

LEVERAGING BEST PRACTICES FOR SOLARWINDS IP ADDRESS MANAGER

Leveraging Best Practices for SolarWinds IPAM

[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, simple-to-use web console.

SolarWinds IPAM provides many great features to automate your IP address management, simplify your network management tasks, and improve overall operational efficiency—saving you valuable time and money!

In this document, we'll be looking into the key functionality of SolarWinds IPAM software and how to leverage some product best practices that best suit your IP address management needs. These practices will help simplify your IP address management efforts and enable you to perform tasks more effectively.

IPAM Operational Best Practices:

1. Adding IP Addresses & Subnets

- a. Adding New Subnets & Supernet
- a. Adding Range of IP Addresses

2. IP Address & Subnet Management

- a. Configuring Automatic IPv4 Subnet Discovery
- b. Configuring Automatic Subnet Scan
- c. Importing IP Addresses & Subnets from Spreadsheets
- d. IPv6 Address Management
- e. Historical IP Address Tracking
- f. IP Address Details View

3. Adding DHCP & DNS servers

- a. Adding DHCP Servers
- b. Adding DNS Servers

4. DHCP & DNS Management

- a. Managing DHCP Scopes on DHCP Server
- b. Managing DNS Zones
- c. Managing DNS Records

5. DHCP Split Scope

- a. Defining the DHCP Servers to Perform the Split Scope Operation
- b. Range Distribution for Splitting the Scope Between the DHCP Servers

6. Team and Role-based Permissioned Access

7. Top 10 Views



#1 Adding IP Addresses & Subnets

SolarWinds IPAM allows you to add IP addresses to existing subnets, as well as add additional subnets for automated monitoring and management.

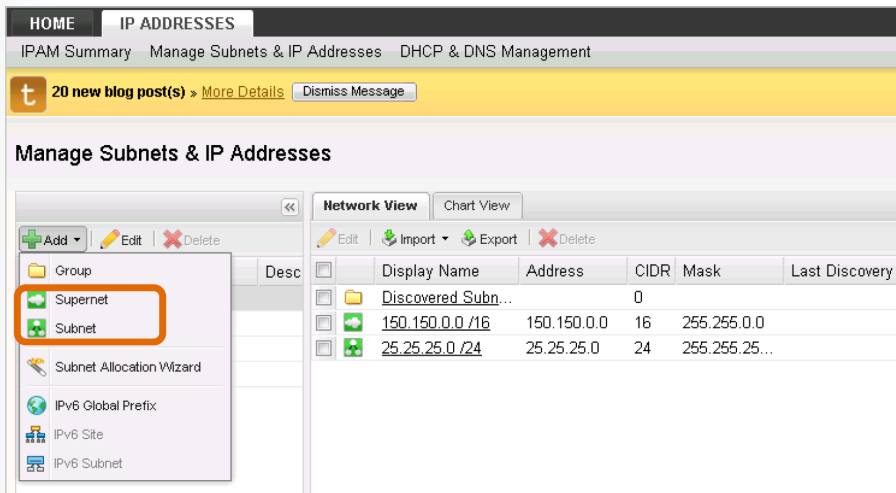
What you can add and monitor:

- New subnet or supernet
- New IP addresses to existing subnet
- Import subnet and add IP addresses
- A range of IP addresses to any defined and existing subnet
- Import IP addresses and allocate them to new/existing subnets
- IPv6 sites, addresses, and subnets for IPv6 migration and planning purposes

NOTE: In order to help you maintain an organized network, IPAM doesn't allow adding individual IP addresses, unless they exist within a subnet previously designated for monitoring.

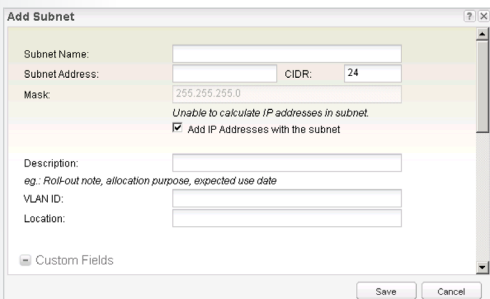
a.) Adding New Subnets & Supernets

To add a new subnet or supernet, click IP Addresses tab >> Manage Subnets & IP Addresses tab >> Add button >> Choose Subnet or Supernet.

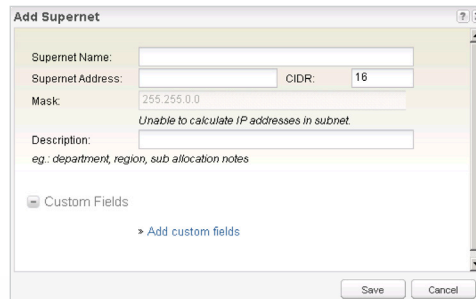


Adding a Subnet or Supernet to SolarWinds IPAM

In the **Add Subnet** or **Add Supernet** window, you can fill in the applicable details.



Adding Subnet to SolarWinds IPAM

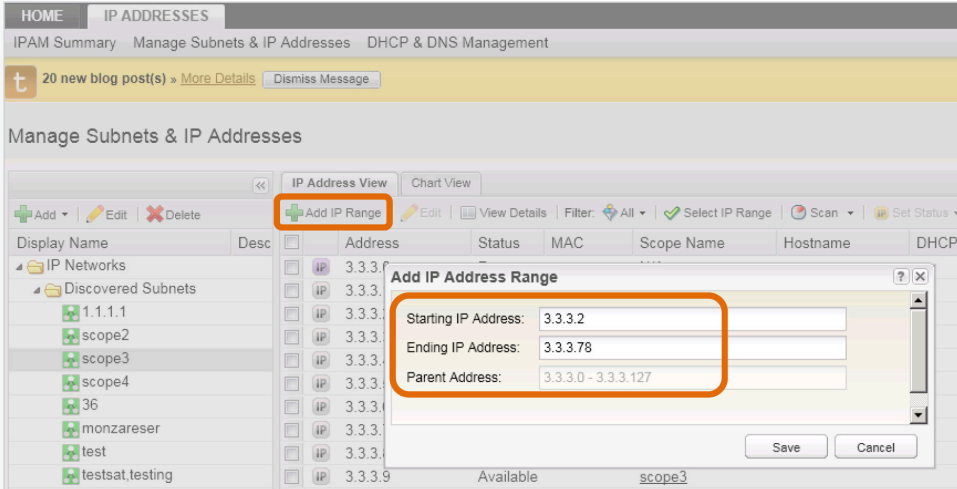


Adding Supernet to SolarWinds IPAM

b.) Adding Range of IP Addresses

To add a range of IP addresses, click **IP Addresses** tab >> **Manage Subnets & IP Addresses** tab >> Choose a subnet from the left-hand column >> Click **Add IP Range** button.

