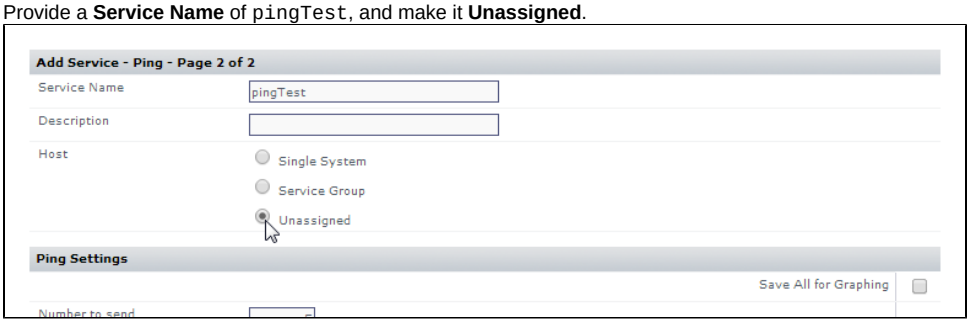
Add a Service Monitor

1. Click **Services**, then click **Add Service Monitor** in the left pane.

2. In the **Add Service Monitor** pop-up, select the **Ping** service monitor, and click **Continue**.

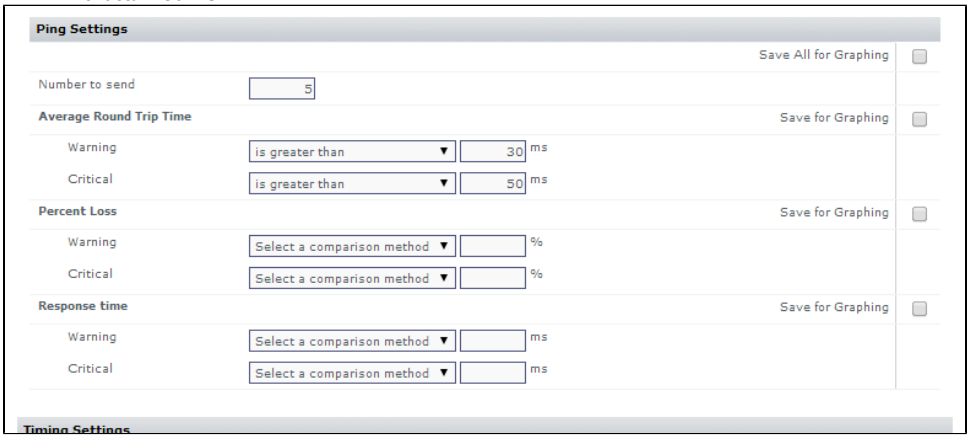


3. Provide a **Service Name** of `pingTest`, and make it **Unassigned**.



While creating this service monitor, you also can assign it to an individual Element (that is, a single system), or a Service Group; let's leave it assigned to nothing for now.

4. For the sake of completion, let's configure a pair of alert thresholds for the service monitor's **Average Round Trip Time**:
   - warning > 30 ms
   - critical > 50 ms



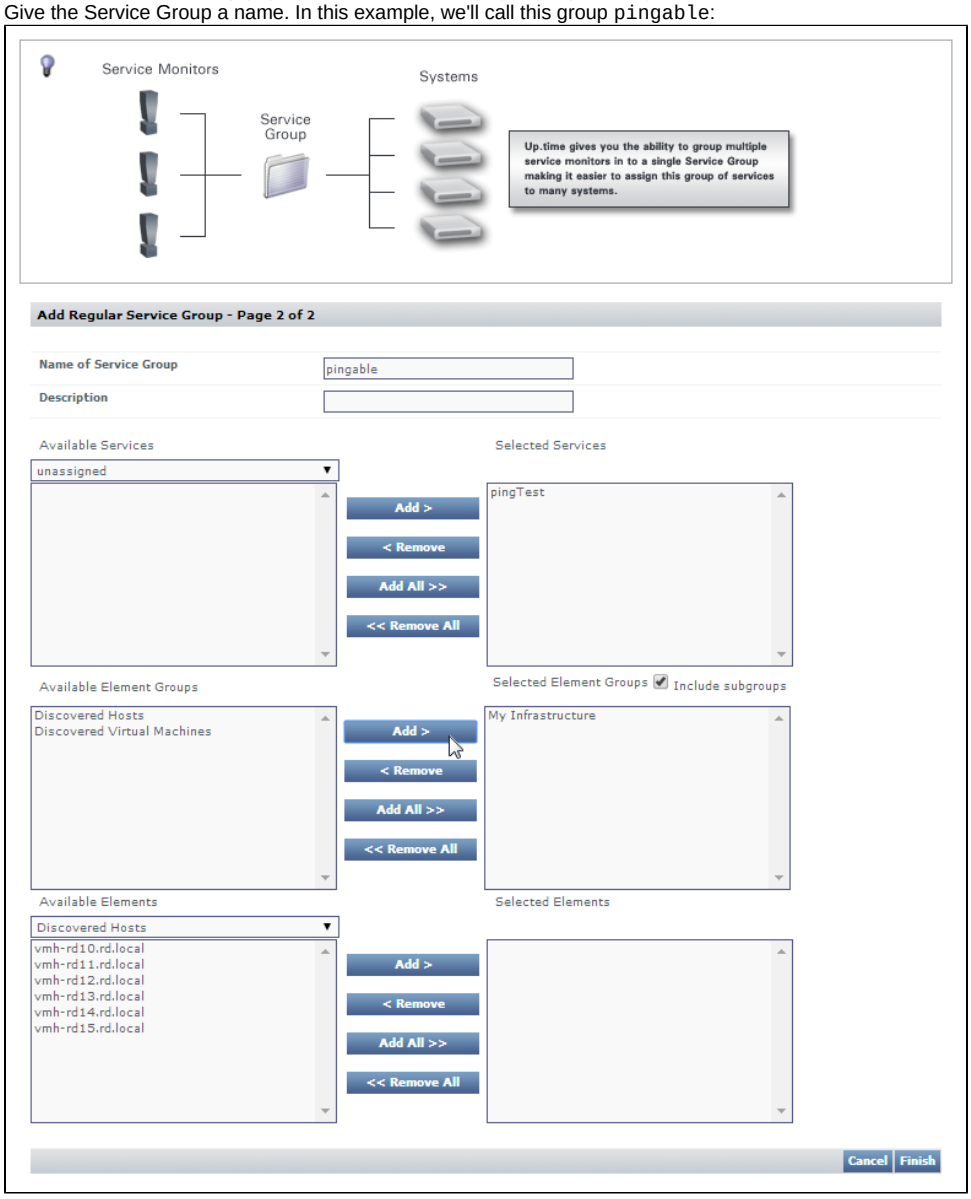
5. Click **Finish**, then click **Close Window**.

