

Monitoring the DHCP and DNS nodes using SolarWinds® IP Address Manager

Monitoring the performance of DHCP and DNS nodes using SolarWinds IP Address Manager

[SolarWinds® IP Address Manager](#) (IPAM) is a comprehensive IP address management solution that offers centralized management and monitoring of all your IP addresses, subnets, and DHCP/DNS services from a single, easy-to-use Web console.

SolarWinds IPAM includes functionality for automating IP address management, simplifying network management, and improving your overall operational efficiency, saving you valuable time and effort.

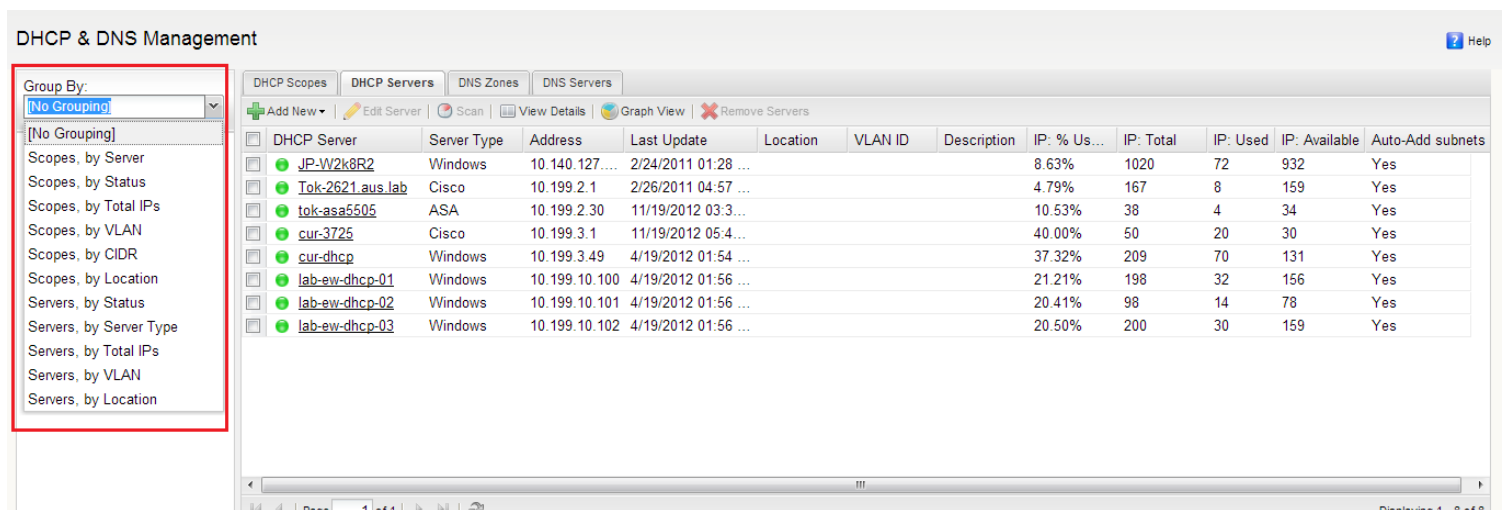
This document explains how quick and easy it is to monitor the performance of your DHCP and DNS nodes, and how SolarWinds IPAM helps simplify your IP address management.

DHCP Server Monitoring

SolarWinds IPAM allows you to monitor DHCP servers to check which IP addresses are in use, reserved, and available. After you add the DHCP servers, they are displayed as nodes.

Monitoring DHCP Scopes on DHCP Servers

IPAM allows you to group the scopes within the server - by server, location, status, etc.



Grouping Scopes within SolarWinds IPAM

After you select a particular server, it displays the scopes within the servers as below.

DHCP & DNS Management

Group By: Scopes, by Server

cur-3725 (2)
cur-dhcp (5)
JP-W2k8R2 (2)
lab-ew-dhcp-01 (4)
lab-ew-dhcp-02 (3)
lab-ew-dhcp-03 (2)
Tok-2621.aus.lab (3)
tok-asa5505 (2)

DHCP Scopes | DHCP Servers | DNS Zones | DNS Servers

+ Add New | Split Scope | Edit Scope Details | Graph View | Address Leases | Remove Scopes

Scope Name	DHCP Server	Scope Address Range	Server Type	Address	CIDR	Mask	Enabled	Last Update
Tokyo-host	Tok-2621.aus.lab	10.199.2.0/24	Cisco	10.199.2.0	24	255.255.255.0	Yes	2/26/2011 02:01 ..
WL_Tok	Tok-2621.aus.lab	10.199.24.0/24	Cisco	10.199.24.0	24	255.255.255.0	Yes	1/9/2012 06:00 arr
Tokyo-dev	Tok-2621.aus.lab	80.0.0.0/24	Cisco	80.0.0.0	24	255.255.255.0	Yes	2/26/2011 02:00 ..