This will open up a window to add your IP address ranges within the selected subnet. You can enter the starting and ending IP addresses, and IPAM will add the range of IP addresses to the subnet.



Adding a Range of IP Addresses to IPAM

#2 IP Address & Subnet Management

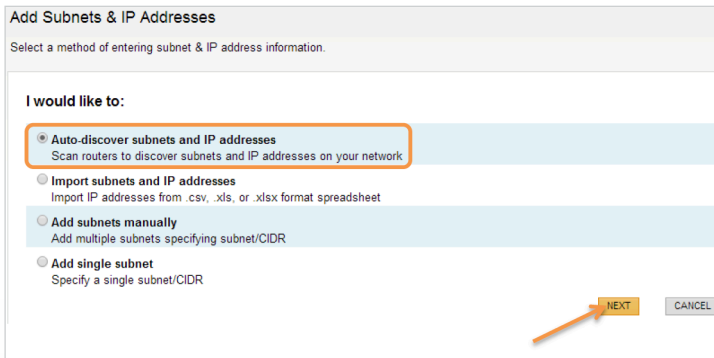
SolarWinds IPAM allows you to perform automated IP address scans on all your subnets with custom intervals and makes it easy to create your own scan job from scratch. Each job performs a scan of network devices based on the subnet. You can automate IP address scanning for all your subnets, a group of subnets, or for an individual subnet.

There are three scanning modes used to scan IP addresses:

- ICMP scan (ping sweep)
- SNMP scan
- Neighbor scan (using ARP tables)

a.) Configuring Automatic IPv4 Subnet Discovery

Create an up-to-date “IP address map” of the network, by directly pulling data from router configurations and connected machines.



Subnet Discovery
Discover routers and poll IPv4 subnets and IP addresses from them.

SPECIFY NODES TO SCAN > SNMP CREDENTIALS > DISCOVERY SETTINGS >

Specify routers to scan for subnets
Scan selected routers for IPv4 subnets and their IP Addresses. In case you want to scan routers that are not monitored nodes enter their IP Addresses below.

Selected routers:

- Default Gateway - 10.100.112.1**
Scan routers that can be discovered from default gateway.

Add routers to scan manually (advanced)

SELECTION METHOD
Choose from monitored SNMP nodes

Add nodes by IP address

Select SNMP nodes:

Group by:	Name	Polling IP Address
ICMP (2)	hgp-2651-02.lab.tex	10.199.252.2
SNMP (2)	localhost.localdomain	10.199.3.169

Page 1 of 1 | Page size 40 | Displaying objects 1 - 2 of 2

NEXT **CANCEL**

Automatically or manually detect adjacent router for scan



Provide SNMP credentials for polling devices and discovery settings for auto discovery.

Subnet Discovery
Discover routers and poll subnets and IP addresses from them.

SPECIFY NODES TO SCAN > SNMP CREDENTIALS > **DISCOVERY SETTINGS** > SUBNET RESULTS >

Discovery Settings
Customize your discovery by configuring the following settings.

General subnet discovery settings:

SNMP Timeout: ms

SNMP Retries: retry(s)

BACK **DISCOVER MY NETWORK** **CANCEL**

Manage Subnets & IP Addresses

Network View | Chart View

Display Name	Address	CIDR	Mask	Last Discovery	Location	VLAN ID	Description	IP- % Us...
192.168.0.0/16	192.168.0.0	16	255.255.0.0	4/19/2012	Austin 1, ...		lab-ew-dhcp-01	74.41%
test-scope2	10.10.10.0	24	255.255.255.0	4/19/2012	Curitiba, ...		Cur-dhcp	8.98%
10.10.100.0	10.10.100.0	30	255.255.255.252	4/19/2012	Curitiba, ...		Cur-dhcp	100.00%
10.11.1.0	10.11.1.0	24	255.255.255.0	4/19/2012	New York, ...		lab-ew-dhcp-03	8.20%
10.15.15.0	10.15.15.0	24	255.255.255.0	4/19/2012	Austin 1, ...		lab-ew-dhcp-01	8.98%
10.20.20.0	10.20.20.0	24	255.255.255.0	4/19/2012	New York, ...		lab-ew-dhcp-03	12.11%
10.22.2.0	10.22.2.0	24	255.255.255.0	4/19/2012	Curitiba, ...		Cur-dhcp	11.72%
10.30.30.0	10.30.30.0	25	255.255.255.128	4/19/2012	Curitiba, ...		Cur-dhcp	14.06%
10.40.40.0	10.40.40.0	24	255.255.255.0	4/19/2012	Curitiba, ...		Cur-dhcp	8.59%
10.50.50.0	10.50.50.0	24	255.255.255.0	4/19/2012	Austin 2, ...		lab-ew-dhcp-02	8.59%
10.90.90.0	10.90.90.0	24	255.255.255.0	4/19/2012	Curitiba, ...		Cur-dhcp	8.98%
inside-LAN	10.199.2.0	24	255.255.255.0	11/19/2012	Tokyo, Ja...		tok-asa5505	61.72%
curitiba	10.199.3.0	24	255.255.255.0	11/19/2012	Curitiba, ...		Cur-3725	44.53%
outside-WAN	20.20.20.0	24	255.255.255.0	11/19/2012	Tokyo, Ja...		tok-asa5505	1.95%

Page 1 of 1 | Page size 40 | Displaying 1 - 15 of 15

b.) Configuring Automatic Subnet Scan

SolarWinds IPAM is capable of using both **SNMP** and **ICMP** scanning to continuously determine the status of your monitored network. The Subnet Scan Settings view allows you to select how IPAM automatically scans your network for changes.

You can configure the scan while adding a new subnet or by editing the properties for any existing subnet.