In the main UI window, the **Info** page for your newly created service monitor is displayed. Note there is no value in the **Host** field, showing that it is not assigned to any Element.

Create a Service Group

Let's now create a Service Group that includes the service monitor, and is assigned to the **My Infrastructure** Element Group.

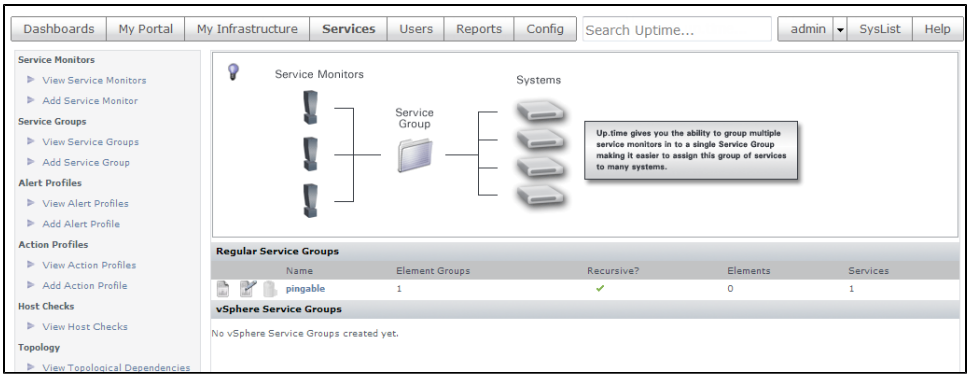
1. In the left pane, click **Add Service Group**.
2. In the **Add Service Group** pop-up window, confirm the group type is **Regular**, then click **Continue**.
3. Give the Service Group a name. In this example, we'll call this group `pingable`:



4. Configure the Service Group to include the **pingTest** service monitor you created earlier in this exercise, and associate it with the **My Infrastructure** Element Group.

> **FYI**
>
> **My Infrastructure** is always available as an Element Group, as it represents all of your monitored inventory (or, Elements), as shown when you view it in the **My Infrastructure** panel. The other two groups shown in this example (**Discovered Hosts**, and **Discovered Virtual Machines**) were automatically created when you add a VMware vCenter Server as an Element.

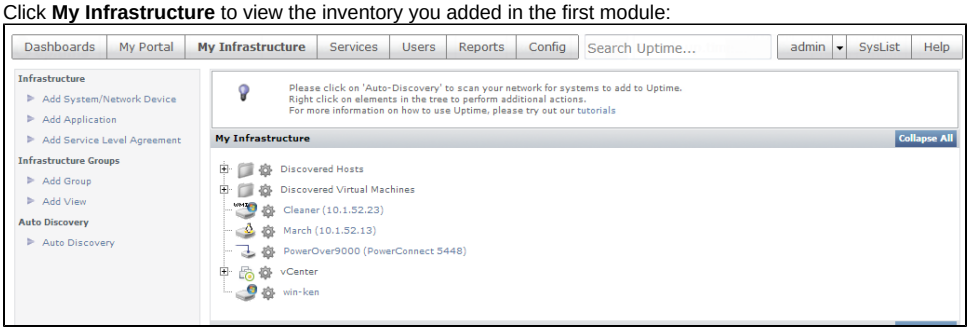
5. Click **Finish**, then click **Close Window**.
   In the main UI window, you are taken to your list of Service Groups, of which you now have one:



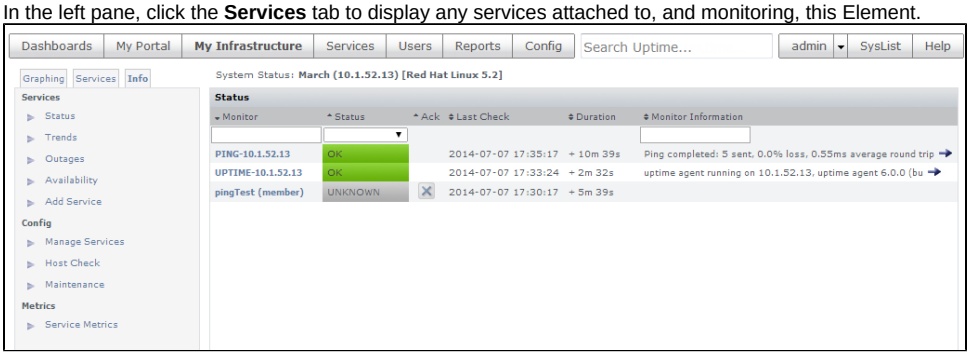
The list provides a summary of each Service Group. In our case, our group is associated with a single Element Group (and any of its subgroups); it is not directly assigned to any individual Elements; it contains a single service monitor.

Validation

1. Click **My Infrastructure** to view the inventory you added in the first module:



2. Click any Element's gear icon, then in the pop-up menu, click **View** to display its **General Information** page. Because you have associated the Service Group to all Elements (by way of the **My Infrastructure** Element Group), the service monitor is attached to any Element.
3. In the left pane, click the **Services** tab to display any services attached to, and monitoring, this Element.