Scopes within a server

SolarWinds IPAM supports both Microsoft® and Cisco® DHCP split scope functionality. It gives you the range of IP addresses between the DHCP scopes which have been split in a customized manner.

DHCP & DNS Management

Group By: Scopes, by Server

cur-3725 (2)
cur-dhcp (5)
JP-W2k8R2 (2)
lab-ew-dhcp-01 (4)
lab-ew-dhcp-02 (3)
lab-ew-dhcp-03 (2)
Tok-2621.aus.lab (3)
tok-asa5505 (2)

DHCP Scopes | DHCP Servers | DNS Zones | DNS Servers

+ Add New | Split Scope | Edit Scope Details | Graph View | Address Leases | Remove Scopes

Scope Name	DHCP Server	Scope Address Range	Server Type	Address	CIDR	Mask	Enabled	Last Update
<input checked="" type="checkbox"/> Tokyo-host	Tok-2621.aus.lab	10.199.2.0/24	Cisco	10.199.2.0	24	255.255.255.0	Yes	2/26/2011 02:01 ..
<input type="checkbox"/> WL_Tok	Tok-2621.aus.lab	10.199.24.0/24	Cisco	10.199.24.0	24	255.255.255.0	Yes	1/9/2012 06:00 arr
<input type="checkbox"/> Tokyo-dev	Tok-2621.aus.lab	80.0.0.0/24	Cisco	80.0.0.0	24	255.255.255.0	Yes	2/26/2011 02:00 ..

Scope Subnet
80.0.0.0/24

Scope Address Range
80.0.0.1 to 80.0.0.254

Excluded Addresses
80.0.0.1 to 80.0.0.127

Related Scopes
Curitiba-Dev on server cur-3725

Split Scope pop-up displayed in SolarWinds IPAM

IPAM also allows you to add DHCP scopes, edit the properties, and remove them from your DHCP server from one centralized management console.

ISC DHCP with SolarWinds IPAM

Configuration files in ISC DHCP are in plain text and contain many lines of code. Editing a subnet involves scanning the entire file, which can be time-consuming. Making the smallest change involves using a Command Line Interface (CLI), which requires skills with CLI commands. The absence of monitoring mechanisms to detect full subnets makes it difficult to find details on subnet utilization and available IP addresses.

For subnets and scopes for ISC DHCP, SolarWinds IPAM provides a simple wizard to easily create/modify subnets and specify scope properties like exclusions, pools, IP ranges, and leases without having to manually edit remote configuration files. [Click here](#) to learn more about creating and modifying subnets and scopes on ISC DHCP.

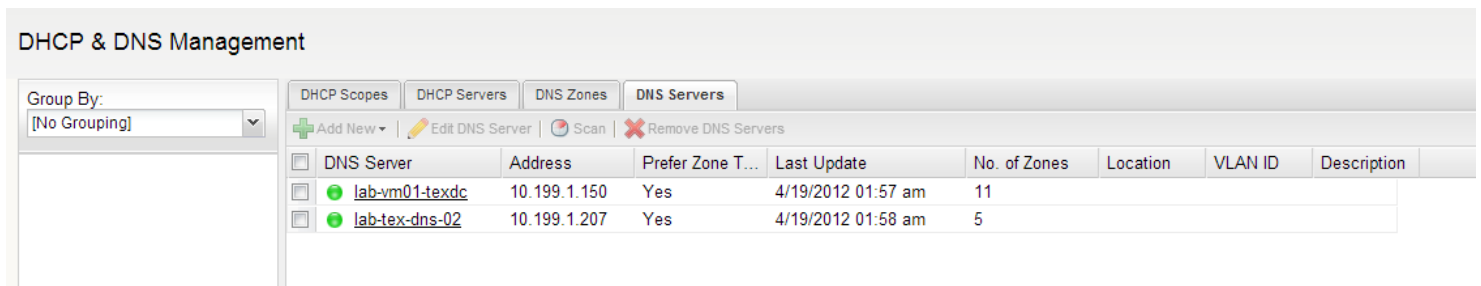
DNS Server Monitoring

DNS servers are critical in most environments. Monitoring their performance benefits you by:

- Providing a useful benchmark for predicting, estimating, and optimizing DNS server performance.
- Helping with troubleshooting DNS servers, where server performance has degraded either over time or during periods of peak activity.