On the **Manage Subnets & IP Addresses** tab, select the subnet(s) that you want to run on an automated scan.

On the right pane, click **Edit** to open the **Edit Subnet Properties** window.



Manage Subnets & IP Addresses

Network View | Chart View

Add Edit Delete Import Export Delete

Display Name	<input type="checkbox"/>	Edit a single group / supernet / subnet	CIDR	Mask	Last Discovery	Location	VLAN ID
IP Networks							
Apac							
Discovered Subnets							
192.168.0.0/16	<input checked="" type="checkbox"/>	<input type="checkbox"/>	192.168.0.0	16	255.255.0.0		
test-scope2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10.10.10.0	24	255.255.255.0		4/19/2012
10.10.100.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10.10.100.0	30	255.255.25...		4/19/2012
10.11.1.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10.11.1.0	24	255.255.255.0		4/19/2012
10.15.15.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10.15.15.0	24	255.255.255.0		4/19/2012
10.20.20.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10.20.20.0	24	255.255.255.0		4/19/2012
10.22.2.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10.22.2.0	24	255.255.255.0		4/19/2012
10.30.30.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10.30.30.0	25	255.255.25...		4/19/2012
10.40.40.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10.40.40.0	24	255.255.255.0		4/19/2012
10.50.50.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10.50.50.0	24	255.255.255.0		4/19/2012
10.90.90.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10.90.90.0	24	255.255.255.0		4/19/2012
10.199.2.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10.199.2.0	24	255.255.255.0		2/26/2011
80.0.0.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	80.0.0.0	24	255.255.255.0		2/26/2011

Subnet & IP Address Management Screen in SolarWinds IPAM

You can enter the Scan Interval field to set the automated scan frequency (in minutes, hours, or days) between 10 minutes to 7 days.

Automatic Scanning

Disable Automatic Scanning
 Update but not erase manually entered data

Scan Interval:

Automatic Subnet Scanning in SolarWinds IPAM

c.) Importing IP Addresses & Subnets from Spreadsheets

SolarWinds IPAM software simplifies the process of importing all your IP addresses and subnets. Using a simple-to-use Import Wizard, you can now upload all your IP addresses and subnets from Excel® or .csv spreadsheets. The wizard will walk you through a series of simple steps and provide the functionality to manage the spreadsheet data that gets uploaded.

Step 1: Preparing to Import a Spreadsheet

IPAM offers Excel spreadsheet templates to have your IP addresses and subnets formatted to a standard pattern that makes the importing process easier. You can download these templates, and convert your existing spreadsheets with IP addresses and subnets into this form for the import.

Step 2: Selecting the Spreadsheet (.xls or .xlsx, or .csv) for Import

IPAM allows you to import spreadsheets with multiple worksheets—each of which can denote a specific subnet and contain the IP address allocation for that subnet

You can import IP addresses and subnets into IPAM for:

- Adding more IP addresses to an existing subnet
- Replacing/overwriting the existing subnet with new IP address data
- Creating new subnets by just importing subnet and IP address data into IPAM

Step 3: IP Address & Subnet Column Matching

SolarWinds IPAM tool allows you to choose the appropriate column from your spreadsheet for each IPAM option.

You may have different column header names in your spreadsheet if you're not using the IPAM-recommended template. IPAM enables you to map those fields from your spreadsheet with default data fields that are required for the import.

SolarWinds IPAM gives you two options to choose from:

- Automatically create subnet hierarchy based on information provided
- Place new subnets in Imported Subnet/Supernet/Group folder so you can organize them after import



IP Address column matching

Choose the appropriate column from your spreadsheet for each IPAM option.

Required IP information

IP Address:

Optional

Dual Stack IPv6 Address	<input type="text" value="Dual Stack IPv6 Address"/>
MAC Address (i.e. 00-19-AA-80-3C-0C)	<input type="text" value="MAC Address (i.e. 00-19-AA-80-3C-0C)"/>
Hostname	<input type="text" value="Hostname"/>
DHCP Client Name	<input type="text" value="[Do not import]"/>
System Name (i.e. Router05)	<input type="text" value="System Name (i.e. Router05)"/>
Description	<input type="text" value="Description"/>
Contact	<input type="text" value="Contact"/>
System Location	<input type="text" value="System Location"/>
System Object ID	<input type="text" value="System Object ID"/>
Vendor	<input type="text" value="Vendor"/>
Machine Type	<input type="text" value="Machine Type"/>
Last Boot Time	<input type="text" value="Last Boot Time"/>
Last Synchronization	<input type="text" value="Last Synchronization"/>
Response Time	<input type="text" value="Response Time"/>
Status (i.e. Available, Used)	<input type="text" value="Status (i.e. Available, Used)"/>
Comments	<input type="text" value="Comments"/>
Type	<input type="text" value="Alloc Policy"/>
Alias	<input type="text" value="Alias"/>
Skip Scan	<input type="text" value="Skip Scan"/>

IP Address Column Matching in SolarWinds IPAM

Step 4: Selecting Custom Fields to be Imported with the Spreadsheet

With Select Custom Fields, IPAM allows you to choose and customize what you want to import from your spreadsheet.

Step 5: Importing the Spreadsheet on IPAM

Once you have all the details locked and loaded, you can just hit the Import button.

All the IP addresses and subnets will now be available in the Manage Subnets & IP Addresses tab, and you can immediately start managing them using IPAM's centralized web console.

IPAM also provides you with the functionality of importing bulk IP addresses and subnets just by typing or copying them in a text field.

d.) IPv6 Address Management

IPAM routinely discovers IPv6 addresses by examining router tables. Once an IPv6 address is found, IPAM will assess ongoing operational status using ICMPv6. Specify the neighbor routers and IPv6 addresses for existing subnets in IPAM and start managing your IPv6 address blocks with automated discovery. You can now view data in the same interface as your IPv4 addresses.

Step 1: To discover IPv6 subnets, click on the "Discover IPs" button

Display Name	Address	Address (IPv4)	Status	MAC	Hostname	Last Response	System D
IP Networks							
Discovered Subnets	fe80::fa:f4df:a92d:e82c		Available			Never	
Imported Subnet	fe80::217:dfff:fece:e000		Available			Never	
TestDelegation	fe80::221:d9ff:fe4f:10a0		Available			Never	
10.120.0.0 /22	fe80::250:56ff:feaa:430b		Available			Never	
10.100.2.0 /24	fe80::250:56ff:feaa:430f		Available			Never	
GP1	fe80::250:56ff:feaa:45ce		Available			Never	
	fe80::4ce:4d99:a206:10bd		Available			Never	



Step 2: Specify the neighbor routers and fill-in IP addresses for existing subnets.

