

# How To Use Capacity Planning In Nagios XI 2024 And 2026

## Purpose

This document explains how to use the Capacity Planning feature of Nagios XI 2024 and 2026 to predict what the future trends in your network infrastructure will be. Predicting trends helps in supporting network growth and sustainability, and is an asset for anybody, from a junior network admin, to a C-level wanting a more overall view.

## Prerequisites

Capacity planning is an Enterprise license feature. If you do not have the **Enterprise Edition** license of Nagios XI, you can enable the free 60-day trial to experience what it has to offer before making a purchase. The trial can be activated via **Admin > System Config > License Information**.

## Navigating to Capacity Planning

Capacity Planning is located under the **Reports** menu.



The default view will display the one-week capacity planning reports for the hosts in alphabetical order. From the screenshot above you can see the first one displayed is the APC Smart-UPS 1500 host with the rta data source from the `check_icmp` plugin.

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## Description Of Options



At the top of the page there is an **options** button to change report options. They are described as follows:

### Period

Period 1 Week ▾

This is the duration that you would like to see the capacity report predict into the future.

### Limit To

Limit To Host or Service ▾

Host: ▾ [All Services] ▾

These are the criteria you wish to use for your report. You can choose options such as a specific host, a specific service (available after selecting a host), a hostgroup, or a servicegroup. The **Host Selection** drop box allows you to pick a host to evaluate and the **Service** selection drop down (appears after selecting a host) allows you the same.

### Extrapolation Method

Extrapolation Method Holt-Winters ▾

This is referring to the mathematical method that will be used to approximate and forecast that data that it receives. The current methods are Holt-Winters and then three more forms of a polynomial fitting. Holt-Winters has long been regarded as a good forecasting algorithm for hard to predict trends. The polynomial fits would be good to use if you are expecting exponential growth or decay.

### Apply and Run

Apply and Run

Click **Apply and Run** to generate the capacity planning report.

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## Search

A search box for easier access to specific services/hosts.

## Report Options



Options for managing the reports you have run, you can save, email, schedule and download the report. This is explained in detail later in this document.

## Extrapolation Options

Nagios XI chooses the available **Periods** that you are allowed to choose from based on how long you have been collecting data for. If the Nagios XI instance is relatively new, then you won't have much data to extrapolate from, and thus selecting a high period would not be advised.

You must have twice as much solid data as the period you wish to use. A caveat of this is that if the data that you are gathering is spotty, capacity planning will not work. Capacity planning also requires that 66% of the period you wish to extrapolate with must have real values. If Nagios goes down, or the plugin that you're using starts malfunctioning and performance data does not get recorded, that starts adding to the 66% of values that are not acceptable values for number crunching.

To cap it off, here are some points to remember:

- The more complete the data you have, the further into the future you can extrapolate
- The method you choose can have an impact on the actual prediction, so it takes a bit of intuition

## Run Report

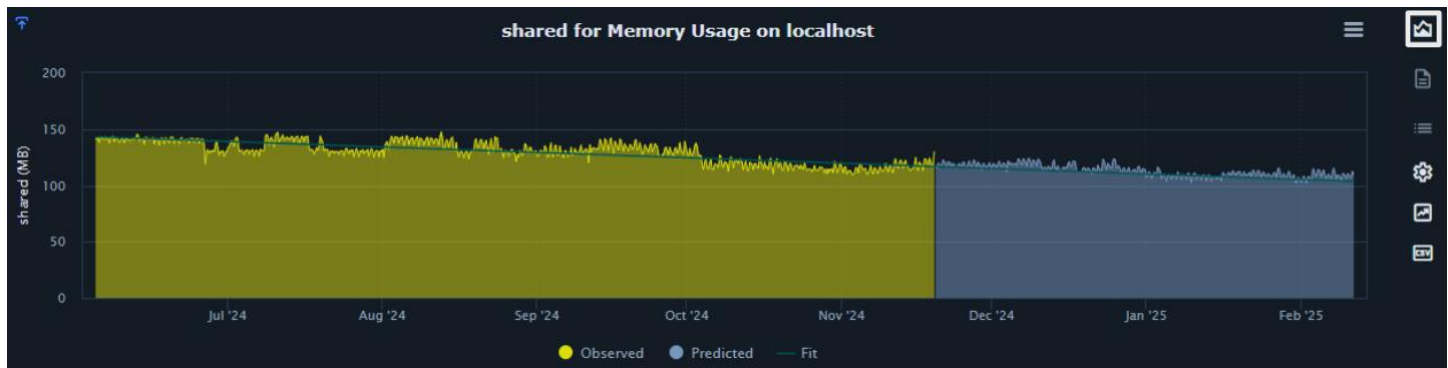
Once you have selected the data set you wish to evaluate, click the blue **Run** button to generate a report dashlet. Once your report dashlet has been generated, your first view should be of a graph containing the collected data as well as a prediction based on your extrapolation method (Holt-Winters by default). You should also see tabs on the right of this dashlet that include an executive summary as well as the data set used for this report.

The dashlet can be added to any dashboard by clicking the **upload** icon.

