

SolarWinds Orion

Network Performance

Monitor QuickStart Guide

Copyright© 1995-2007 SolarWinds.net, Inc. all rights reserved worldwide. No part of this document may be reproduced by any means nor modified, decompiled, disassembled, published or distributed, in whole or in part, or translated to any electronic medium or other means without the written consent of SolarWinds All right, title and interest in and to the software and documentation are and shall remain the exclusive property of SolarWinds and its licensors. SolarWinds Orion™, SolarWinds Cirrus™, and SolarWinds Toolset™ are trademarks of SolarWinds and SolarWinds.net® and the SolarWinds logo are registered trademarks of SolarWinds All other trademarks contained in this document and in the Software are the property of their respective owners.

SOLARWINDS DISCLAIMS ALL WARRANTIES, CONDITIONS OR OTHER TERMS, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, ON SOFTWARE AND DOCUMENTATION FURNISHED HEREUNDER INCLUDING WITHOUT LIMITATION THE WARRANTIES OF DESIGN, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL SOLARWINDS, ITS SUPPLIERS OR ITS LICENSORS BE LIABLE FOR ANY DAMAGES, WHETHER ARISING IN TORT, CONTRACT OR ANY OTHER LEGAL THEORY EVEN IF SOLARWINDS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Microsoft®, Windows 2000 Server®, and Windows 2003 Server® are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Graph Layout Toolkit and Graph Editor Toolkit © 1992 - 2001 Tom Sawyer Software, Oakland, California. All Rights Reserved.

Portions Copyright © ComponentOne, LLC 1991-2002. All Rights Reserved.

Orion Network Performance Monitor QuickStart Guide 08.23.2007 version 8.5

About SolarWinds

SolarWinds, Inc develops and markets an array of network management, monitoring, and discovery tools to meet the diverse requirements of today's network management and consulting professionals. SolarWinds products continue to set benchmarks for quality and performance and have positioned the company as the leader in network management and discovery technology. The SolarWinds customer base includes over 45 percent of the Fortune 500 and customers from over 90 countries. Our global business partner distributor network exceeds 100 distributors and resellers.

Contacting SolarWinds

You can contact SolarWinds in a number of ways, including the following:

Team	Contact Information
Sales	1.866.530.8100 www.solarwinds.com
Technical Support	www.solarwinds.com/support
User Forums	http://www.thwack.com/

Conventions

The documentation uses consistent conventions to help you identify items throughout the printed and online library.

Convention	Specifying
Bold	Window items, including buttons and fields.
<i>Italics</i>	Book and CD titles, variable names, new terms
Fixed font	File and directory names, commands and code examples, text typed by you
Straight brackets, as in [value]	Optional command parameters
Curly braces, as in {value}	Required command parameters
Logical OR, as in value1 value2	Exclusive command parameters where only one of the options can be specified

SolarWinds Orion NPM Documentation Library

The following documents are included in the SolarWinds Orion NPM documentation library:

Document	Purpose
Administrator Guide	Provides detailed setup, configuration, and conceptual information.
Page Help	Provides help for every window in the Orion NPM user interface
QuickStart Guide	Provides installation, setup, and common scenarios for which Orion NPM provides a simple, yet powerful, solution.
Release Notes	Provides late-breaking information, known issues, and updates. The latest Release Notes can be found at www.solarwinds.com .

Contents

<i>About SolarWinds</i>	<i>iii</i>
<i>Contacting SolarWinds</i>	<i>iii</i>
<i>Conventions</i>	<i>iii</i>
<i>SolarWinds Orion NPM Documentation Library</i>	<i>iv</i>

Chapter 1

Introduction	1
<i>Why Install SolarWinds Orion NPM</i>	<i>1</i>
<i>Benefits of Orion NPM</i>	<i>2</i>
<i>Key Features of Orion NPM</i>	<i>3</i>
<i>How SolarWinds Orion NPM Works</i>	<i>4</i>

Chapter 2

Installing SolarWinds Orion NPM	5
<i>Licensing Orion NPM</i>	<i>5</i>
<i>Requirements</i>	<i>6</i>
<i>Installing Orion NPM</i>	<i>6</i>

Chapter 3

Getting Started	11
<i>SNMP Communication</i>	<i>11</i>
<i>Discovering Your Network</i>	<i>12</i>
<i>Enabling Volume Management</i>	<i>13</i>
<i>Understanding Alerts</i>	<i>14</i>
<i>Monitoring Network Performance</i>	<i>14</i>
<i>Reviewing Network Performance Charts and Reports</i>	<i>14</i>
<i>Configuring Network Performance Alerts</i>	<i>16</i>
<i>Managing Your Servers</i>	<i>20</i>
<i>Reviewing Server Management Charts and Reports</i>	<i>20</i>
<i>Configuring Key Alerts</i>	<i>22</i>