Scan routers in your network for IPv6 Addresses existing in selected subnets, sites and prefixes.

Routers to scan
Enter one IP address or hostname per line. Both IPv4 and IPv6 (full notation or without zeroes) addresses are accepted

10.100.112.1
10.199.4.4
10.199.2.251

Discover Cancel

IPAM provides a consolidated view for IPv6 addresses with status, device details, and vendor details.

Display Name	Address	Address (IPv4)	Status	MAC	Hostname	Last Response	Vendor
GP	2001:1:0:194:2b:730d:c5a2:111d		Used	00-15-50-42-2B-55		8/12/2014	Microsoft Corporati
GP	2001:1:0:194:18c:7218:9368:3979		Used	00-15-50-42-2C-7E		8/12/2014	Microsoft Corporati
GP	2001:1:0:194:504:14e6:b38:a46b		Available			Never	
GP	2001:1:0:194:616:3a6:eed:4ecb		Used	00-15-50-6C-1A-5F		8/12/2014	Microsoft Corporati
GP	2001:1:0:194:860:f2b8:65:9e48		Used			8/12/2014	
GP	2001:1:0:194:8a9:57ce:e86:4db1		Used			8/12/2014	
GP	2001:1:0:194:a04:25c6:a8dd:9916		Used	00-15-50-6C-1A-51		8/12/2014	Microsoft Corporati
GP	2001:1:0:194:b27:c1a9:44cb:eccd		Transient			8/5/2014	
GP	2001:1:0:194:c3b:a8cf:350d:6811		Used			8/12/2014	
GP	2001:1:0:194:f5b:d1ce:3a05:8108		Used			8/12/2014	
GP	2001:1:0:194:f6b07d:296b:3f59		Used	00-15-50-42-2C-7E		8/12/2014	Microsoft Corporati
GP	2001:1:0:194:f69:1149:373d:b18		Used			8/12/2014	

e.) Historical IP Address Tracking

IPAM offers the historical tracking of addresses to see how certain properties have changed over time. For example, you can track MAC addresses and hostnames previously assigned to an IP address.

From the **IP Addresses** tab >> **Manage Subnets & IP Addresses** page >> Select a specific IP address from any existing subnet >> Click **View Details**.

Display Name	Address	Status	MAC	Scope Name	Lease
IP Networks					
Apac					
Discovered Subnets					
Europe					
10.199.4.0					
	10.199.4.0	Reserved		N/A	
	10.199.4.1	Used	00-0E-D7-...	N/A	
	10.199.4.2	Available		N/A	
	10.199.4.3	Used	B9-F4-E7...	N/A	
	10.199.4.4	Available		N/A	

Selecting an IP Address to View History using SolarWinds IPAM



f.) IP Address Details View

Similarly, select an individual IP address from the IP Address View, and click the View Details button. This will display all the details associated with the selected IPv4 or IPv6 address, including MAC and Hostname assignment history.

IP Address Details - IP 10.199.4.2

Last Year

IP Address Details

Management Edit IP Address

Status: Available

Type: Static

IP Address: 10.199.4.2

Dual Stack IPv6 Address:

Scanning: On, allow system info to be overwritten

Hostname:

DHCP Client Name:

DHCP Reservation: No

MAC Address:

Alias:

Comments:

Machine Type:

Vendor:

System Name:

Description:

Contact:

System Location:

Last Synchronization: Never

Response Time: No Response

Lease Expiration: N/A

IP Address History

LAST YEAR

TIME PERIOD	STATUS	HOSTNAME	MAC ADDRESS	SOURCE FOR UPDATE
10/22/2012 10:11:01 AM	Available	 	 	Subnet SNMP scan
10/22/2012 10:11:01 AM	Used	 	 	Manual edit by SYSTEM
10/16/2012 9:47:01 AM	Available	 	 	Subnet scan
10/16/2012 9:47:01 AM	Available	 	 	Subnet scan
10/14/2012 8:09:01 AM	Available	 	 	Subnet scan
10/14/2012 8:09:01 AM	Used	 	 	Subnet ICMP scan
10/12/2012 8:55:01 AM	Used	 	 	Subnet ICMP scan
10/12/2012 8:55:01 AM	Available	 	 	Manual edit by SYSTEM
10/8/2012 7:32:01 AM	Available	 	 	Manual edit by SYSTEM

Hostname Assignment History

LAST YEAR

TIME PERIOD	IP ADDRESS	SUBNET	SOURCE FOR UPDATE
There are no results matching your search terms.			

MAC Assignment History

LAST YEAR

TIME PERIOD	IP ADDRESS	SUBNET	SOURCE FOR UPDATE
There are no results matching your search terms.			

Historical IP Address Tracking & IP Address Detail View in SolarWinds IPAM

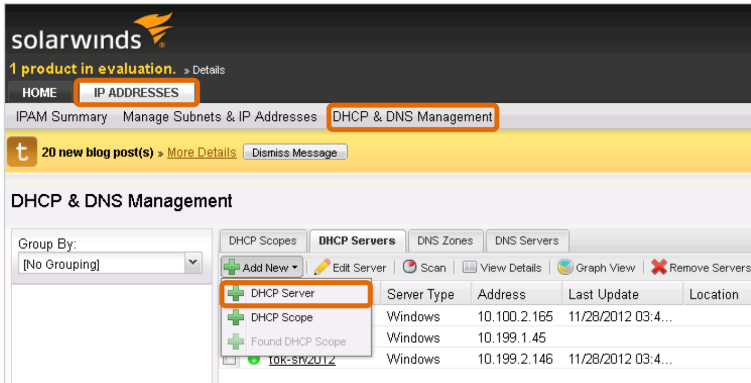
#3 Adding & Configuring DHCP & DNS Servers

SolarWinds IPAM can manage all of your Microsoft®, ISC, and Cisco® DHCP services, and Microsoft BIND DNS servers from a single, consolidated interface.