You can see that by creating a Service Group (**pingable**), and linking it to an Element Group to which this Element belongs (**My Infrastructure**), this Element now uses this service monitor. Some things to note using the above screenshot:

- the **pingTest** service monitor has a **(member)** suffix to indicate it is "attached" to this Element via a Service Group, meaning the properties of this service monitor can only be edited at the Service Group level (it is possible to "detach" a service monitor to make it editable at an Element level, but this is not a best practice)
- the **pingTest** service monitor status may be shown as **UNKNOWN** because it is recently added, and a full monitoring interval has not yet passed
- to view how long a monitoring interval is for a particular Element, click its **Info** tab, then look in the **Data Collection** section of the **General Information** page

Bonus Knowledge

While we are viewing this Element's **Status** page (if you have clicked the **Info** tab, return to the **Status** page by clicking the **Services** tab), let's learn a few more things about service monitors and Elements using the example screenshot above, which is of a server-type Element with an Uptime Infrastructure Monitor agent installed on it:

- as with server-type Elements, upon addition to the Uptime Infrastructure Monitor inventory, a Ping service monitor was created and assigned to the Element called **PING-<hostname>**
- server-type Elements that have the Uptime Infrastructure Monitor agent installed will also have an **UPTIME-<hostname>** service monitor assigned to it
- if you click **Host Check** in the left pane, you can see which service Uptime Infrastructure Monitor is using to monitor that particular Element's status (which applies to most Elements except for VMware vCenter Servers)
- if you click **Manage Services**, you will see other service monitors attached to the Element that aren't necessarily related to status
    - **Configuration Update Gatherer**: collects any configuration changes for the monitored Element every 24 hours

- **Platform Performance Gatherer**: collects basic performance metrics from the monitored Element using the Uptime Infrastructure Monitor Agent or WMI, and feeds them into Uptime Infrastructure Monitor; its metrics can be used with a performance-related service monitor such as Performance Check

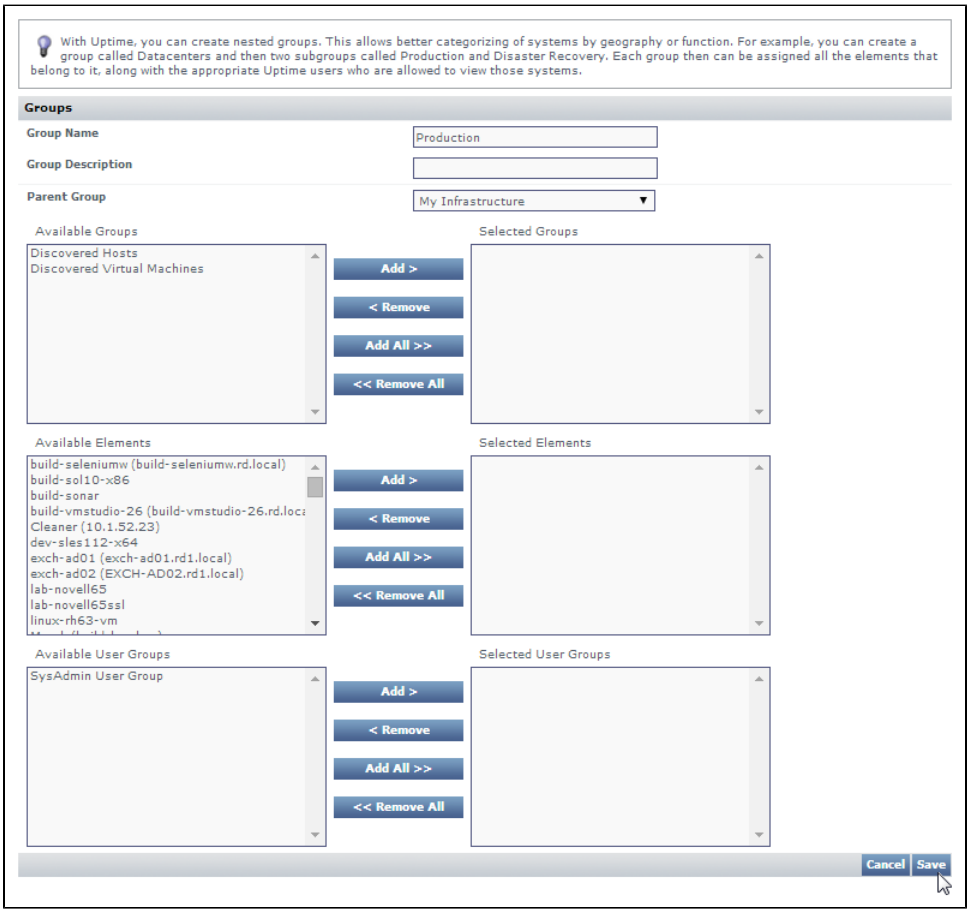
Now that you've gone through a rudimentary exercise of creating a service monitor, a Service Group, and assigning them to the **My Infrastructure** Element group, we'll learn more about their properties.

Create Element Groups

As you add Elements to Uptime Infrastructure Monitor, by default, they end up at the top of the **My Infrastructure** hierarchy. Unless you are monitoring a small number of Elements, it's best practice to keep your monitored inventory well organized. Doing so helps both administrators and end users, which we will see in this exercise.

