

# IP Address Management with Windows Server 2012 R2

**For many organizations, planning, integrating, troubleshooting, and managing their IP infrastructure can be daunting. Two reasons are the exponential growth in the number of network-enabled devices and increased adoption by datacenters of technologies such as Internet Protocol version 6 (IPv6), Voice over Internet Protocol (VoIP), and network virtualization. To add to the challenge, administrators often must manage infrastructures across multiple datacenters, central offices, branch offices, and other remote locations.**

IP Address Management (IPAM) in Windows Server 2012 R2 simplifies IP management with a suite of integrated tools that streamline end-to-end planning, deployment, management, monitoring, and problem resolution in your IP address infrastructure. IPAM provides a single interface that consolidates a vast range of critical, enterprise-wide IP address tasks. As a result, you can substantially improve administrator productivity and ease the burdens of IP address management compared to traditional, manually-intensive methods.

## Plan, design and manage IP networks in the datacenter

Address Space Management capabilities in IPAM provide a time-saving, big-picture view of your entire IP environment from a single console. Key features include:

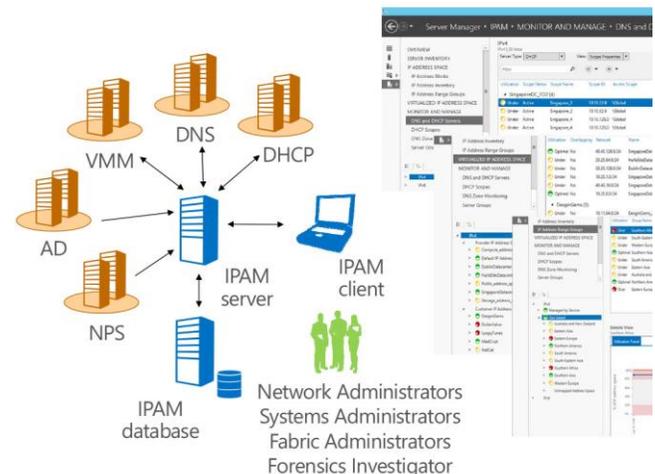
- Ability to discover, import and inventory IP addresses across physical and virtual networks.
- Detection and management of conflicts, overlaps, and duplicates in the IP address space across systems.
- Support for managing and monitoring IPv6 addresses and IPv4 public and private addresses.
- Automated discovery of IP address ranges from Dynamic Host Configuration Protocol (DHCP) scopes.

- Seamless import functions, to migrate IP address data from primitive tools and spreadsheets.
- Windows PowerShell support for integration, reporting and datacenter network automation.
- Importing network discovery data from System Center Configuration Manager and MAP toolkit.

## Centralize administration of core networking services

Multi-Server Management capabilities in IPAM can reduce manual efforts and errors by automatically discovering DHCP and Domain Name System (DNS) servers on the network across an Active Directory forest and centrally monitoring service availability, scope utilization, and configuration. Key features include:

- End-to-end configuration and management of enterprise-wide DHCP servers and scopes.
- DHCP failover that enables uninterrupted distribution of dynamic IP address data to client computers in the same sub-network — even if one of the DHCP servers becomes unavailable.
- Simultaneous updating of common settings across multiple DHCP scopes or DHCP servers.



The IPAM feature in Windows Server 2012 R2 offers customizable role-based access control and delegated administration across multiple datacenters and offices.

- Support for advanced constructs and automation to enable add, delete, overwrite, or find and replace operations on multiple DHCP scopes and servers.
- Automatic and on-demand retrieval of server data from managed DHCP and DNS servers.
- Group Policy Objects (GPO) provisioning for secure, agentless access to managed servers.

## Ensure network compliance

Network auditing in IPAM provides unprecedented insight into IP addresses by helping track network configuration and usage with a centralized repository for all configuration changes performed on DHCP servers, the IPAM server, and IP addresses issued on the network. Auditing and reporting features in IPAM help administrators, forensic auditors, and compliance personnel identify and research security issues and create compliance reports for Sarbanes-Oxley, HIPAA and other regulations. Features include:

- Event catalog querying for DHCP configuration change reports across multiple servers. The catalog includes information such as who made each change, when, and where.
- User, device, and IP address tracking for specified intervals, with advanced queries using DHCP lease logs and logon events from domain controllers and network policy servers.
- Tracking usage of provider and customer IP address (statistics and trend) and changes.
- Selective event searches and results that associate user logons to specific devices and times.
- Option to configure IPAM to use Microsoft SQL Server for additional reporting and analytical capability, as well as backup and disaster recovery.

## Integrate with the Microsoft cloud management solution

IPAM integrates tightly with one or more instances of System Center 2012 R2 Virtual Machine Manager, scaling IPAM capabilities across a large distributed infrastructure or multi-tenant cloud environment. This enables datacenter administrators to detect and prevent IP address space conflicts, duplicates, and overlaps.

Features include:

- Allocation of provider IP address space out of IPAM to multiple instances of System Center Virtual Machine Manager.
- Consolidation of the customer IP address space across multiple instances of System Center Virtual Machine Manager.
- Comprehensive, integrated IP address lifecycle management that encompasses DNS, DHCP, and IP Address Management technologies (also known as DDI).

## Enable role-based access control

IPAM offers role-based access control that enables you to customize IP addresses into hierarchical, logical groups that make sense for your organizational structure. Customization includes types of operations and access permissions for users and groups on specific objects. Detailed control enables users and groups to perform only those operations assigned by network administrators. Features include:

- User roles defined through a set of administrative operations that also can be linked to Active Directory.
- Access scopes that define administrative domains.
- Access policies that combine a user role with an access scope to assign permission to users or groups.

Find out more on TechNet: <http://aka.ms/IPAddressManagement>