Using the Network Sonar Discovery wizard, DHCP and DNS servers can automatically be discovered and added as nodes in so they can be managed by IPAM. You also have the option of manually adding nodes.

a.) Adding DHCP Servers

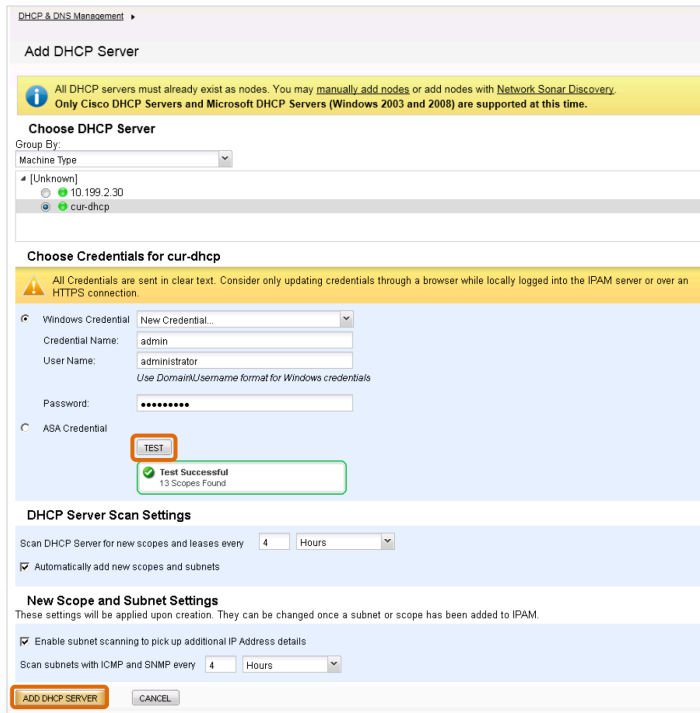
Once the DHCP server is added as a node in (as indicated above), you can add it to the IPAM web console by clicking **IP Addresses** tab >> **DHCP & DNS Management** >> **DHCP Servers** tab >> **Add New** >> **DHCP Server** button.



Adding DHCP Server in SolarWinds IPAM (Step 1)

This will open up the **Add DHCP Server** page. Now, you can choose the required DHCP server from the list of nodes (already discovered by Network Sonar Discovery or manually added) and create or choose credentials.

Click **Test**, and once the test is successful, click **Add DHCP Server** to IPAM web console.



Adding DHCP Server in SolarWinds IPAM (Step 2)

You can also edit and configure the DHCP server settings from the IPAM web console. Just click on the **Edit Server** button on the **DHCP Servers** tab, and you can modify settings on the selected DHCP server.

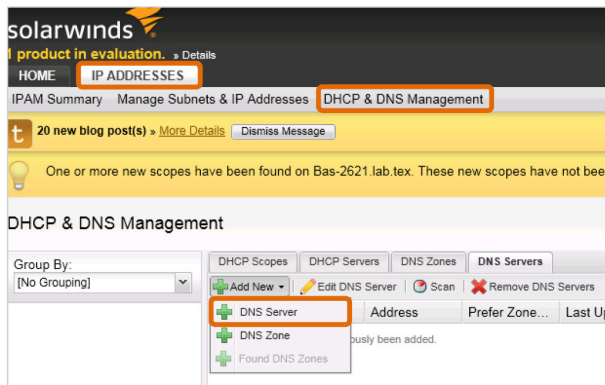
SolarWinds IPAM solution also provides support for ISC (Internet Systems Consortium) DHCP. It simplifies the creation and addition of ISC subnets to a few clicks. This means you'll no longer need to log on to CLI every time you need to make a change. Click here to learn more on [ISC DHCP- Quick Install with IPAM](#).

b.) Adding DNS Servers

Once the DNS server is added as a node, you can add it to the IPAM web console.

When you add a DNS server in IPAM, it changes the **Transfer Zone Configurations** on the DNS server. For example, if you have **Allow zone transfers** selected for servers listed on the **Name Servers** tab, IPAM will set this configuration to, **Only to the Following Servers**.

To add a new DNS server, click **IP Addresses** tab >> **DHCP & DNS Management** >> **DNS Servers** tab >> **Add New** >> **DNS Server** button.



Adding DNS Server in SolarWinds IPAM (Step 1)

This will open up the **Add DNS Server** page. Now, you can choose the required DNS server from the list of nodes (already discovered by Network Discovery Wizard or manually added) and create or choose credentials.

Click **Test**, and once the test is successful, click Add Server to IPAM web console.



Adding DNS Server in SolarWinds IPAM (Step 2)



For modifying DNS server settings, click on the **Edit DNS Server** button on the **DNS Servers** tab. This will allow you to edit and configure the properties and settings of the selected DNS server.

SolarWinds IPAM also 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 these Zones. Learn more about [BIND with IPAM](#).

#4 DHCP & DNS Management

SolarWinds IP Address Manager provides consolidated, “single-pane-of-glass” management of Microsoft DHCP/DNS, ISC DHCP/BIND DNS, as well as Cisco DHCP and ASA devices.

You can add new or edit existing Microsoft, ISC, and Cisco DHCP servers and scopes; set, update, or delete reservations, reservation status and DHCP properties. You can also add, modify, or delete Microsoft and BIND DNS servers, zones and records—all directly from the IPAM console.

a.) Managing DHCP Scopes on DHCP Server

SolarWinds IPAM software enables you to make changes in your DHCP server directly from the IPAM web console with just a few clicks. From the **DHCP & DNS Management** tab, select **DHCP Scopes** tab, select the DHCP scopes as required, and click **Edit Scope Details**. This will open up the **Edit DHCP Scope** page.

Scope Name	DHCP Server
<input checked="" type="checkbox"/> 10.0.1.0/24	10.199.2.30
<input type="checkbox"/> inside	10.199.2.30

Editing DHCP Scopes using SolarWinds IPAM

On the **Edit DHCP Scope** page, you can:

- Define DHCP scope by specifying the DHCP server details
- Specify IP address range by providing a set of consecutive IP addresses
- Define how long the scope lease should last

Once finished, click the **Update Scope** button to have these updates reflected in the DHCP server.