Monitoring DNS Servers and Zones

IPAM's DNS monitoring lets you check the availability of your DNS servers by clicking the DNS Servers tab on your IPAM screen.



The screenshot shows the 'DHCP & DNS Management' interface with the 'DNS Servers' tab selected. The table below displays the monitored DNS servers:

DNS Server	Address	Prefer Zone T...	Last Update	No. of Zones	Location	VLAN ID	Description
lab-vm01-texdc	10.199.1.150	Yes	4/19/2012 01:57 am	11			
lab-tex-dns-02	10.199.1.207	Yes	4/19/2012 01:58 am	5			

DNS Monitoring using SolarWinds IPAM

Once you identify which servers are available, you can identify DNS zone and lookup type (forward/reverse), as displayed below.

Zone Name	Zone Status	Zone Type	Lookup Type	DNS Server	Address	Prefer Zone T...	Last Zone Transfer Time
_msdcs.lab.tex	Up	Primary	Forward	lab-vm01-texdc	10.199.1.150	Yes	4/19/2012 02:00 am
1.199.10.in-addr...	Up	Primary	Reverse	lab-vm01-texdc	10.199.1.150	Yes	4/19/2012 02:00 am
15.199.10.in-ad...	Up	Primary	Reverse	lab-vm01-texdc	10.199.1.150	Yes	4/19/2012 02:01 am
2.199.10.in-addr...	Up	Primary	Reverse	lab-vm01-texdc	10.199.1.150	Yes	4/19/2012 02:01 am
3.168.192.in-ad...	Up	Primary	Reverse	lab-tex-dns-02	10.199.1.207	Yes	4/19/2012 02:03 am
3.199.10.in-addr...	Up	Primary	Reverse	lab-vm01-texdc	10.199.1.150	Yes	4/19/2012 02:01 am
4.199.10.in-addr...	Up	Primary	Reverse	lab-vm01-texdc	10.199.1.150	Yes	4/19/2012 02:01 am
5.199.10.in-addr...	Up	Primary	Reverse	lab-vm01-texdc	10.199.1.150	Yes	4/19/2012 02:02 am
6.199.10.in-addr...	Up	Primary	Reverse	lab-vm01-texdc	10.199.1.150	Yes	4/19/2012 02:02 am
lab.tex	Up	Primary	Forward	lab-vm01-texdc	10.199.1.150	Yes	4/19/2012 02:02 am
lab.tex	Up	Secondary	Forward	lab-tex-dns-02	10.199.1.207	Yes	4/19/2012 02:03 am
mylocal.zone	Up	Primary	Forward	lab-tex-dns-02	10.199.1.207	Yes	4/19/2012 02:04 am
prim	Up	Primary	Forward	lab-vm01-texdc	10.199.1.150	Yes	4/19/2012 02:02 am
TEP	Up	Primary	Forward	lab-vm01-texdc	10.199.1.150	Yes	4/19/2012 02:03 am
TrustAnchors	Up	Primary	Forward	lab-tex-dns-02	10.199.1.207	Yes	4/19/2012 02:04 am
ZOnetest.com	Up	Stub	Forward	lab-tex-dns-02	10.199.1.207	Yes	4/19/2012 02:04 am

DNS zones within the server

With IPAM, you can view the DNS records for all your DNS zones, monitor and consolidate Microsoft DNS info from multiple servers, and view alongside DHCP information.

DNS Records for DNS zone '_msdcs.lab.tex'