- Diagnosing Network Availability* 23
 - Reviewing Network Availability Charts and Reports* 23
 - Configuring Key Alerts* 24
- Analyzing Usage Trends* 25
 - Reviewing Useful Node Trend Reports and Charts* 25
 - Reviewing Useful Interface Trend Reports and Charts* 26
 - Reviewing Useful Volume Capacity Reports and Charts* 26

Chapter 1

Introduction

SolarWinds Orion Network Performance Monitor (NPM) provides a comprehensive fault and performance management platform that allows you to collect and view availability and realtime and historical statistics from your web browser. While monitoring, collecting, and analyzing data from routers, switches, firewalls, servers, and any other SNMP-enabled devices, Orion NPM successfully offers you a simple-to-use, scalable network monitoring solution for IT professionals juggling any size network.

Why Install SolarWinds Orion NPM

Out of the box, SolarWinds Orion NPM offers the following detailed monitoring:

- Availability of your network
- Bandwidth capacity utilization
- Buffer usage and errors
- CPU and memory utilization
- Interface errors and discards
- Network latency
- Node, interface, and volume status
- Volume usage

These monitoring capabilities, along with a fully customizable web-based interface, alerting, reporting engines, and flexible expansion capabilities make SolarWinds Orion NPM the easiest choice you will make involving your network needs.

Benefits of Orion NPM

Consider some of the following benefits of Orion NPM.

Out-of-the-box productivity

Automatic discovery and wizard-driven configuration offer an immediate return on your investment. Within minutes of installing Orion NPM, you can be monitoring your critical network devices.

Easy to understand and use

Orion NPM is designed for daily use by staff with other responsibilities. The Orion NPM interface provides what you need where you expect to find it and offers advanced capabilities with minimal configuration overhead.

Affordable value

While Orion NPM provides comparable functionality, cost and maintenance of your Orion NPM installation is less than the initial cost of most other solutions.

Scalable

By adding individual polling engines, you can scale your Orion NPM to any size environment. By sharing the same database, you can also share a unified user interface, making the addition of polling engines transparent to your staff.

Key Features of Orion NPM

Considering the previous benefits of Orion NPM coupled with the following features, Orion NPM is a simple choice to make.

Customizable and flexible web console

Your web console can be easily customized to your needs. If you want to segregate use, you can design specific views of your data and assign these views to specific individuals. You can create web console accounts for departments, geographic area, or any other user-defined field.

Topology-based navigation

Using the provided map tool, you can import a logical image of your network based on floor, building, department, or larger geographic location and then drag and drop devices into their appropriate locations on the map. At a glance, you can see the health of a specific location.

Automatic Device Discovery

Wizard-driven device discovery further simplifies the addition of devices and interfaces to Orion NPM. Answer a few general questions about your devices and the discovery application takes over, populating Orion NPM and immediately beginning network analysis.

Incident Alerting

You can configure powerful alert engines to respond to hundreds of different network scenarios, including multiple condition checks. Orion NPM alert help you recognize and correct issues before your network users experience productivity hits. The following alert delivery methods and responses are built into Orion NPM: email, pages, SNMP traps, text-to-speech, Syslog messages, and the launching of an external application.

Detailed Historical Reports

The Advanced Reporting Engine provides an easily configured mechanism for pulling the information you want to view, spanning the period of time you need, from the database and displaying historical data in an easily understood report in your web console or in the Orion Report Writer application. Reports help you project future trends and capacity needs, while providing access to availability, performance, and utilization statistics. There are over 40 different built-in reports, the ability to create your own custom reports, and the ability to download and import new reports from www.solarwinds.com.

How SolarWinds Orion NPM Works

Through ICMP, SNMP, and Syslog communication and data collection, Orion NPM continuously monitors your network health and performance. No agents install on your mission critical servers; no services take vital resources from critical applications; no security holes open through the installation of unmanaged or outdated code.

Orion uses SNMP communication, if available, or simple ICMP communication to learn about your network. You can automate initial discovery of your network, then simply add new devices to Orion NPM as you add them to your network. Orion NPM stores gathered information in a SQL database and provides a user-friendly, highly customizable web console in which to view current and historical network status.

Chapter 2

Installing SolarWinds Orion NPM

Orion NPM provides a simple, wizard-driven installation process. For an enterprise-class product, the requirements are rather nominal.