Edit DHCP Scope

DEFINING SCOPE > IP ADDRESS RANGE > SCOPE PROPERTIES > SCOPE OPTIONS > **REVIEW**

Review

DHCP Server:	10.199.2.30
Scope Name:	10.0.1.0/24
Scope Description:	Austin DHCP Scope
VLAN ID:	10.199.2.30
Location:	Austin Server
Start IP Address of Scope:	10.0.1.200
End IP Address of Scope:	10.0.1.231
CIDR:	24
Subnet Mask:	255.255.255.0
IP Address Exclusions:	
Scope Lease Duration:	8 Days 0 Hours 0 Minutes
Delay before offering a lease:	0 ms
<input checked="" type="checkbox"/> Dynamic DNS updates enabled:	<ul style="list-style-type: none"> • Dynamic update DNS A and PTR records only if requested • Discard A and PTR records when lease is deleted.

Editing Scope Details from SolarWinds IPAM

Best practices dictate the following:

- Networks that utilize many mobile devices should have a shorter duration
- Networks with computers at fixed locations can have a longer duration

b.) Managing DNS Zones

In addition to DHCP management, SolarWinds IPAM provides comprehensive DNS management. With IPAM, you can:

- Manage Microsoft DNS servers right alongside DHCP servers
- Create, modify, or delete DNS zones and records directly from the IPAM web console
- View all DNS information, including outdated/obsolete DNS records from one central spot

From the **DHCP & DNS Management** tab, select **DNS Zones** tab, select a single DNS Zone as required, and click **Edit Zone Details** which will open up the **Edit DNS Zone** page.



DHCP & DNS Management

Group By: [No Grouping]

Zone Name	Zone Status	Zone Type	Lookup Type	DNS Server
<input type="checkbox"/> _msdcs.lab.tex	Up	Primary	Forward	LAB-TEX-DC-01...
<input type="checkbox"/> 123.in-addr.arpa	Up	Primary	Reverse	LAB-TEX-DC-01...
<input type="checkbox"/> 15.199.10.in-addr.arpa	Up	Primary	Reverse	LAB-TEX-DC-01...
<input type="checkbox"/> 19.19.0.in-addr.arpa	Up	Primary	Reverse	LAB-TEX-DC-01...
<input type="checkbox"/> 19.19.19.in-addr.arpa	Up	Primary	Reverse	LAB-TEX-DC-01...
<input type="checkbox"/> 3.199.10.in-addr.arpa	Up	Primary	Reverse	LAB-TEX-DC-01...
<input type="checkbox"/> 4.199.10.in-addr.arpa	Up	Primary	Reverse	LAB-TEX-DC-01...
<input type="checkbox"/> 40.in-addr.arpa	Up	Primary	Reverse	LAB-TEX-DC-01...
<input type="checkbox"/> 5.199.10.in-addr.arpa	Up	Primary	Reverse	LAB-TEX-DC-01...
<input type="checkbox"/> 6.199.10.in-addr.arpa	Up	Primary	Reverse	LAB-TEX-DC-01...
<input type="checkbox"/> 8.199.10.in-addr.arpa	Up	Primary	Reverse	LAB-TEX-DC-01...
<input checked="" type="checkbox"/> ello	Up	Primary	Forward	LAB-TEX-DC-01...
<input type="checkbox"/> fb	Up	Primary	Forward	LAB-TEX-DC-01...
<input type="checkbox"/> hello.lab.tex	Up	Primary	Forward	LAB-TEX-DC-01...

Consolidated DNS Zone Management

The edit DNS zone page has a simple wizard to help you edit the following:

- Zone Name
 - **Primary Zone:** Choose this option if the DNS server is the authoritative source for all the domains in the zone.
 - **Secondary Zone:** Choose this option if the DNS server is the secondary source for information about this zone. Secondary zones are read-only and can only be updated through zone transfer. Specifically used to help load balance and provide fault tolerance.
 - **Stub Zone:** Choose this option to provide name resolution in domains, if the local DNS server is not authoritative. The stub zone contains the resource records needed to identify the authoritative DNS servers, including Name Server (NS), Start of Authority (SOA), and glue address (A) records.
- Lookup Type
 - **Forward Lookup:** Resolves the fully qualified domain name to IP address.
 - **Reverse Lookup:** Resolves the IP address to the fully-qualified domain name. Can be a primary or secondary zone.
- Zone File Name
- Zone Transfers: Allows you to set Zone Transfer interval



DHCP & DNS Management >

Edit DNS Zone

CHOOSE DNS SERVER > DNS ZONE & LOOKUP > FILE NAME & TRANSFERS > **REVIEW**

Review

DNS Server: LAB-TEX-DC-01.lab.tex
Zone Name: ello
Zone Type: Primary
Lookup Type: Forward Lookup Zone
Zone File Name: ello.dns
 Zone Transfers:

- Default zone transfer interval enabled.
- Prefer incremental DNS Zone transfer enabled.

Once finished, click the **Update Zone** button to have these updates reflected in the DNS server.

Additionally, you can use the **Scan** option to schedule periodic syncs with the DNS server.

- The Scan button on the **DNS Servers** tab will sync all DNS Zone updates from the DNS Server with the IPAM web console
- The Scan button on the **DNS Zones** tab will sync all DNS Record updates from the selected DNS Zone on the DNS Server with the IPAM web console

c.) Managing DNS Records

SolarWinds IPAM allows you to add, edit, and remove DNS records for all your DNS zones.

From the **DNS Zones** tab, select a single DNS Zone and click **DNS Records**. This will display all the DNS records for the selected DNS zone. Using the **Add New**, **Edit**, and **Delete** buttons, you can manage DNS records on your Microsoft DNS servers from the centralized IPAM web console.