Name	Type	Data	Server Name
gc._msdcs.lab.tex.	Host (A)	10.199.1.149	lab-vm01-texdc
gc._msdcs.lab.tex.	Host (A)	10.199.1.150	lab-vm01-texdc
gc._msdcs.lab.tex.	Host (A)	10.199.110.10	lab-vm01-texdc
_msdcs.lab.tex.	NS	lab-tex-dc-02.lab.tex.	lab-vm01-texdc
_msdcs.lab.tex.	NS	lab-vm01-texdc.lab.tex.	lab-vm01-texdc
6cb92ccf-234a-4dbd-b980-428...	Alias (CNAME)	lab-vm01-texdc.lab.tex.	lab-vm01-texdc
8ae4cd68-0f9a-42aa-8ee9-0fbe...	Alias (CNAME)	lab-tex-dc-02.lab.tex.	lab-vm01-texdc
_msdcs.lab.tex.	SOA	lab-vm01-texdc.lab.tex. hostmaster.lab...	lab-vm01-texdc
_kerberos._tcp.dc._msdcs.lab...	SRV	0 100 88 lab-tex-dc-02.lab.tex.	lab-vm01-texdc
_kerberos._tcp.dc._msdcs.lab...	SRV	0 100 88 lab-vm01-texdc.lab.tex.	lab-vm01-texdc
_kerberos._tcp.Default-First-Si...	SRV	0 100 88 lab-tex-dc-02.lab.tex.	lab-vm01-texdc
_kerberos._tcp.Default-First-Si...	SRV	0 100 88 lab-vm01-texdc.lab.tex.	lab-vm01-texdc
_ldap._tcp.Default-First-Site-N...	SRV	0 100 3268 lab-tex-dc-02.lab.tex.	lab-vm01-texdc
_ldap._tcp.Default-First-Site-N...	SRV	0 100 3268 lab-vm01-texdc.lab.tex.	lab-vm01-texdc
_ldap._tcp.gc._msdcs.lab.tex.	SRV	0 100 3268 lab-tex-dc-02.lab.tex.	lab-vm01-texdc

In addition to monitoring IP addresses, DHCP, and DNS servers using the LUCID dashboards, you can set up alerts and manage your entire IP infrastructure from a single, intuitive Web console.

BIND DNS with SolarWinds IPAM

BIND configuration and management is done via the CLI. With constant network changes, you would need to edit/add/delete zones/records from these BIND configuration files.

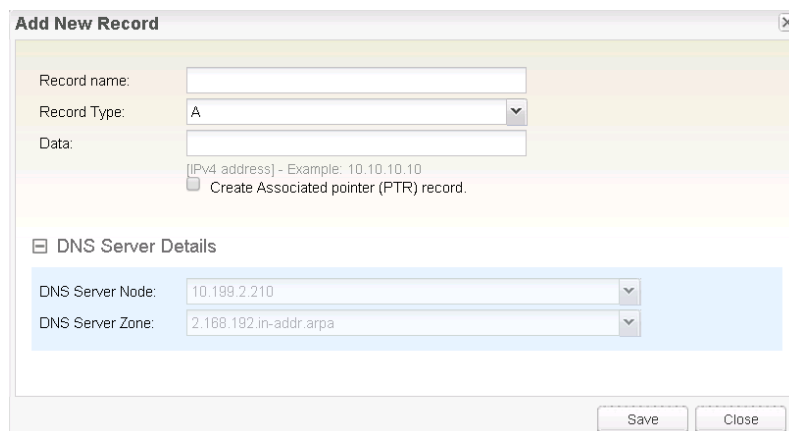
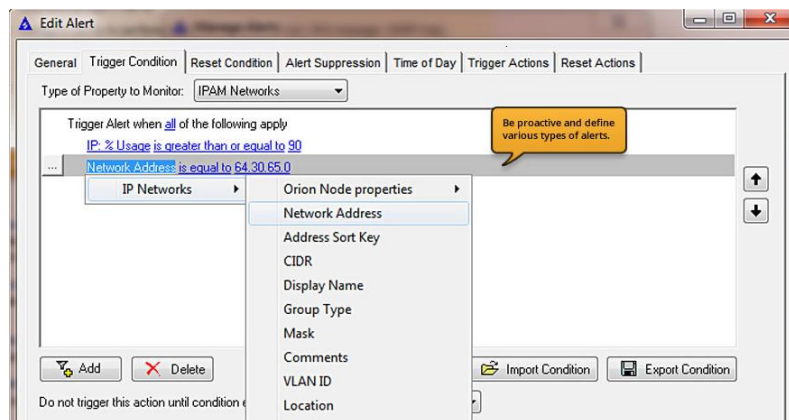
Making these changes from the CLI is not only complex, it's prone to human error. SolarWinds IPAM helps simplify the management of your BIND DNS servers by leveraging the user-friendly GUI of IPAM to:

- Add/edit/delete DNS servers
- Add/edit/delete DNS zones
- Assign views and records to DNS zones

Learn more about [BIND with IPAM](#)

With the alert feature, you can:

- Prevent running out of available IP addresses in your DHCP scopes with advanced alerting.
- Define subnet capacity thresholds and configure alerts to notify you before your subnets become full.
- Escalate alerts automatically when they are not acknowledged in a given time period.
- Detect mismatches in DNS records.
- Automatically create DNS PTR records when registering a DNS record.