Licensing Orion NPM

Orion NPM can collect data and detailed information from any of your version 3 or earlier SNMP-enabled devices, including routers, switches, firewalls, and servers. You license Orion NPM by the largest number of the three following licensed objects:

Interfaces

Interfaces include switch ports, physical interfaces, virtual interfaces, sub-interfaces, VLANs, and any other single point of network traffic.

Nodes

Nodes include entire devices, for example, routers, switches, servers, access points, and modems.

Volumes

Volumes are equal to the logical drives you monitor.

The following list provides the different types of Orion NPM licenses available:

- Up to 100 objects (SL100)
- Up to 250 objects (SL250)
- Up to 500 objects (SL500)
- Up to 2000 objects (SL2000)
- Unlimited objects (SLX)

Notes:

- Database size increases with the addition of monitored objects.
- Depending on the number of objects and the amount of traffic flowing through your monitored objects, successful monitoring of more than 8,000 objects can require the addition of more polling engines.

Requirements

Requirements for Orion NPM vary based upon the number of elements managed, polling frequency, number of simultaneous users, and several other factors. The table below represents some general guidelines for a minimum configuration.

Software	Requirements
Operating System	Windows 2003 Server (32-bit or 64-bit) including R2, with IIS installed
.NET Framework	Version 3.0 or later
SNMP Trap Services	Windows operating system management and monitoring tools component
SQL Server	SQL Server 2000 SP4, Standard or Enterprise SQL Server 2005 Express, Standard, or Enterprise
Web Console Browser	Microsoft Internet Explorer version 6 or later with Active scripting Firefox 2.0

Hardware	SL100 to SL500	SL2000	SLX
CPU Speed	2.0 GHz	2.4 GHz	3.0 GHz
Hard Drive Space	2GB	5GB	10GB
Memory	1 GB	2 GB	2 GB

Installing Orion NPM

Complete the following procedure to install Orion NPM in your evaluation environment.

To install Orion NPM:

1. Log on to the server on which you want to install Orion NPM.

Notes:

- To ensure that Orion NPM runs properly, do not install it on a domain controller.
 - ***If you are using more than one polling engine to collect network information***, ensure that you shut down each of these polling engines before continuing.
2. ***If you downloaded the product from the SolarWinds website***, navigate to your download location and launch the executable.
 3. ***If you received physical media***, browse to the executable file, and then launch the executable.
 4. ***If you are prompted to install any required components such as Microsoft .NET Framework 3.0***, click **Install**.
 5. Review the Welcome text, and then click **Next**.

6. Agree to the license agreement on the License Agreement window, and then click **Next**.
7. Provide an installation destination folder on the Choose Destination Location window, and then click **Next**.
8. Click **Next** on the Start Copying Files window.
9. **If the computer on which you are installing Orion NPM is connected to the Internet and not behind a proxy server**, enter the requested information on the Install Software License Key window, and then click **Continue**.

Note: The SolarWinds license registration server will immediately issue a license key that will allow Orion NPM to operate.
10. **If the computer on which you are installing Orion NPM is not connected to the Internet**, your server cannot authenticate to the SolarWinds license registration server, so you must complete the following procedure:
 - a. Click **Skip This and Enter Software License Key Now** on the Install Software License Key window.
 - b. Using another computer that is connected to the Internet, log in to the customer area of the SolarWinds website at www.solarwinds.com/keys.
 - c. Click **Software Keys** from the Customer Area menu.
 - d. Select the product for which you need a key, and follow the instructions on the page to obtain a key.
 - e. Enter the key in the **Enter Software License Key** text box.
11. Click **Continue** to complete your Software License Key installation.
12. Click **Continue** when the license is successfully installed.
13. Click **Finish** on the Installation Complete window.
14. **If the Configuration Wizard detects that Microsoft Internet Information Services (IIS) is not installed**, click **No** to exit the wizard, install IIS, and then restart the Configuration Wizard by clicking **Start > SolarWinds Orion > Configuration Wizard**.
15. Click **Next** on the Welcome window of the Configuration Wizard.
16. **If you are prompted to stop services**, click **Yes** to stop the services. To ensure that all updates and changes are installed correctly, it is imperative that you stop all services.

17. Specify the SQL Server instance that you want to use to store data and the credentials, if necessary, to log into the instance.

Notes:

- If you are using SQL Express, specify your instance as `(local)\SQLExpress` or `hostname\SQLExpress`.
- To create a new database, the user account must be a member of the the "dbcreator" server role. The sysadmin role and the SA user account are always members of "dbcreator".
- To use an existing database, the user must just be in the "db_owner" database role for the existing database.
- To create a new SQL account for Orion to use, the user account must be a member of the "securityadmin" server role. The sysadmin role and the SA user account are always members of "securityadmin".
- To use an existing SQL account, the user must just be in the "db_owner" database role for the Orion database.

