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INTRODUCTION

Now that you’ve successfully downloaded and installed SolarWinds® IP Address Manager (IPAM), see how IPAM can help with your day-to-day responsibilities of IP address planning, allocation, assignment, tracking, alerting, reporting, and troubleshooting. The IP address administration features include:

- Centralized IP address management.
- Simplified IP conflict detection and troubleshooting.
- Unified DHCP and DNS management.
- Active alerting and monitoring.
- Collaborative IP management.

CENTRALIZED IP ADDRESS MANAGEMENT

IP address management begins with a clear understanding of what address blocks and addresses are available for use. Not having accessible and reliable IP address data creates blind spots in IP address management. If an issue arises and you have no information on who changed what, troubleshooting becomes unnecessarily time-consuming. When dealing with an issue, ready access to reliable IP address data can help save time and effort.

Manual IP documentation is time-intensive, especially when your documentation has not been updated. Outdated documentation and obsolete data leads to project delays and network errors. Moreover, duplicate IP addresses cause IP conflicts, resulting in connectivity issues and network downtime.

Use IPAM to efficiently manage your IP subnets and address blocks without spending time and effort building and maintaining IP documentation.

- Automate subnet discovery, and scan inventory IP subnets and address blocks.
- Search IP blocks for addresses and statuses, including user device details.
- Manage IPv6 address blocks.
- View IP address changes from the event log.
- Detect IP conflicts.
- Scan the network to automatically discover subnets.
You can create an up-to-date IP address map of the network by directly pulling data from router configurations and connected machines.

1. Select Auto-discover subnets and IP addresses.

   Automatically or manually detect adjacent router for scan.
2. Provide SNMP credentials for polling devices and discovery settings for auto-discovery, and click Discover Subnets.

3. To perform an active network scan to verify IP address status, select a desired IP network from the left panel and click Scan. You can also click View subnet scan status to view the status of your subnet scan.
The screen below shows which IP addresses are used, available, transient, or reserved.

a. Manually set IP status.
b. Import the IP list from existing spreadsheets.
c. Show details about specific IP addresses.
4. To view the IP address details (including user-defined fields) and history, click the User & Device subview tab.

This screen displays user- and device-specific information being reported by SolarWinds® User Device Tracker (UDT), including historical connections, where the IP address is currently connected, and what users are associated with the connections.
5. To discover and view the IPv6 addresses, click Discover.

IPAM routinely discovers IPv6 addresses by examining router tables. Once an IPv6 address is found, IPAM assesses the ongoing operational status using ICMPv6. It then specifies the neighbor routers and IPv6 addresses for existing subnets in IPAM and starts managing IPv6 address blocks with automated discovery. You can then view data in the same interface as your IPv4 addresses.
Use this view to plan for and manage your IPv6 address tasks.

6. To search an IP address for its status, history, and other details, click the drop-down menu in the Search in: field.

The Search for IP Address resource helps you search for specific IP addresses using a variety of parameters.

You can also run any of these IPAM-specific reports.
Pain points

IPAM helps to quickly detect IP conflicts. Integrating it with SolarWinds® UDT (optional) helps minimize disruptions to critical network services and applications. The advanced integration feature of IPAM and UDT, called SolarWinds IP Control Bundle (IPCB), allows you to:

- Quickly respond to alerts on IP conflicts and other IP-related issues.
- Assess and verify conflict severity.
- Employ troubleshooting strategies with real-time IP address information.
- IPCB helps you resolve network issues caused by IP conflicts in two simple steps:

View the IP Address Conflicts resource to see alerts on IP conflicts, comprehensive information on the IP address in conflict, conflict type, subnet where the conflict occurred, device/device type that caused the conflict, and the switch/slot where the devices are connected.

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Click on the IP address to obtain further details, which will help you analyze the conflict and determine a resolution.