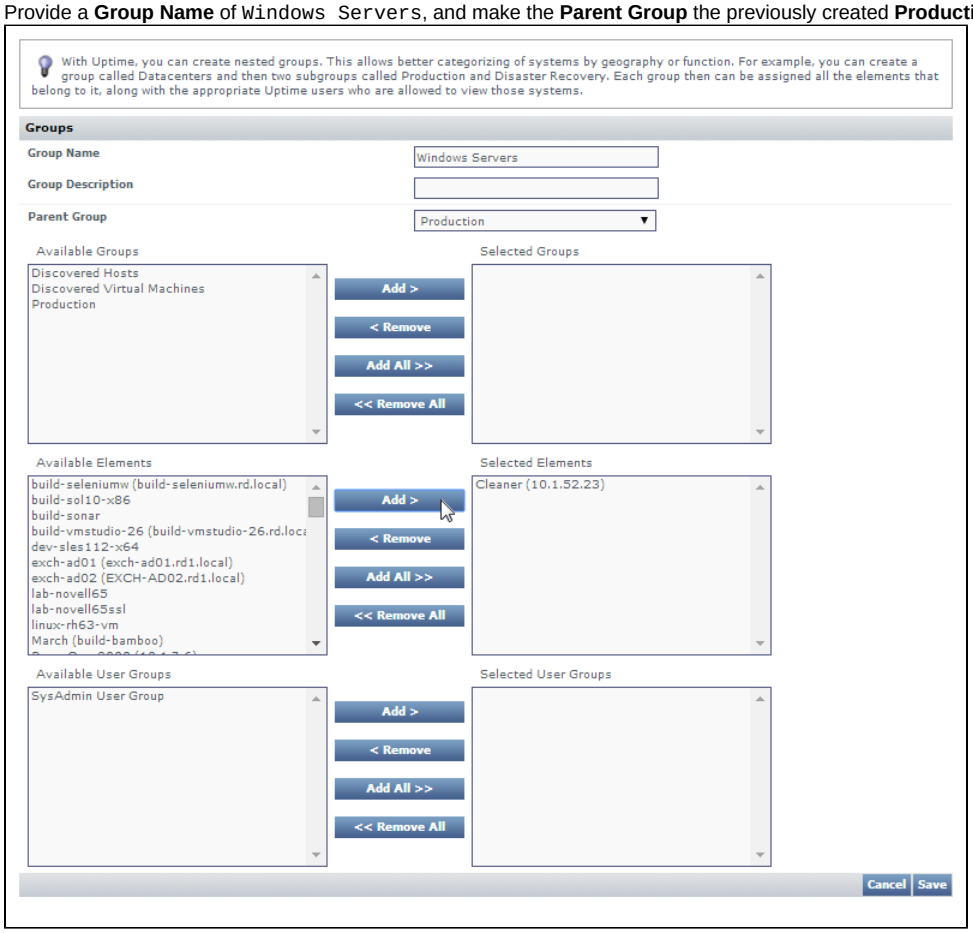
How you organize your Elements may depend on the policies that determine other aspects of your IT infrastructure, such as naming conventions for hosts. You may want to divide your inventory primarily by platform (for example, you could have Linux, Solaris, and Windows top-level groups); you may want to divide by geographical location; or you could organize first by Element function (for example, Production versus QA/UAT). In our example, we'll organize our Elements by function, then by platform.

1. Click **My Infrastructure**, then click **Add Group** in the left pane.
2. Provide a **Group Name** of `Production`, leaving the other configuration options empty, or at the default value:



3. Click **Save**, then click **Add Another**.

4. Provide a **Group Name** of `Windows Servers`, and make the **Parent Group** the previously created **Production** group:

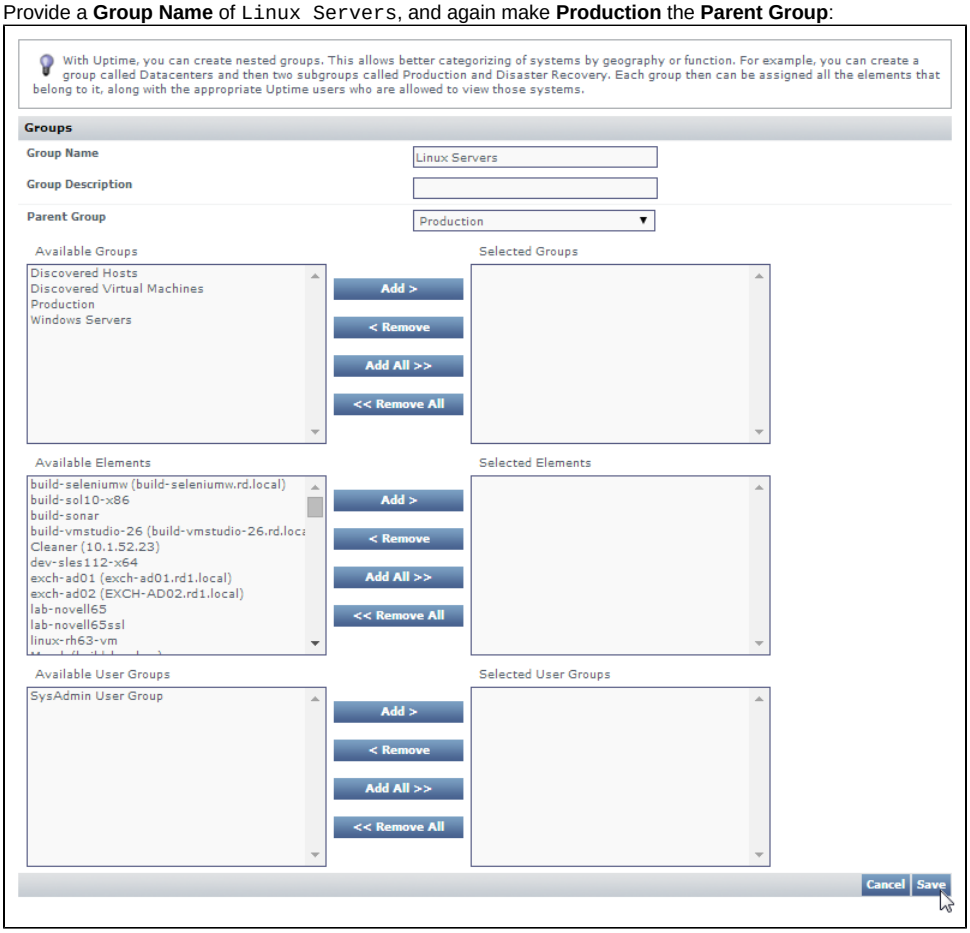


5. From the **Available Elements** list, locate and add your Windows Element.

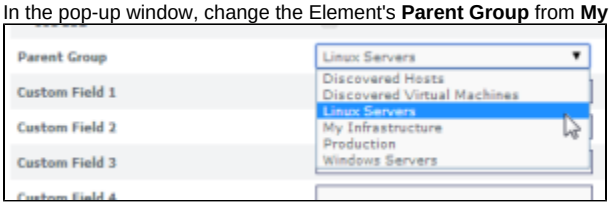
> **Note**
>
> As mentioned at the beginning of this module, it is assumed you have Windows and Linux server Elements in your inventory. If you don't, you can either follow along, substitute these examples with something similar in your current test inventory, or go back and add these types of Elements.