18. *If you are creating a new database*, complete the following procedure:

- a. Click **Create a new database**.
- b. Type a name for the new database.
- c. Type or browse to the folder in which you want to store your database files.
- d. Click **Next**.

19. *If you are using an existing database*, click **Use an existing database**, type or select the database name from the list, and then click **Next**.

20. Specify a SQL account for the polling engine and the web site to use to access the database, and then click **Next**. If you already have a SQL account, you can specify the credentials for that account.

21. Specify the IP address of the web server that you want to use for the web console, the port through which you want to access the console, and the volume and folder in which you want the web console files installed. Click **Next**.

Note: If you specify any port other than 80, you must specify that port in the URL used to access the web console. For example, if you specify an IP of 192.168.0.3 and port 8080, your URL is `http://192.168.0.3:8080`.

22. *If you are prompted to create a new directory*, click **Yes**.

23. If you are prompted to overwrite the existing website, click **Yes**.

Note: Overwriting the website will not erase any custom Orion website settings you may have previously applied.

24. Check the services that you want to install on the Services Settings window, and then click **Next**.

25. Review the final configuration items, and then click **Finish**.

26. Click **OK** on the Configuration Complete dialog, and then click **Close**.

Chapter 3

Getting Started

A wealth of information can be collected about your network using the powerful tools that comprise Orion NPM. The following section steps you through four common use cases. By stepping through this quick introduction, you learn where to find and utilize real-time charts and gauges, how to check node response and availability, judge real bandwidth usage, and explore the powerful reporting capabilities included in the Orion solution. The cases are explored in the order of run time, that is, the amount of time you need to have Orion NPM running to see results.

1. Network performance monitoring (results in approximately 1 hour)
2. Server management (results in approximately 1 hour)
3. Network availability (meaningful results in approximately 1 week)
4. Trend analysis (meaningful results in approximately 3 months)

Note: After installing Orion NPM, the polling engines create a baseline by collecting status and statistics immediately, and then collecting them again 30 seconds later. You may notice an increased in your CPU usage during this time. After this initial collection, Orion NPM collects network information every 10 minutes for nodes, every 9 minutes for interfaces, and 15 minutes for volumes.

SNMP Communication

Because Orion NPM takes advantage of SNMP communication for a great deal of the information collected, ensure the following configuration has been completed prior to discovering your network:

- All Windows servers have the SNMP service installed and running, unless you only want to monitor up/down status
- All Linux/Unix servers have an SNMP daemon installed and running, forwarding Syslog information.
- All devices from which you want to collect detailed information have SNMP properly configured

Discovering Your Network

Complete the following procedure to discover all the networked devices in your enterprise.

To discover your network:

1. Clicking **Start > All Programs > SolarWinds Orion Network Performance Monitor > Network Discovery**.
2. Click **New Discovery Database** on the Network Performance Monitor Discover page.
3. Select the NetPerfMon database on the New Discover Database dialog, and then click **Save**. Confirm that you want to overwrite the database.
Note: The NetPerfMon database is shipped as a placeholder.
4. Type the SNMP community strings in the New SNMP Community String field, and then click **Next Step**. These are the SNMP strings you want Orion NPM to use for SNMP `get` requests. The read-only string is sufficient.
5. Click **Add Subnets** on the Network tab.
6. Specify the appropriate subnet address and subnet mask, and then click **Add Subnet**.
7. When you have added all your subnets, click **OK**, and then click **Next Step**.
8. Click **Start Network Discover** on the Discovery tab.
9. Review the progress of the discovery. You can accelerate network discovery by moving the slider on the Discovering Network dialog. Accelerating discovery decreases the time waited for a response from your devices. Slower devices may not be discovered when you accelerate discovery, especially devices communicating over a slow WAN links. When the discovery completes, click **Close**.
10. Click **Next Step** on the Discovery tab.
11. Check the objects you want to import, and then click **Next**.
12. Check the interfaces you want to import, and then click **Next**.
13. Check **Operationally Up**, and then click **Next**.
14. Review the list of objects to be imported, and then click **Next**.
15. Click **File > Exit**.

Enabling Volume Management

To ensure only the volumes you want to manage are monitored and to save you from inadvertently exceeding licensing options, volumes are not automatically added as managed objects during network discover. Complete the following procedure to add the volumes you want to manage to Orion NPM.