These details include recommended action, associated DHCP scopes, device details (Host MAC/IP, User MAC/IP, Switch port details), and MAC/Port (or SSID) history. You can also use the view to remotely shut down the switch port and remove the offending device from the network.
Switch port shutdown
UNIFIED DHCP AND DNS MANAGEMENT

A common challenge that admins face when managing DHCP/DNS services is the potential for there to be too many DHCP and DNS servers to update and manage. This makes it difficult to maintain alignment between IP address documentation and DHCP and DNS settings. With no visibility into DHCP scopes running out of lease addresses, admins can find themselves without proper provisioning. This lack of relevant and timely information can lead to DHCP and DNS servers being unable to handle peak loads. As the network grows, the number of DHCP/DNS servers also grows, resulting in DHCP and DNS sprawl that requires time and skill to manage.

Use IPAM to:

- Create and manage DHCP scopes, split scopes, DNS zones, and records.
- Configure advanced DHCP settings.
- Automate detection of DNS forward and reverse record mismatches and creation of DNS/PTR records when registering new devices into DNS zones.
- Find and reclaim unused reserved DHCP addresses, rather than expand a DHCP scope.

How IPAM can help

IPAM is fully integrated with DHCP and DNS administration.

1. Click on DHCP & DNS Management in the main menu to view DHCP & DNS information in a single window.

The unified management console is independent of underlying Microsoft®, Cisco®, and Internet Systems Consortium (ISC) open source DHCP and DNS. You can manage your multi-vendor DHCP/DNS servers from a single console.

“On average, a network administrator spends about one day each week creating and maintaining IP address documentation, provisioning DHCP and DNS servers, and monitoring and troubleshooting IP resources.”

—SWI Survey
You can view and edit DHCP and DNS settings as part of the IP address record.

Choose a DHCP server in the New Scope box, and click Next.
The slider allows you to choose the percent of IP addresses to be assigned to each scope. Move the slider each way to change the IP percentage.

Click Cancel to go back to DHCP and DNS management.

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Adding DHCP scopes

You can manage ISC DHCP shared networks and create pools.

1. To view the scope and pool details, hover over the scope bar.

   IPAM automatically retrieves the configuration file from the DHCP server to add the scope.

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The Edit DHCP Scope wizard guides you through the process of modifying an existing DHCP scope. You define a scope by providing server details, scope name, description, location, etc.
2. Specify the required IP address ranges and pools.

Specify IP ranges and pools for IP addresses

3. Choose the required lease time for IP allocation.

Specify IP ranges and pools for IP addresses
4. IPAM provides you with a list of DHCP scope options to choose from.

1. Click Add New Options to choose from a drop-down list of available DHCP options.*

2. Click Update Scope to create scope and update changes on the DHCP server.

*See more on DHCP options in the Advanced DHCP Options section.

Note: The steps for scope creation differ for different DHCP servers. IPAM supports Cisco DHCP, Microsoft DHCP & ISC DHCP servers.
Define and manage DNS zones and records.

Click Add New, then DNS Zone in the DHCP and DNS Management view.

Specify zone details and DNS lookup type.
All DNS changes made through IPAM are automatically synced with the DNS server. You can eliminate the need for using the Command Line Interface to manage ISC DHCP and BIND DNS servers.

Select the option to automatically create PTR records while registering new DNS records.

IPAM supports a variety of DHCP configuration options (based on RFC2132) for Windows®, Cisco®, and ISC DHCP servers. You can directly configure and manage IP services for VoIP and similar devices that boot from the network.

In the Add/Edit DHCP Scope wizard, click Add New Option.
ACTIVE ALERTING AND MONITORING

It is difficult to know where or how IP addresses are being used if you don’t have alerting and monitoring features in place. IP data helps admins make informed decisions. Without it, admins aren’t aware of conflicts until users report connectivity issues. The frequency of IP duplication is higher in manual IP management because there is no means to know when IP resources are low, which leads to a higher probability of network issues.