DHCP & DNS Management > LAB-TEX-DC-01.lab.tex > 15.199.10.in-addr.arpa >

DNS Records for DNS zone '15.199.10.in-addr.arpa'

+ Add New | Edit | Delete

Name	Type	Data	Server Name
<input type="checkbox"/> 15.199.10.in-addr.arpa.	NS	lab-tex-dc-01.lab.tex.	LAB-TEX-DC-01.lab.tex
<input type="checkbox"/> 15.199.10.in-addr.arpa.	NS	lab-tex-dc-02.lab.tex.	LAB-TEX-DC-01.lab.tex
<input type="checkbox"/> 15.199.10.in-addr.arpa.	NS	lab-vm01-texdc.lab.tex.	LAB-TEX-DC-01.lab.tex
<input type="checkbox"/> testing_zone.15.199.10.in-addr...	Alias (CNAME)	testing8.example.microsoft.com.	LAB-TEX-DC-01.lab.tex
<input type="checkbox"/> 15.199.10.in-addr.arpa.	SOA	lab-tex-dc-01.lab.tex. hostmaster.lab.te...	LAB-TEX-DC-01.lab.tex
<input checked="" type="checkbox"/> 105.15.199.10.in-addr.arpa.	Pointer record (PTR)	cai-aus-sql-03.lab.tex.	LAB-TEX-DC-01.lab.tex
<input type="checkbox"/> 194.15.199.10.in-addr.arpa.	Pointer record (PTR)	se-prd-demo-03.spmdemo.com.	LAB-TEX-DC-01.lab.tex
<input type="checkbox"/> 250.15.199.10.in-addr.arpa.	Pointer record (PTR)	se-aus-ggro-04.ansible.local.	LAB-TEX-DC-01.lab.tex
<input type="checkbox"/> 31.15.199.10.in-addr.arpa.	Pointer record (PTR)	se-aus-mall-01.lab.tex.	LAB-TEX-DC-01.lab.tex
<input type="checkbox"/> 33.15.199.10.in-addr.arpa.	Pointer record (PTR)	se-aus-mbus-01.lab.tex.	LAB-TEX-DC-01.lab.tex
<input type="checkbox"/> 46.15.199.10.in-addr.arpa.	Pointer record (PTR)	jrm-003-win2008.lab.exc.	LAB-TEX-DC-01.lab.tex
<input type="checkbox"/> 49.15.199.10.in-addr.arpa.	Pointer record (PTR)	se-aus-njen-01.lab.tex.	LAB-TEX-DC-01.lab.tex
<input type="checkbox"/> 50.15.199.10.in-addr.arpa.	Pointer record (PTR)	lab-cai-dc-01.lab.cai.	LAB-TEX-DC-01.lab.tex
<input type="checkbox"/> 57.15.199.10.in-addr.arpa.	Pointer record (PTR)	lab-cai-wsus-01.lab.cai.	LAB-TEX-DC-01.lab.tex
<input type="checkbox"/> 58.15.199.10.in-addr.arpa.	Pointer record (PTR)	lab-cai-sccm-01.lab.cai.	LAB-TEX-DC-01.lab.tex
<input type="checkbox"/> 59.15.199.10.in-addr.arpa.	Pointer record (PTR)	lab-cai-sam-01.lab.cai.	LAB-TEX-DC-01.lab.tex

Consolidated DNS Records Management

Clicking on the **Edit** button will open up the **Edit Record** window where you can modify the Record Name, Record type, and Record data. Once finished, click **Save** which will update the DNS server.

Edit Record

Record name: 105.15.199.10.in-addr.arpa.

Record Type: PTR

Data: cai-aus-sql-03.lab.tex.
[Targeted domain name] - Example: host.example.microsoft.com

DNS Server Details

DNS Server Node: LAB-TEX-DC-01.lab.tex

DNS Server Zone: 15.199.10.in-addr.arpa

Save Close

Consolidated DNS Records Management

DNS Record Types Supported by SolarWinds IPAM

- A Record type: An FQDN is the primary record type for resolving DNS queries. In IPv4, the host is denoted by an "A" and in IPv6 by "AAAA"
- "CNAME" (canonical name) records are aliases and points towards their real name
- "MX" (mail transfer) records indicate the mail server(s) accepting messages on that DNS server
- "NS" (name server) records indicate the authoritative domain name servers
- "PTR" (pointer) records are simply data that's mainly used to record host names for reverse DNS lookups
- "SOA" start of [a zone of] authority record—specifies authoritative information about a DNS zone, including the primary name server, the email of the domain administrator, the domain serial number, and several timers relating to refreshing the zone

#5 DHCP Split Scope

IPAM simplifies the process of creating and managing split scopes to help ensure high availability and provide load balancing for your DHCP services. SolarWinds IPAM supports both Microsoft and Cisco DHCP split scope functionality.

Using SolarWinds IPAM, you can quickly and easily configure your DHCP split scope with a simple two-step wizard. Additionally, you can view related scopes and scope distribution across your subnets, all from IPAM's centralized web console.

IPAM helps you to:

- Manage and monitor Microsoft and Cisco DHCP services and scopes directly from the IPAM console
- Quickly and easily configure DHCP split scope scenarios utilizing a simple two-step wizard
- View related DHCP scopes and scope distribution across your DHCP servers

a.) Defining the DHCP Servers to Perform the Split Scope Operation

- The split scope wizard shows you the source DHCP server selected for the split scope operation, and allows you to select the target DHCP server to where the scope and its IP addresses need to be split.

Note:

- Only the DHCP servers added to IPAM will be displayed for selection in the split scope operation
- To perform the DHCP split scope operation, you need to have at least two DHCP servers added to IPAM

b.) Range Distribution for Splitting the Scope Between the DHCP Servers

SolarWinds IPAM software allows you to specify the percentage of IP addresses to allocate to the source and target DHCP scope servers.

You can just drag the percentage scale to set the split percentage as required. The IP addresses within the DHCP scopes will be changed accordingly to reflect the percentage split.

Or, if you have specific IP address ranges decided for both servers, you can just enter them in the **Include IP Addresses & Exclude IP Addresses** text fields, and the percentage scale will be adjusted accordingly.

Recommendations:

- An 80/20 split is recommended for high availability scenarios (80 for the server that needs to be available at all times and 20 for the other DHCP server). In this case, you also have to specify the delay time in the Offer Delay text field. This will ensure that your backup server starts with IP address provisioning only when the primary DHCP server doesn't respond in a given time.
- A 50/50 split is recommended for load-balancing purposes.

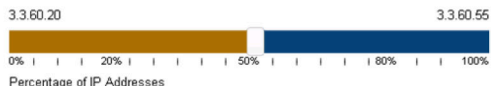


DHCP & DNS Management >

DHCP Split Scope

DEFINE SPLIT SCOPE > PERCENTAGE OF SPLIT

Percentage of Split
Specify the percentage of IP addresses to allocate to each of the split-scope servers. An 80/20 split is recommended for high-availability scenarios. A 50/50 split is recommended for load-balancing purposes.