To add managed volumes:

1. Clicking **Start > All Programs > SolarWinds Orion Network Performance Monitor > System Manager**.
2. Click the Server on which you want to manage volumes.
3. Click **Nodes > List Resources**.
4. Check the volumes you want to manage, and then click **OK**.
5. Repeat **Steps 2-4** for each server on which you want to manage volumes, and then close System Manager.

Understanding Alerts

An alert is a configurable response to the behavior of an object. One of the many powers of Orion NPM is the ability to alert on almost every aspect of your network. You can trigger responses when an alert is generated and when it is resolved; you can create simple or complex conditions under which an alert is triggered or reset; you can suppress alerts when a set of simple or complex conditions exist; you can create an escalation path that triggers when an alert remains unresolved.

The triggering of an alerts and the resetting of an alert can trigger a number of actions, including the following:

- Send an email or page
- Play a wav sound
- Log alerts to a file, the windows event log, or the Solarwinds.com event log
- Text-to-Speech a string
- Send an SNMP trap
- Send a Syslog message
- Run an external program
- Execute an internal or external VB script
- Email a web page
- GET or POST a URL to a web server
- Send a Windows NET SEND message

Monitoring Network Performance

You can begin seeing meaningful benefits from your installation of Orion NPM in an hour or less when you focus on monitoring network performance. Complete the following procedures to begin monitoring network performance.

Reviewing Network Performance Charts and Reports

The following procedure guides you through locating and reviewing the charts and reports immediately helpful when monitoring network performance.

To review network performance charts and reports:

1. Clicking **Start > All Programs > SolarWinds Orion Network Performance Monitor > Orion Web Console**.
2. Log in to the Web Console. The default user is admin with a blank password.

3. Expand a node grouping in the All Nodes section of the Network Summary page, and then click a node you want to explore.
4. Review the resulting Node Details page, ensuring you pay close attention to the following ICMP-based near-real-time gauges, statistical gauges, and statistical charts:
 - Average Response Time & Packet Loss gauge
 - Average Response Time & Packet Loss statistical chart
 - CPU Load & Memory Utilization gauge showing the last polled values
 - Min/Max Average CPU Load statistical chart

Notes:

- Consider using this data to ensure you comply with your current service level agreements (SLAs).
 - Clicking a gauge allows you to view customizable chart of the collected data over time. Clicking a chart allows you to customize the time period, sample intervals, among other data points.
5. ***If you navigated away from your Node Details page***, click the Network Performance Monitor tab to return to the Network Summary page, and then expand and select a node in the All Nodes section of the Network Summary page.
 6. Locate the Current Percent Utilization of Each Interface section of the Node Details page, and then click an interface.
 7. Review the resulting Interface Details page, ensuring you pay close attention to the following statistical gauges and charts:
 - Percent Utilization gauge
 - Percent Utilization - Line Chart
 - Min/Max/Average bps In/Out chart
 - Min/Max/Average packets In/Out chart
 - In/Out Errors and Discards chart
 - Total Bytes Transferred chart

Note: Again, consider using this data to better understand your network needs and health and to ensure you comply with your current service level agreements (SLAs).

8. Repeat these steps for each node and interface for which you want to monitor performance data.

Configuring Network Performance Alerts

When monitoring your network performance, you can take advantage of alerts to draw attention to a number of issues:

- Unexpectedly high CPU load
- Sustained high CPU load
- Loss of available memory
- Insufficient hard drive space
- Slow response time
- Disproportionate interface utilization
- Excessive interface errors

Complete the following procedure to create alerts based on the previously stated conditions.

To configure network performance alerts:

1. Clicking **Start > All Programs > SolarWinds Orion Network Performance Monitor > Advanced Features > Advanced Alert Manager**.
2. Click **Configure Alerts**.
3. Click **New Alert** on the Configure Alerts window.
4. To configure a high CPU load alert, complete the following procedure:
 - a. Type CPU Load High in the Name of Alert field on the General tab.
 - b. Check **Enable this Alert** and **Show Advanced Features**.
 - c. Click the Trigger Condition tab and select **Node** in the list.
 - d. Click **Add**, and then click **Simple Condition**.
 - e. Click **is equal to**, and then select **greater or equal**.
 - f. Click the first *, and then click **Network Nodes > Current CPU Memory > CPU Load**.
 - g. Click the second *, and then type 80.
 - h. Click the Reset Condition tab.

Note: Configuring a reset condition ensures that stale alerts do not remain prominent in your alert log.