Use IPAM to:

- Monitor and alert when there is an IP conflict in the network.
- Monitor and alert when DHCP scopes exceed utilization thresholds.
- Automatically detect DNS forward and reverse mismatches.
- View real-time status of IP address availability and IP address details.
- View event history to determine if an IP address has recently changed.
- Detect and resolve IP conflicts, receive alerts when new vendors enter the network, and track IP addresses with UDT.

Monitor IP address conflicts

IPAM proactively alerts you about IP conflicts occurring in the network. Configure basic alerting to receive notifications through email and SMS.
Monitor DHCP and DNS server performance

View the summary page to obtain reports to determine if a node is up or down.

Monitor scope utilization

SolarWinds® IPAM Summary page lists the DHCP scopes by utilization, top subnets with transient IP addresses, top subnets by IP address used, split scope information, and more.
Reports

Create reports for available IP addresses, reserved addresses, used addresses, all subnets, IP address histories, and events. Click any of these titles to run the report.

Detect DNS mismatches in record entries
COLLABORATIVE IP MANAGEMENT

IPAM allows each team to manage their own subnets, address blocks, and DHCP and DNS services without impacting each other. Role-based administration helps streamline user delegation and reduce downtime due to human errors. Use IPAM to:

- Grant varying privilege levels and custom roles for enhanced control and security.
- Create and edit role definitions down to the subnet level to restrict user access.
- Define user access roles per subnet, group, or supernet.

Secure collaboration using permissioned access

1. Click Add New Account to create user groups with permissions.
2. Click Edit to modify existing permissions.
Optional integration with UDT

This shows device-level detail. UDT integration with IPAM displays the users as well as the UDT node and port associated with that IP address.

1. On the UDT subview, check the box next to a used IP address with UDT information.
   Click view details.

2. Click View Details.

This displays the IPAM details about the selected address, including its status history and details.
Flexible IP address organization by geography, business unit, function, etc.

Conclusion

If you're still managing enterprise IP data manually through spreadsheets or other means, it is time to transition to an automated solution that is powerful, affordable, and helps you perform the routine tasks of IP management with the least amount of time and effort. Be proactive in attending to issues and plan ahead for IP address provisioning and subnet allocation. Overcome daily challenges like creating, migrating, or reconfiguring subnets, maintaining high availability of DHCP and DNS services, or ensuring reliable operations through monitoring of critical resources and proper forecasting and planning.

Say goodbye to unknown or obsolete data. Deploy SolarWinds® IPAM to consolidate and centralize your IP address management along with your multi-vendor DHCP/DNS services.

LEARN MORE:

Videos
- Avoid IPAddress Conflicts
- BIND DNS Monitoring & Management Support with IPAM v4
- Planning Your IPv4 to IPv6 Migration
- IP Address Manager Overview

Tech Tips
- How to Manage DHCP Servers using SolarWinds IPAM
- How to Perform DHCP Split Scope using SolarWinds IPAM
- BIND DNS Management
- Leveraging Best Practices for SolarWinds IPAM

Webcasts
- Eliminate Network Downtime using DDI Best Practices
- IP Proliferation: How do you seize control for greater security and scalability?
- IP Address Management Best Practices

Whitepapers
- ROI for IPAM Solutions in Small-Mid Sized Enterprise Environments
- Managing the BYOD Chaos
- Modernizing Your IP Management System - Why the Time is Now
ABOUT SOLARWINDS

SolarWinds (NYSE: SWI) provides powerful and affordable IT management software to customers worldwide - from Fortune 500 enterprises to small businesses. In all of our market areas, our approach is consistent. We focus exclusively on IT pros and strive to eliminate the complexity that they have been forced to accept from traditional enterprise software vendors. SolarWinds delivers on this commitment with unexpected simplicity through products that are easy to find, buy, use, and maintain, while providing the power to address any IT management problem on any scale. Our solutions are rooted in our deep connection to our user base, which interacts in our online community, thwack (http://www.thwack.com/), to solve problems, share technology and best practices, and directly participate in our product development process. Learn more today at http://www.solarwinds.com/.

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