DNS Records Mismatch

DNS SERVER	DNS ZONE	CLIENT HOST NAME	IP IN FWD ZONE	IP IN BWD ZONE
LAB-TEX-DC-01.lab.tex	CheckZones	host1.checkzones.	27.27.27.1	27.27.27.2
LAB-TEX-DC-01.lab.tex	TestMax	host1.testmax.	20.20.20.1	20.20.20.13
LAB-TEX-DC-01.lab.tex	TestMax	host3.testmax.	20.20.20.3	20.20.20.15
LAB-TEX-DC-01.lab.tex	TestNCM	host1.testncm.	200.201.202.203	200.201.203.204
LAB-TEX-DC-01.lab.tex	TestNCM1	host1.testncm1.	10.100.3.1	10.100.3.0
LAB-TEX-DC-01.lab.tex	TestMax	host4.testmax.	30.30.30.4	30.30.30.16
LAB-TEX-DC-01.lab.tex	TestMax	host5.testmax.	30.30.30.5	30.30.30.17
LAB-TEX-DC-01.lab.tex	TestMax	host6.testmax.	30.30.30.6	30.30.30.18
LAB-TEX-DC-01.lab.tex	TestMax	host7.testmax.	40.40.40.7	40.40.40.19
LAB-TEX-DC-01.lab.tex	TestMax	host8.testmax.	40.40.40.8	40.40.40.20

Page 1 of 5 | Items on page 10 | Show all | Displaying objects 1 - 10 of 49

You can leverage the intuitive dashboards and the Top 10 Views from IPAM to quickly view the IP address utilization, including DHCP scope and subnet utilization. All these views are entirely customizable so you can track the key performance indicators of the servers themselves, such as **CPU load and memory utilization, average response time and packet loss, node details, polling details, etc.**

Node Details - Cur-3500 - All Details Tuesday, 11 December 2012 04:40:00

- All Details
- Summary
- Vital Stats

Average Response Time & Packet Loss

7 ms

Avg Resp Time

0 %

Packet Loss

Ethernet Ports Used Over Time

LAST 24 HOURS

10 Mon Dec 2012
95th Percentile: % Ports Used is 85.0 %
User Device Tracker 2.5

Average CPU Load & Memory Utilization

63 %

Avg CPU Load

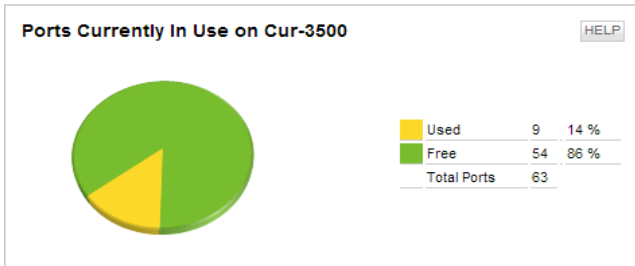
23 %



Memory Used

Ports Details Cur-3500

Port status: Show IPs for:

Polling Details		HELP
Polling IP Address	10.199.3.10	
Polling Engine	ADF-DEMO-NPM-A (10.10.11.55)	
Polling Method	SNMP	
Polling Interval	300 seconds	
Next Poll	12/12/2012 03:51 PM	
Statistics Collection	10 minutes	
Enable 64 bit Counters	No	
Rediscovery Interval	30 minutes	
Next Rediscovery	Wednesday, December 12, 2012 4:16 PM	
Last Database Update	Wednesday, December 12, 2012 3:46 PM	



Node Details		HELP
Node Status	 Node is Up. One or more interfaces have state: Down.	
Polling IP Address	10.199.3.10	
Dynamic IP	No	
Machine Type	 Cisco Catalyst 3548 XL	
DNS		
System Name	Cur-3500	
Description	Cisco Internetwork Operating System Software IOS (tm) C3500XL Software (C3500XL-C3H2S-M), Version 12.0(5)WC17, RELEASE SOFTWARE (fc1) Copyright (c) 1986-2007 by cisco Systems, Inc. Compiled Tue 13-Feb-07 15:04 by antonino	
Location	Curitiba	
Contact	Patrick Hubbard	
SysObjectID	1.3.6.1.4.1.9.1.278	
Last Boot	Sunday, November 18, 2012 3:09 AM	
Operating System	12.0(5)WC17, RELEASE SOFTWARE (fc1)	
IOS Image	C3500XL-C3H2S-M	
Hardware	Physical	
No of CPUs	1	
Telnet	telnet://10.199.3.10	
Web Browse	http://10.199.3.10	

Why SolarWinds IP Address Manager?