- i. Click **Add**, and then click **Simple Condition**.
 - j. Click **is equal to**, and then select **less or equal**.
 - k. Click the first *, and then click **Network Nodes > Current CPU Memory > CPU Load**.
 - l. Click the second *, and then type 70.
 - m. Click the Trigger Actions tab, and then click **Add New Action**.
 - n. Select a means of notification. For example, select **Send an Email/Page**, and then specify the appropriate information on tabs of the Edit Email/Page Action window.
 - o. *If you want to specify an action to execute when this alert is reset*, click the Reset Actions tab, and then specify the appropriate information.
 - p. Click **OK** when you are satisfied with your alert.
5. To configure a sustained high CPU load alert, complete the following procedure:
- a. Type CPU Load Sustained High in the Name of Alert field on the General tab.
 - b. Check **Enable this Alert** and **Show Advanced Features**.
 - c. Click the Trigger Condition tab and select **Node** in the list.
 - d. Click **Add**, and then click **Simple Condition**.
 - e. Click **is equal to**, and then select **greater or equal**.
 - f. Click the first *, and then click **Network Nodes > Current CPU Memory > CPU Load**.
 - g. Click the second *, and then type 80.
 - h. Slide the scroll bar to the right until the delay is set for 1 hour. The sentence above the bar will read Do not trigger this alert until the trigger condition exist for 60 minutes.
 - i. *If you want to specify any other conditions or actions*, click the appropriate tab and refer to **Step 4** for more information.
 - j. Click **OK** when you are satisfied with your alert.

6. To configure a loss of available memory alert, complete the following procedure:
 - a. Type *Memory Low* in the Name of Alert field on the General tab.
 - b. Check **Enable this Alert** and **Show Advanced Features**.
 - c. Click the Trigger Condition tab and select **Node** in the list.
 - d. Click **Add**, and then click **Simple Condition**.
 - e. Click **is equal to**, and then select **less or equal**.
 - f. Click the first *, and then click **Network Nodes > Current CPU Memory > Percent Memory Available**.
 - g. Click the second *, and then type 10.
 - h. Slide the scroll bar to the right until the delay is set for 30 minutes. The sentence above the bar will read *Do not trigger this alert until the trigger condition exist for 30 minutes*.
 - i. ***If you want to specify any other conditions or actions***, click the appropriate tab and refer to **Step 4** for more information.
 - j. Click **OK** when you are satisfied with your alert.

7. To configure an insufficient hard drive space alert, complete the following procedure:
 - a. Type *Disk Space Low* in the Name of Alert field on the General tab.
 - b. Check **Enable this Alert** and **Show Advanced Features**.
 - c. Click the Trigger Condition tab and select **Volume** in the list.
 - d. Click **Add**, and then click **Simple Condition**.
 - e. Click **is equal to**, and then select **less or equal**.
 - f. Click the first *, and then click **Volumes > Volume Status > Volume Percent Available**.
 - g. Click the second *, and then type 5.
 - h. Slide the scroll bar to the left until there is no delay. The sentence above the bar will read *Trigger this alert immediately when the trigger condition exists*.
 - i. ***If you want to specify any other conditions or actions***, click the appropriate tab and refer to **Step 4** for more information.
 - j. Click **OK** when you are satisfied with your alert.

8. To configure a slow response time alert, complete the following procedure:
 - a. Type Response Time Slow in the Name of Alert field on the General tab.
 - b. Check **Enable this Alert** and **Show Advanced Features**.
 - c. Click the Trigger Condition tab and select **Node** in the list.
 - d. Click **Add**, and then click **Simple Condition**.
 - e. Click **is equal to**, and then select **greater or equal**.
 - f. Click the first *, and then click **Network Nodes > Current Response Time > Response Time**.
 - g. Click the second *, and then type 150.
Note: Response time is measured in milliseconds.
 - h. Slide the scroll bar to the right until the delay is set for 10 minutes. The sentence above the bar will read Do not trigger this alert until the trigger condition exist for 10 minutes.
 - i. ***If you want to specify any other conditions or actions***, click the appropriate tab and refer to **Step 4** for more information.
 - j. Click **OK** when you are satisfied with your alert.
9. To configure an excessive interface utilization alert, complete the following procedure:
 - a. Type Interface Utilization (Excessive) in the Name of Alert field on the General tab.
 - b. Check **Enable this Alert** and **Show Advanced Features**.
 - c. Click the Trigger Condition tab and select **Interface** in the list.
 - d. Click **Add**, and then click **Simple Condition**.
 - e. Click **is equal to**, and then select **greater or equal**.
 - f. Click the first *, and then click **Interfaces > Current Traffic > Average Xmit+Rev Percent Utilization**.
 - g. Click the second *, and then type 80.
 - h. Slide the scroll bar to the right until the delay is set for 10 minutes. The sentence above the bar will read Do not trigger this alert until the trigger condition exist for 10 minutes.
 - i. ***If you want to specify any other conditions or actions***, click the appropriate tab and refer to **Step 4** for more information.
 - j. Click **OK** when you are satisfied with your alert.