6. Click **Save**, then click **Add Another**.

7. Provide a **Group Name** of `Linux Servers`, and again make **Production** the **Parent Group**:



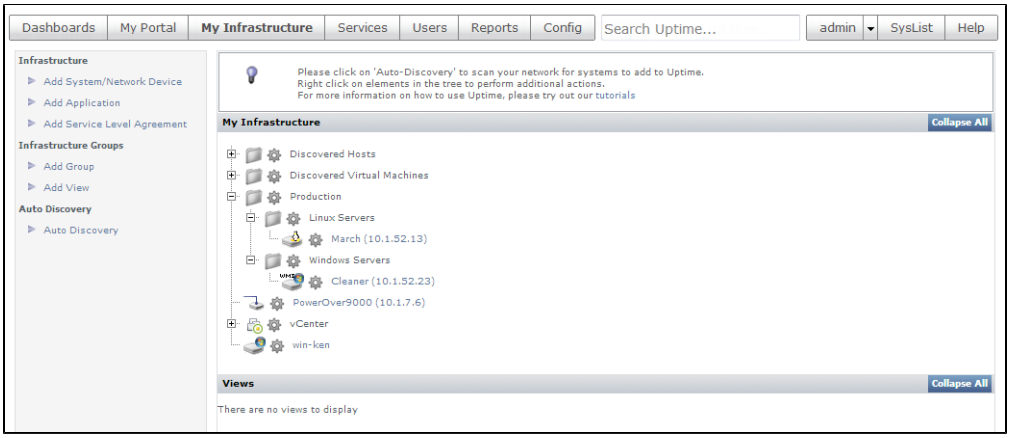
8. Click **Save**, then click **Close Window**.
   Notice how we did not add your Linux server to the **Linux Servers** Element group as we were creating it. You can also assign an Element to an Element Group from the perspective of the Element itself.
9. In the main UI window, locate your Linux server in **My Infrastructure**.
10. Click its gear icon, then click **Edit**.
11. In the pop-up window, change the Element's **Parent Group** from **My Infrastructure**, to **Linux Servers**:



12. Click **Save**.

Validation (My Infrastructure)

After adding the Element Groups, in the main UI window, **My Infrastructure** is displayed. Click to expand the **Production** group, and the **Windows Servers** and **Linux Servers** child groups. Each of these child groups contain one Element.



Structuring your monitored inventory in **My Infrastructure** not only facilitates Element management for system administrators, but, as the structures are reflected in dashboards, can also be useful for end users.

> **Pro Tip**
>
> Elements are not just servers, network devices, and their virtual instances; they can also be Applications and SLAs. Although based on metrics retrieved from monitored hardware (whether physical or virtual), Applications and SLAs provide health and performance information from a business perspective. Nonetheless, they are also found under **My Infrastructure**, and can be placed in their own Element Groups. Refer to the product documentation for more information about SLAs, and Applications and the Applications dashboard.

Validation (Resource Scan)

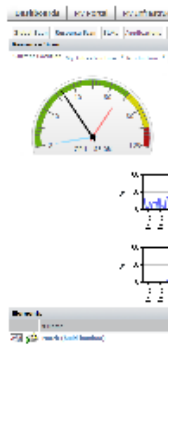
Click **Dashboards**, then click the **Resource Scan** tab. This dashboard summarizes resource usage for server-type Elements from various points in your hierarchy of Elements: you can click an individual server to show its usage data, or Element Groups to show an average of all its Elements. Your **Productio** group is here, showing an average of the data for the servers you added to its platform-specific child groups. Click the parent group to drill down and display the **Windows Servers** and **Linux Servers** child groups. Each child group now shows usage data for its respective Element. Click either child group to display its contents, which in our case is a single server that you added:



gsg_elementGroupClickThrough1.png

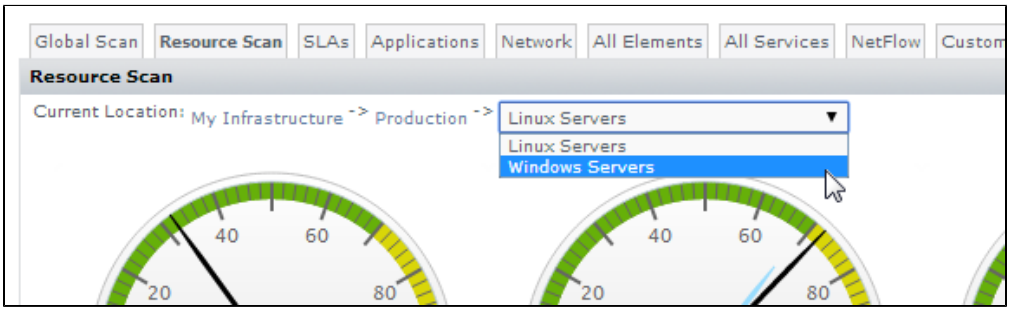


gsg_elementGroupClickThrough2.png



gsg_elementGroup

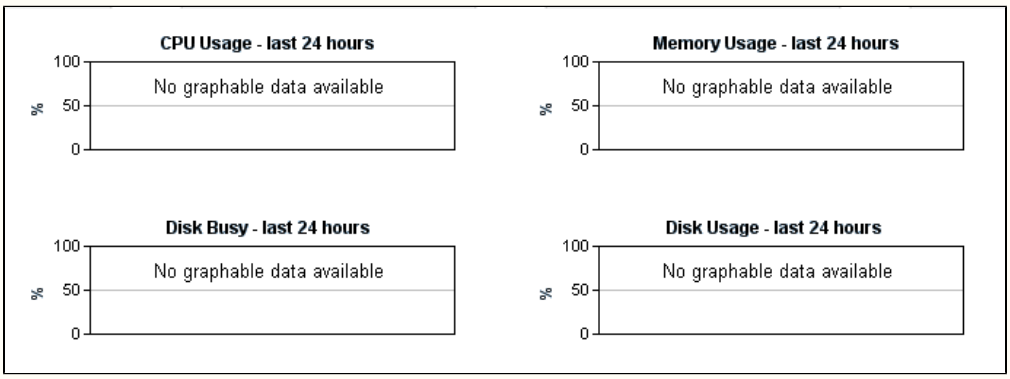
When you are viewing data for one child group, you can move laterally to display a sibling child group by using the drop-down at the end of the breadcrumb trail at the top of the dashboard:



Keeping your monitored inventory well organized has several important benefits including more relevant at-a-glance viewing, logical drill-down paths for investigation, and focused report generation. Element Groups are even more useful when combined with Service Groups, which we will explore a bit more in the next exercise.

Note

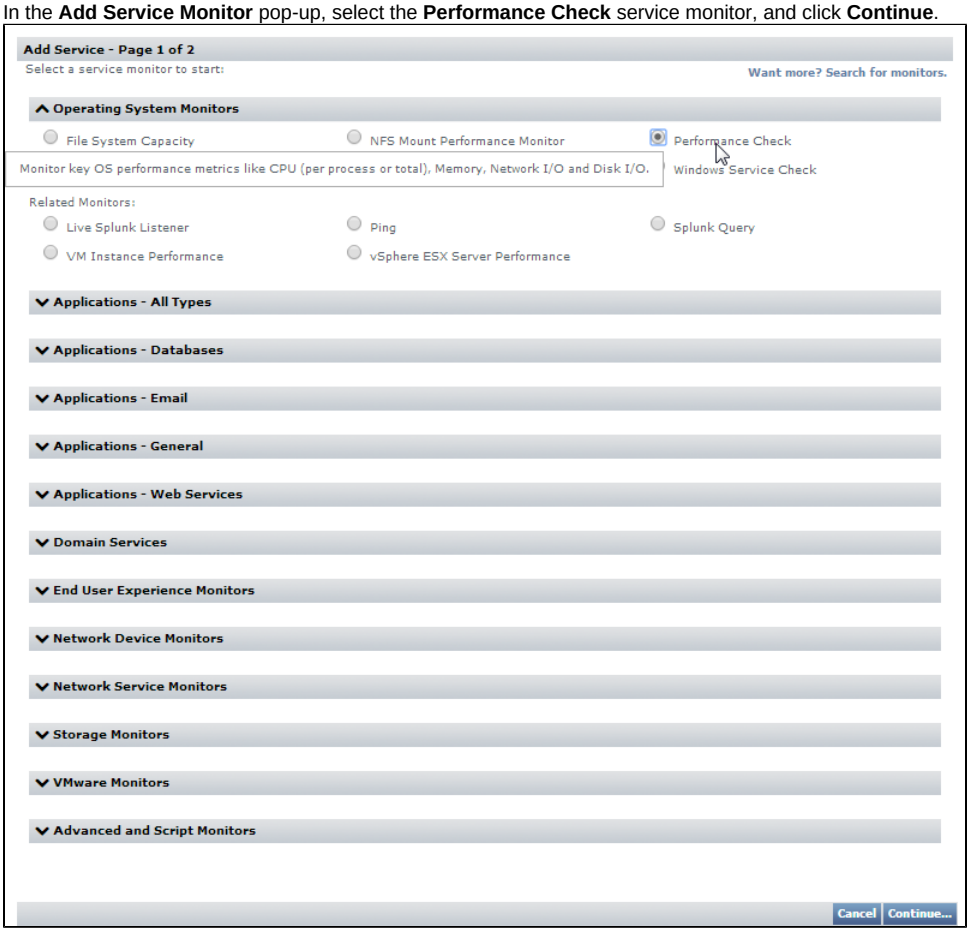
In the sample images above, the gauges and performance graphs are showing more information than you may be seeing on your own Monitoring Station. A data-collection interval is required to have passed before any information is shown; until then, you may see empty graphs such as the following:



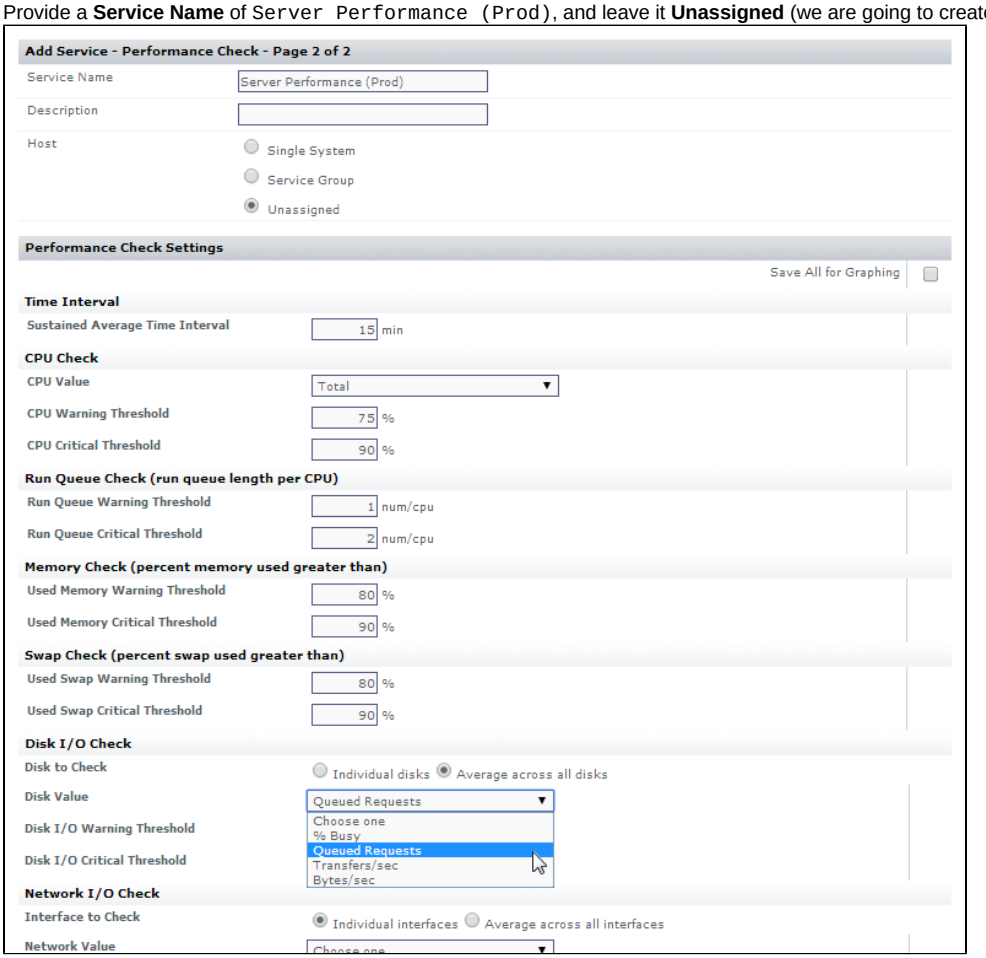
Learn About Inheritance

In the first exercise, you created a basic Service Group and assigned it to all of your Elements via the **My Infrastructure** Element Group. Let's create another Service Group that demonstrates inheritance. To do this, we make use of the **Production** parent Element Group we created in the previous exercise. But first, let's create a service monitor that is part of the Service Group. Because it is assigned to Elements in the **Production** Element group, this service monitor should be something appropriate for all servers in a production environment.

1. Click **Services**, then click **Add Service Monitor** in the left pane
2. In the **Add Service Monitor** pop-up, select the **Performance Check** service monitor, and click **Continue**.

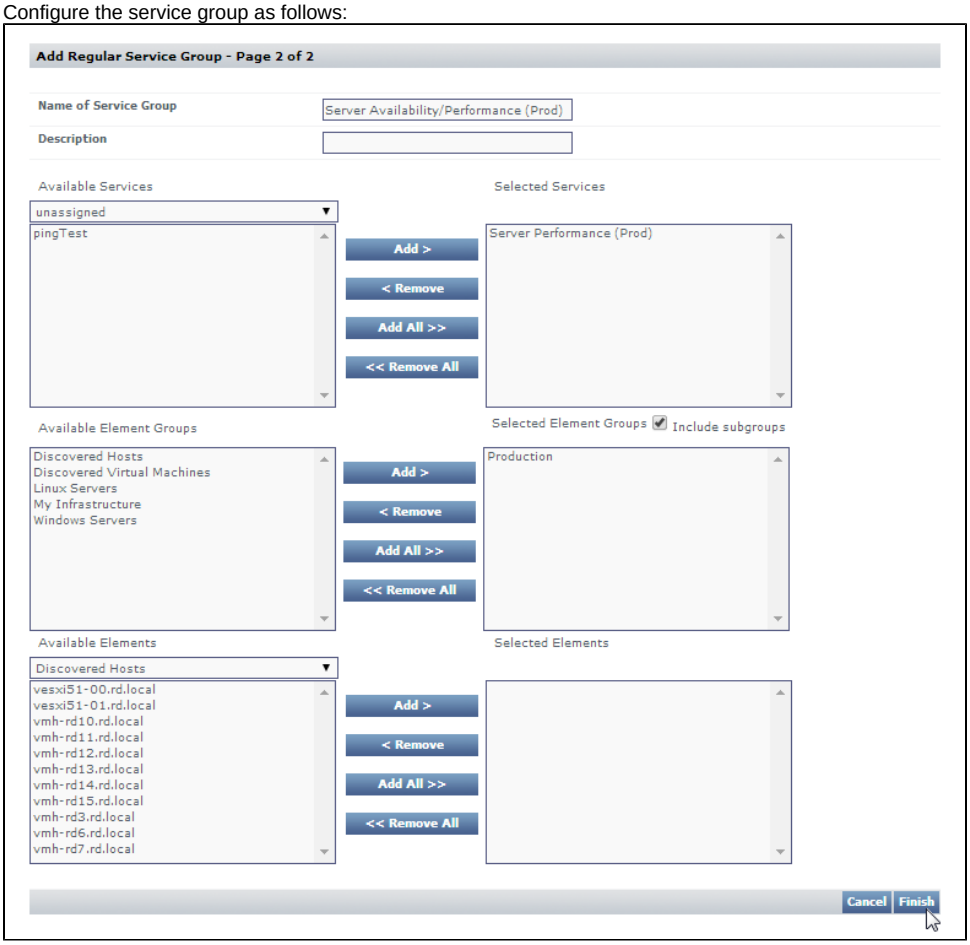


3. Provide a **Service Name** of `Server Performance (Prod)`, and leave it **Unassigned** (we are going to create a Service Group for it):



4. For the sake of the exercise, continue to configure the service monitor will some thresholds, similar to those shown above.
   For this module and guide, we won't be making use of any performance checks you define, but feel free to experiment. You can always enter some unrealistically strict thresholds to force alerts, just to see how they appear on the dashboards.
5. Click **Finish**, then click **Close Window**.
   Now that we have created a common performance check intended for all your production servers, let's do what we did in the first exercise of this module, and create a Service Group that will include it.
6. Click **Services**, then click **Add Service Group** in the left pane.
7. in the **Add Service Group** pop-up window, confirm the group type is **Regular**, then click **Continue**.