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Hosts and services in Nagios XI that generate performance data may have more than one data source (DS) in the graph data. For example, a Ping check returns four DS's `rta`, `p1`, `rtmax` and `rtmin`. The capacity planning reports will generate one report per DS.

The following examples show a three-month report for the Memory Free for an ESXi server using Holt-Winters.



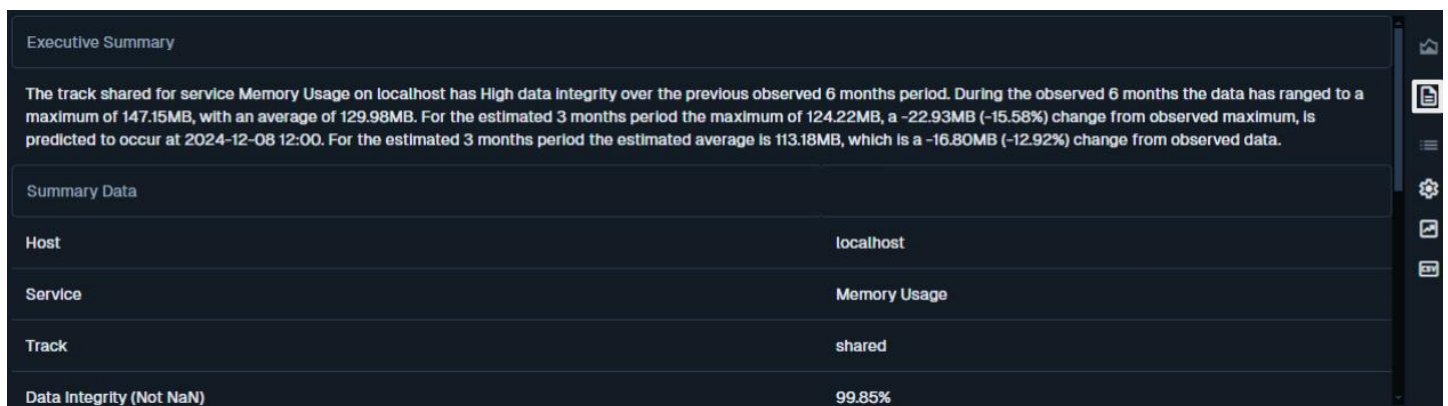
The graph shows 66% of the data used to generate the prediction as the left part of the graph. The right-hand side of the graph is the predicted data. Moving your mouse cursor over the graph will display the relative graph values.

There is a fit line that spans the length of the graph which can make it easier to understand the prediction.

If the Nagios XI service performance data contained a warning or critical threshold then warning and critical lines are made available but not shown. In the screenshot above you can see the word Critical grayed out. If you click the word, the critical threshold line will be shown (as a horizontal line that spans the length of the graph).

## Executive Summary

This provides a written summary of the observed data and how it relates to the predicted data.



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## Data

This shows you the raw data used for prediction. Data that is in white is observed data, while data that is in black italics is predicted data.

Date	Value	Warning	Critical	Fit
2024-11-18 18:00	121.183			116.890
2024-11-19 00:00	116.480			116.851
2024-11-19 06:00	118.833			116.812
2024-11-19 12:00	129.975			116.772
2024-11-19 18:00	117.738			116.733
2024-11-20 00:00	115.148			116.694
2024-11-20 06:00	119.620			116.654

Since the critical threshold is 3, the projections in the Value column indicate that the ESXi server will have enough free memory for the next three months.

## Dashlet Icons

There are three icons that are located on the right-hand pane of the dashlet which perform the following:

### Edit Dashlet Settings

This allows the time period and extrapolation method to be defined specifically for this dashlet

### View All Service Tracks

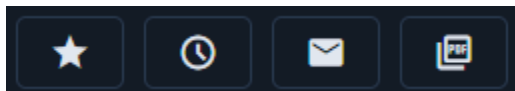
Displays all of the capacity planning services available for the object you are currently viewing

### Download as CSV

Provides you with a CSV file of all the data used to generate the prediction

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## Report Output Options



These options allow you to save, schedule, email and download a report.

### ■ Add

Clicking the **Add** button will allow you to save the report under the **My Reports** section. When you click the button, you will be presented with the following screen:

Populate the fields as required and click **Save Report** when done.

A dark-themed dialog box titled "Add to My Reports". Below the title is a subtitle: "Use this function to save reports that you frequently access to your 'My Reports' menu." There is a text input field labeled "Report Title:" containing the text "Capacity Planning". Below the input field is a smaller line of text: "The name you want to use for this report." Below that is a checkbox labeled "Do not show this report in the my reports menu section." At the bottom left is a blue button labeled "Save Report", and at the bottom right is a white button labeled "Cancel".