10. To configure an interface error alert, complete the following procedure:
 - a. Type Interface Receive Errors (Excessive) in the Name of Alert field on the General tab.
 - b. Check **Enable this Alert** and **Show Advanced Features**.
 - c. Click the Trigger Condition tab and select **Interface** in the list.
 - d. Click **Add**, and then click **Simple Condition**.
 - e. Click **is equal to**, and then select **greater or equal**.
 - f. Click the first *, and then click **Interfaces > Errors Discards > Recv Errors – This Hour**.
 - g. Click the second *, and then type 50.
 - h. Slide the scroll bar to the left until there is no delay. The sentence above the bar will read Trigger this alert immediately when the trigger condition exists.
 - i. **If you want to specify any other conditions or actions**, click the appropriate tab and refer to **Step 4** for more information.
 - j. Click **OK** when you are satisfied with your alert.

Managing Your Servers

Again, you can see the benefits of Orion NPM after only an hour by focusing on server management. Ensure your network discovery included the following objects:

- Windows servers and workstations
- Linux, Solaris, HP-UX, AIX, and AIS servers
- Microsoft Exchange and SQL Servers

For more information, see “Discovering Your Network” on page 12.

Reviewing Server Management Charts and Reports

The following procedure guides you through locating and reviewing the charts and reports immediately helpful when managing mission-critical servers.

To review server management charts and reports:

1. Clicking **Start > All Programs > SolarWinds Orion Network Performance Monitor > Orion Web Console**.
2. Log in to the Web Console. The default user is `admin` with a blank password.

3. Expand a node grouping in the All Nodes section of the Network Summary page, and then click a server you want to explore.
4. Review the resulting Node Details page, ensuring you pay close attention to the following resources:
 - Average Response Time & Packet Loss gauge
 - Average Response Time & Packet Loss chart
 - CPU Load & Memory Utilization gauge
 - Min/Max Average CPU Load chart

Notes:

- Consider using this data to ensure you comply with your current service level agreements (SLAs).
 - Clicking a gauge allows you to view customizable chart of the collected data over time. Clicking a chart allows you to customize the time period, sample intervals, among other data points.
5. *If you navigated away from your Node Details page*, click the Network Performance Monitor tab to return to the Network Summary page, and then expand and select a node in the All Nodes section of the Network Summary page.
 6. Locate the Current Percent Utilization of Each Interface section of the Node Details page, and then click an interface.
 7. Review the traffic and error charts and reports.
 8. Click **Reports** on the menu bar.
 9. Ensure you have enabled volume management. For more information, see “Enabling Volume Management” on page 13.
 10. Expand **Current Volume Status**, and then click **Available Space on each Volume**.
 11. Locate the volumes you are managing and review their available and percent available space statistics.
 12. Complete the following procedure to add the Network Trends view to the Admin menu bar:
 - a. Click **Admin** on the menu bar.
 - b. Click **Customize Menu Bars** in the left navigation pane.
 - c. Click **Edit** under the Admin menu bar.
 - d. Click **Add Menu Item (+)** on the Edit Admin Menu Bar page.

- e. Check **Network Trends** on the Select Menu Items to Add to Admin Menu Bar page, and then click **Submit**.
- f. Click **Submit** on the Edit Admin Menu Bar page.

13. Click **Network Trends** on the menu bar.

Note: Due to the amount of data queried from the database, the Network Trends resources may take a significant time to load. You can also edit the number of resources included in the view to reduce the time to load. For more information about customizing views, see the *Administrator Guide*.

14. Review the resulting Network Trends page, ensuring you pay close attention to the following reports:

- Network Wide Average Response Time
- Network Wide Min/Max/Average Response Time
- Network Wide Average Utilization
- Network Wide Availability

Configuring Key Alerts

Using the alert configuration procedure detailed in the “Configuring Network Performance Alerts” section as a guide, consider configuring the following alerts with a trigger action of paging the appropriate operator:

- Node status is equal to down
- CPU load is greater than 90% for over 5 minutes
- Percent memory available is less than 5
- Volume space available is less than 100MB
- Average transmit and receive percent utilization is greater than 50

For more information on configuring advanced alerts, see the *Administrator Guide*.