Scope	Server	Percent of Addresses	Include Addresses	Exclude Addresses	Offer Delay
Scope 'Scope test'	'lab-ew-dhcp-03' DHCP Server	51 %	3.3.60.20 to 3.3.60.38	3.3.60.39 to 3.3.60.55	0 ms
Scope 'ScopeSplit'	'lab-ew-dhcp-01' DHCP Server	49 %	3.3.60.39 to 3.3.60.55	3.3.60.20 to 3.3.60.38	0 ms

BACK FINISH CANCEL

DHCP Split Scope Wizard

ISC DHCP & BIND DNS with SolarWinds IPAM

Learn more on [BIND DNS Management](#) and [ISC DHCP Management](#) with SolarWinds IPAM.

#6 Team & Role-Based Permissioned Access

SolarWinds IPAM allows you to easily define and use role definitions to restrict user access and maintain security without limiting your ability to delegate required network management activities. You can define access roles per subnet, group, supernet, DHCP scope, or even individual IP addresses. User delegation defines the visibility of subnets and supernets and the choice of actions that can be performed. Further, IPAM provides you with the option to select from various IPAM Roles & Permissions for the selected user login.

You can select a subnet and choose from any of the four options below to limit the subnet or DHCP scope to be accessible and controllable by only the required users.

- *Power User* – Read/Write and Initiate Scans
- *Operator* – Read/Write Access
- *Read Only* – Read Only Access
- *Hide Access* – Restrict All Access



Edit custom IPAM roles and permissions for 'Admin'

To assign roles, select from below. By default Parent roles are inherited by child objects, unless custom roles have been defined.
What if I move a subnet? When hierarchy changes, inherited roles will be inherited from the new parent. Customized roles will not be ch

★ Power User | Operator | Read-Only | Hide | Clear customized role

Display Name	Role	Address	CIDR	Mask	Inherited
IP Networks	Hide				No
Discovered Subnets	Hide				Yes
1111_new	Hide	1.1.1.0	24	255.255.255.0	Yes
scope2	Hide	2.2.2.0	24	255.255.255.0	Yes
3330_36	Power User	3.3.3.0	24	255.255.255.0	No
scope4	Hide	4.4.4.0	24	255.255.255.0	No
36	Hide	4.5.3.0	28	255.255.255.240	Yes
And1	Read Only	5.4.3.0	24	255.255.255.0	No
IPAddresssplitting	Read Only	5.5.5.0	24	255.255.255.0	No
monzareser	Hide	6.6.0.0	28	255.255.255.240	Yes
myscope	Operator	10.0.0.0	24	255.255.255.0	No
cccc2	Power User	10.14.16.0	24	255.255.255.0	No
outside	Hide	10.22.20.0	24	255.255.255.0	Yes
Scopesame	Hide	10.100.2.0	24	255.255.255.0	Yes
Sppp2	Hide	10.100.5.0	24	255.255.255.0	Yes

SUBMIT CANCEL

Modifying User Login Roles and Permissions for Individual Subnets using SolarWinds IPAM



IPAM Navigation Summary for Modifying User Role Definition

IPAM Settings >> Accounts >> Manage Accounts >> "Select User Login" >> Edit >>
 IP Address Manager Settings >> Custom >> Edit >> "Modify User Roles & Permissions" >> Submit

#7 Top 10 Views

You can also leverage intuitive dashboards and the Top 10 Views from SolarWinds IPAM to quickly view IP address utilization, including DHCP scope and subnet utilization. All these views are entirely customizable so you can create your own Top 10 View based on what monitoring metrics you want displayed on the dashboard.

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
sdgdsd	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

SEARCH

DNS Records Mismatch

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

Top 10 Subnets by % IP Address Used				
SUBNET NAME	% IP SPACE USED	IPS AVAILABLE	IPS USED	
192.168.0.0	100.00%	0	251	
10.10.100.0	100.00%	0	2	
10.199.1.0	71.88%	72	94	
80.0.0.0	54.30%	117	135	
192.168.10.0	50.39%	127	125	
10.199.6.0	43.75%	144	99	
10.199.16.0	30.08%	179	58	
10.199.3.0	23.05%	197	57	
10.199.24.0	19.92%	205	49	
10.199.2.0	17.58%	211	35	

Top 10 Views in SolarWinds IPAM

Why SolarWinds IP Address Manager?

Eliminate Complexity, Improve Reliability, Save Time and Money!

- Manage and monitor Microsoft DHCP/DNS, ISC DHCP/DNS, and Cisco DHCP servers
- Automatic subnet discovery and [IP address scanning](#) for the most accurate real-time discovery and verification
- Easily search an address 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 and system administrators based on role
- Supports IPv4 and IPv6 networks
- Alert notifications help prevent your subnets & DHCP scopes from filling up
- Historical IP address tracking for trend analysis and [IP capacity planning](#)
- Automatically discovers used and unused addresses and typically deploys in less than an hour

TEST DRIVE DEMO >>

DOWNLOAD FREE TRIAL

Fully Functional for 30 Days

SolarWinds IP Address Manager



SolarWinds provides powerful and affordable IT management software to customers worldwide, from Fortune 500® enterprises to small businesses, managed service providers (MSPs), government agencies, and educational institutions. We are committed to focusing exclusively on IT, MSP, and DevOps professionals, and strive to eliminate the complexity that our customers have been forced to accept from traditional enterprise software vendors. Regardless of where the IT asset or user sits, SolarWinds delivers products that are easy to find, buy, use, maintain, and scale while providing the power to address key areas of the infrastructure from on-premises to the cloud. This focus and commitment to excellence in end-to-end hybrid IT performance management has established SolarWinds as the worldwide leader in both network management software and MSP solutions, and is driving similar growth across the full spectrum of IT management software. Our solutions are rooted in our deep connection to our user base, which interacts in our [THWACK®](#) online community to solve problems, share technology and best practices, and directly participate in our product development process. Learn more today at www.solarwinds.com.

For additional information, please contact SolarWinds at 866.530.8100 or email sales@solarwinds.com.

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



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