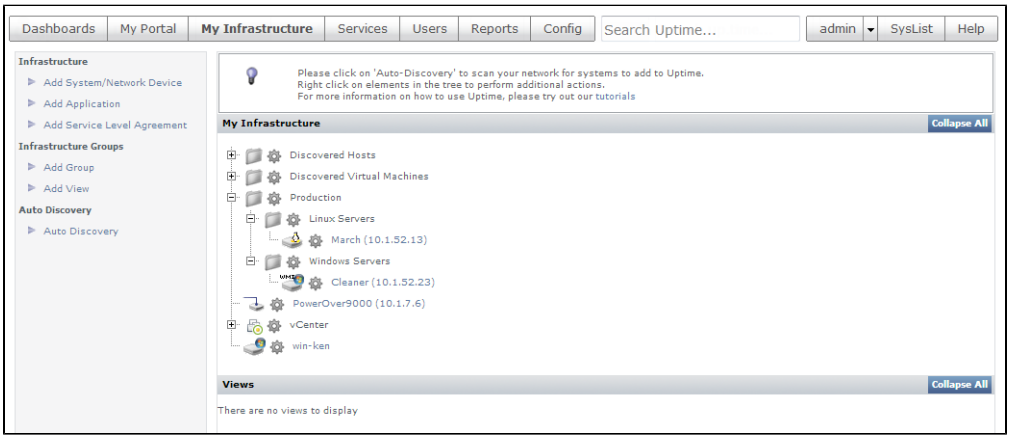
8. Configure the service group as follows:



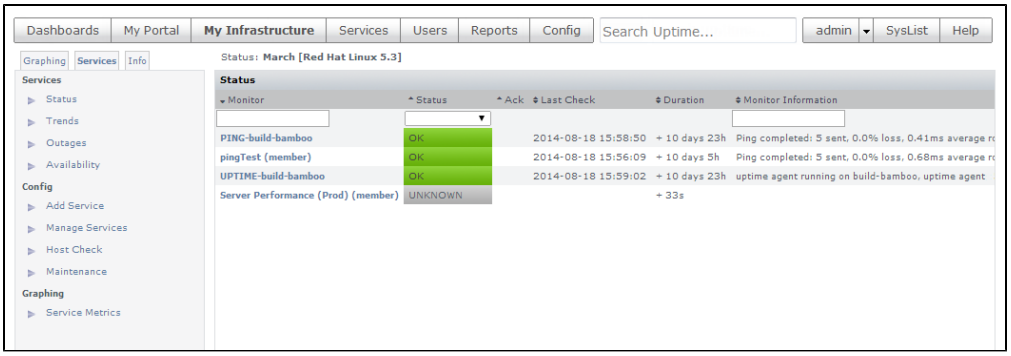
   - Provide a logical group name such as `Server Availability/Performance (Prod)`
   - From the **unassigned** group of **Available Services**, add the **Server Performance (Prod)** service monitor you created earlier in this exercise.
   - Select, from the **Available Element Groups**, the **Production** Element Group that you created in the last exercise.
   - Ensure the **include subgroups** check box is selected.
9. Click **Finish**, then click **Close Window**.

Validation

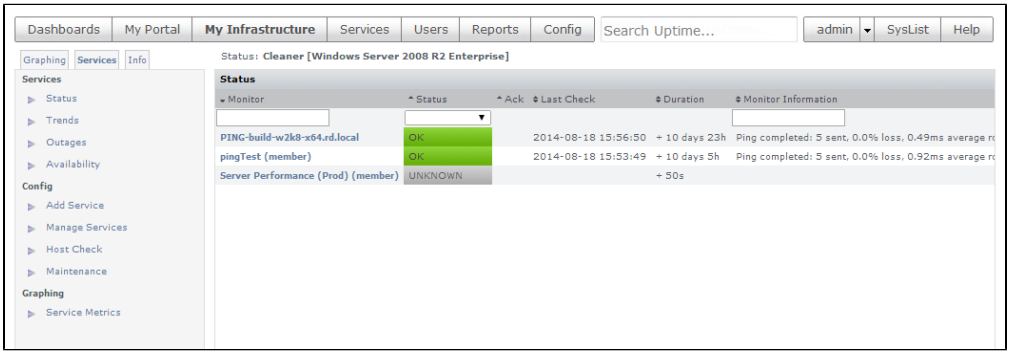
Click **My Infrastructure** to see your hierarchy:



Remember, referring to the structure presented in the example above, that you directly assigned the Service Group to the **Production** Element Group, and you chose to include subgroups. Click one of the Elements in either the Linux or Windows child Element Group. When that Element's **General Information** page is displayed, click the **Services** tab, then **Manage Services**.



Note that the "**Server Performance (Prod)**" service monitor is now attached to this Element by way of the Service Group. In the above example, we are showing the Linux server. The service monitor will also now be attached to the Windows server:



Additionally, whenever an Element is created in, or moved to, the **Production** Element Group (and, as configured, to either of its subgroups), that Element will inherit whichever service monitors are assigned to the group.

Extrapolating from this example, you could create a battery of service monitors that act as performance and health checks for all production servers. These service monitors would be added to the **Server Performance (Prod)** service group that is associated with the top-level **Production** Element Group. You could then create platform-specific health checks, and add them to appropriate Linux- and Windows-specific Service Groups (which you would need to create). These Service Groups could then respectively be associated with the existing Linux Servers and Windows Servers Element Groups.

Once these Service Group and Element Group relationships are established, if you created more child Element Groups, the respective Elements they contain would inherit the appropriate service monitors. (For example, adding a "Solaris" Element Group as a child of the **Production** group, and sibling of the Linux and Windows groups means the Solaris servers will inherit all of the general health check service monitors; adding a "Databases" Element Group as a child of the **Windows Servers** group means the database servers will inherit all the Windows-specific health check monitors.)

The important thing to note is it's more efficient to manage not at the Element level, but at the object level, whether that object is a Service Group, Element Group, or other Uptime Infrastructure Monitor construct you will learn about; if you focus on Element Groups and Service Groups, everything else lines up and falls into place. Well managed arrangements of Element Groups and Service Groups can result in powerful cascading configurations.

Back: Tour the Interface

Next: Organize Users and Views