Diagnosing Network Availability

You can see the benefits of Orion NPM used for diagnosing network availability in approximately one week. Ensure your network discovery found all the following devices within your network:

- All network devices, including routers, switches, firewall, VPN devices, and servers (Unix and Windows)
- All network interfaces and connections, including physical, virtual, and subinterfaces
- All device resources, including CPU, memory, volumes, and buffers.

For more information, see “Discovering Your Network” on page 12 and “Enabling Volume Management” on page 13.

Reviewing Network Availability Charts and Reports

The following procedure guides you through locating and reviewing the charts and reports that deal with network availability analysis and trends.

To review network availability charts and reports:

1. Clicking **Start > All Programs > SolarWinds Orion Network Performance Monitor > Orion Web Console**.
2. Log in to the Web Console. The default user is `admin` with a blank password.
3. Expand a node grouping in the All Nodes section of the Network Summary page, and then click a server you want to explore.
4. Review the resulting Node Details page, ensuring you pay close attention to the following resources:
 - Average Response Time & Packet Loss chart showing the last 7 days of data
 - Availability Statistics table
5. Click **Reports** on the menu bar.
6. Expand **Daily Node Availability**, and then click **Availability – This Month**.
7. Review the report, and then click **Reports** on the menu bar.
8. Expand **Availability**, and then click **Availability – Last Year**.
9. Review the report.

10. Click **Network Trends** on the menu bar.

Note: Due to the amount of data queried from the database, the Network Trends resources may take a significant time to load. You can also edit the number of resources included in the view to reduce the time to load. For more information about customizing views, see the *Administrator Guide*.

11. Review the resulting Network Trends page, ensuring you pay close attention to the following reports:

- Network Wide Average Response Time
- Network Wide Availability

Configuring Key Alerts

Using the alert configuration procedure detailed in the “Configuring Network Performance Alerts” section as a guide, consider configuring the following alerts with a trigger action of paging the appropriate operator:

- Node status is equal to down
- Interface status is equal to down
- Volume status is equal to down
- Alert based on the receipt of a specific SNMP trap -- use the Trap Viewer to configure these alerts
- Alert based on the receipt of a specific Syslog message – use the Syslog Viewer to configure these alerts

For more information on configuring advanced alerts, see the *Administrator Guide*.

Analyzing Usage Trends

As with network availability diagnostics, trend analysis takes a more extended period of time for data to be present and presentable. In approximately 3 months, the amount of data should be sufficient to begin to see trending and foresee possible capacity shortfalls. The same objects you want to monitor for network availability pertain to usage trends:

- All network devices, including routers, switches, firewall, VPN devices, and servers (Unix and Windows)
- All network interfaces and connections, including physical, virtual, and subinterfaces
- All device resources, including CPU, memory, volumes, and buffers.

For more information, see “Discovering Your Network” on page 12 and “Enabling Volume Management” on page 13.

Reviewing Useful Node Trend Reports and Charts

The following charts help you recognize trends and potential and existing bottlenecks at the node level:

- Average Response Time & Packet Loss chart -- take full advantage of the ability to display longer time periods through customizing the chart
- Min/Max Average CPU Load chart – again, take full advantage of the ability to display longer time periods through customizing the chart
- CPU Load & Memory Utilization gauges – ensure you click the gauges and customize the resulting charts to display longer time periods

On the reports page, the following node-level reports help track trends:

- Availability reports
- Historical Response Time reports
- Historical Traffic reports
 - Total Bytes Transferred by Node – Last 7 Days
 - Total Bytes Transferred by Node – Last Month
 - Total Bytes Transferred by Node – This Month
- Historical CPU and Memory reports

Reviewing Useful Interface Trend Reports and Charts

The following charts help you recognize trends and potential and existing bottlenecks at the interface level:

- Min/Max Average bps In/Out chart -- customized to display longer time periods
- Percent Utilization chart – customized to display longer time periods
- Total Bytes Transferred – customized to display longer time periods

On the reports page, the following interface-level reports help track trends:

- Historical Traffic reports
 - Average and Peak Traffic Rates – Last 7 Day
 - Average and Peak Traffic Rates – Last Month
 - Average and Peak Traffic Rates – This Month
 - Average and Peak Traffic Rates – Wan Interfaces Last 7 Days
 - Total Bytes Transferred by Interface – Last Month
 - Total Bytes Transferred by Interface – This Month

Reviewing Useful Volume Capacity Reports and Charts

The following charts help you recognize trends and potential and existing bottlenecks at the node level:

- Average Disk Space Used chart -- customized to display longer time periods
- Percent Disk Space Used chart – customized to display longer time periods

On the reports page, the Historical Volume Usage reports help track trends.