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## Schedule

Clicking the **Schedule** button will allow you to schedule the report to run at specific times and email selected recipients. When you click the button, you will be presented with the following options:

### Report Name

A name required for the report

### Schedule

Define when you would like this report to run

### Attachments

Select the type(s) of attachments you want the report to include in the email a

### Recipients

Provide a list (comma-separated) of email addresses to use to send this report

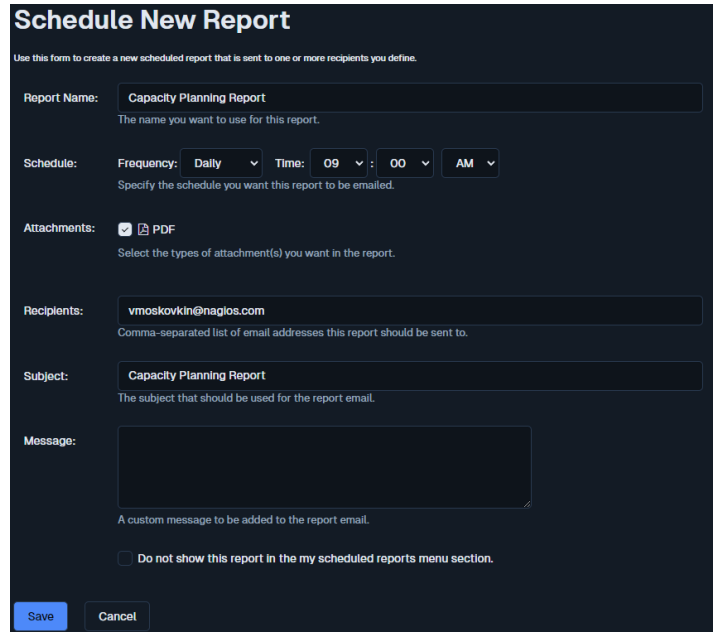
### Subject

The subject of the email being sent

### Message

The message body of the email being sent.

Populate the fields as required and click **Save** when done.



**Schedule New Report**

Use this form to create a new scheduled report that is sent to one or more recipients you define.

Report Name: Capacity Planning Report  
The name you want to use for this report.

Schedule: Frequency: Daily Time: 09 : 00 AM  
Specify the schedule you want this report to be emailed.

Attachments:  PDF  
Select the types of attachment(s) you want in the report.

Recipients: vmoskovin@nagios.com  
Comma-separated list of email addresses this report should be sent to.

Subject: Capacity Planning Report  
The subject that should be used for the report email.

Message:   
A custom message to be added to the report email.

Do not show this report in the my scheduled reports menu section.

Save Cancel

## Email

Clicking the **Email** button will allow you to send the report immediately via email to selected recipients. The options available are identical to the **Schedule** options listed above.

## Download

The **Download** button can be used to save the report as a PDF.

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## Using the Capacity Planning Wizard

The Capacity Planning Wizard can be used to automatically predict future values once a day and alert you when the result exceeds a threshold you define. The wizard can be found in the **Configure > Configuration Wizards** directory with the rest of the monitoring wizards.

In **Step 1**, choose which services you wish to monitor projections on.

Capacity Planning Configuration Wizard Step 1

Select Data to Monitor

Apache-WebLogger Disk Usage on / used Add to List

Basic Configuration

Name	Days	Days	Remove this row
Workman - Disk Usage on C/ - used	days	days	X
Apache-WebLogger - Disk Usage on / - used	days	days	X

Next > Cancel

In **Step 2**, you'll make a variety of key choices to define the logic for each check:

Capacity Planning Configuration Wizard Step 2

Advanced Configuration

Put all new services on specific host: Host Name

Host Name	Service Description	Perfdata Name
Workman	Disk Usage on C/	used

Performance Data: N/A

Thresholds: Alert within 7 days of exceeding Custom Value as Maximum

Lookahead: 2 weeks using Holt-Winters algorithm Alert within 7 days of exceeding Custom Value as Maximum

Custom Value: 800

Render Graph

Workman - Disk Usage on C/: used

Legend: Observed: 549.099 GiB, Fit: 540.586 GiB

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- **Put All new services on specific host:** by default each service will be applied to the host the reference service is associated with, but you can use this option to put all of the services you're creating under the umbrella of a specific host (for example, a dummy host used just for Capacity Planning checks).
- **Lookahead x weeks using y algorithm:** how many weeks ahead you want the check to predict results for, and what algorithm you want the check to use.
- **Custom Value:** the projected value over which you wish to be alerted. This will vary depending on the type of service and check. For some checks (such as in the screenshot above), it could be the number of GiB used on a drive or partition; for others, it could be a percentage of utilization.
- **Render Graph:** this handy option generates a Capacity Planning graph showing current and projected results based on your selections, a blue horizontal bar showing your Custom Value, and a red vertical bar showing your **alert within** timeframe.
- **Alert within x days of exceeding:** how many days in advance of your Custom Value being exceeded would you like to be alerted? For example, if you choose 7 days, and the check shows that at any time between the moment the check runs and 7 days out your Custom Value will be exceeded, an alert will be generated.

**Step 3** is unique in the **Capacity Planning** wizard, as you won't need to define a check interval. The check will automatically run once per day, rather than every few minutes like a regular check. Once you've completed **Steps 4 and 5**, click **Finish & Apply** to complete the wizard.

## Finishing Up

This completes the documentation on how to use the Capacity Planning feature of 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](#)