Eliminate Complexity, Improve Reliability, Save Time and Money!

- Manage and monitor Microsoft DHCP/DNS, ISC DHCP/DNS, and monitor Cisco DHCP servers.
- Automatic subnet discovery and [IP address scanning](#) for the most accurate real-time discovery and verification.
- Easily search addresses for history, op status, MAC, device type, DHCP, DNS properties and more.
- Optional UDT integration shows where an end-point device is connected to the network and who is using the device.
- Delegate tasks to network engineers and system administrators based on role.
- Supports IPv4 and IPv6 networks.
- [Alert notifications](#) help prevent your subnets and DHCP scopes from filling up.
- Historical IP address tracking for trend analysis and [IP capacity planning](#).
- Automatically discovers used and unused addresses.
- Typically deploys in less than an hour.

Top 10 DHCP Scopes by Utilization

SCOPE NAME	% IP SPACE USED	IPS AVAILABLE	IPS USED
Scope1	50.00%	4	4
Scope3	40.00%	3	2
Scope6	0.00%	51	0
Scope7	0.00%	51	0
Scope9	0.00%	51	0
testd	0.00%	10	0
ImportSync	0.00%	100	0
sdgdsq	0.00%	51	0
4.1	0.00%	100	0
Test12345	0.00%	149	0

Search for IP Address

Find:

Search in: Alias, Hostname, IP Address, Dual \$

DNS Records Mismatch

DNS SERVER	DNS ZONE	CLIENT HOST NAME	IP IN FWD ZONE	IP IN BWD ZONE
localhost.localdomain	prapooma	Host1.prapooma.	10.10.10.1	10.100.3.1
localhost.localdomain	prapooma	Host.prapooma.	10.10.10.2	10.100.3.1
localhost.localdomain	prapooma	Host.prapooma.	10.100.100.2	10.100.3.1
localhost.localdomain	prapooma	Host2.prapooma.	10.10.10.1	10.100.3.6

Top 10 DHCP Scopes by Utilization with Split Scopes

AVERAGE OF ALL SCOPES PERCENT UTILIZATION DESCENDING

SCOPE >> RELATED SCOPE	PERCENT IPS USED	SCOPE IPS USED / AVAILABLE	SUBNET IPS USED / AVAILABLE	SCOPE IN SUBNET
Scope1 on 10.199.2.210	4 / 4	114 / 101		
Scope3 on bgp-2651-02.lab.tex	2 / 3	168 / 82		
Scope6 on bgp-2651-02.lab.tex	0 / 51	0 / 254		
Scope7 on bgp-2651-02.lab.tex	0 / 51	0 / 254		
Scope9 on bgp-2651-02.lab.tex	0 / 51	0 / 254		
Test12345 on 10.199.2.210	0 / 149	0 / 254		
Scope1 on 10.199.2.210	0 / 51	0 / 254		
Scope111111 on 10.199.2.210	0 / 51	0 / 254		
TestScope1 on 10.199.2.210	0 / 203	72 / 132		
TestScope2 on 10.199.2.210	0 / 126	115 / 133		

Last 25 IPAM Events

8/21/2014 5:58 PM	SYSTEM	The scanning of '1.1.4.0/24' started at 8/21/2014 5:57:30 PM has finished successfully. 0 IP(s) were found. The scan duration was '1' minutes.
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Fully Functional for 30 Days

SolarWinds IP Address Manager

SolarWinds (NYSE: SWI) provides powerful and affordable IT management software to customers worldwide - from Fortune 500 enterprises to small businesses. The company works to put its users first and remove the obstacles that have become "status quo" in traditional enterprise software. SolarWinds products are downloadable, easy to use and maintain, and provide the power, scale, and flexibility needed to address users' management priorities.



SolarWinds online user community, [thwack](#) is a gathering-place where tens of thousands of IT pros solve problems, share technology, and participate in product development for all of the company's products. Learn more today at <http://www.solarwinds.com>.

For additional information, please contact SolarWinds at 866.530.8100 or e-mail sales@solarwinds.com.

To locate an international reseller near you, visit http://www.solarwinds.com/partners/reseller_locator.aspx