ADMINISTRACIJA OPERACIJSKIH SUSTAVA

IPAM on Windows Server

Lesson 1: Overview of IPAM

- What is IPAM?
- IPAM architecture
- IPAM deployment requirements
- Considerations for IPAM deployment
- Integrating IPAM with Virtual Machine Manager

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What is IPAM?

IPAM consists of four modules that provide the following functionality:

- IPAM discovery
- IP address space management
- Multiserver management and monitoring
- Operational auditing and IP address tracking

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IPAM architecture

IPAM consists of two main components:

- IPAM server
- IPAM client

When deploying IPAM, you can select from three topologies:

- Distributed
- Centralized
- Hybrid

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IPAM deployment requirements

To ensure a successful IPAM implementation, an organization's network infrastructure must meet the following prerequisites:

- The IPAM server must be a domain member
- The IPAM server should be a single-purpose server
- To manage the IPv6 address space, enable IPv6 on the IPAM server
- Sign in to the IPAM server with a domain account
- Belong to the correct IPAM local security group on the IPAM server
- Enable logging of account sign-in events for IPAM's IP address tracking and auditing feature
- Meet software and hardware requirements

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Considerations for IPAM deployment

When designing an IPAM deployment, consider the following factors:

- You can manage multiple AD DS forests if the required trusts exist between those forests
- IPAM servers do not communicate with one another
- You can define the scope of discovery to a subset of domains in the forest
- A single IPAM server can support many DHCP servers and DNS zones
- IPAM stores three years of forensics data
- IPAM supports WID or SQL Server databases
- IP address utilization trends are provided only for IPv4
- IP address reclamation support is provided only for IPv4
- IPAM does not check for IP address consistency with routers and switches

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Lesson 2: Deploying IPAM

- Process of implementing IPAM
- Demonstration: Installing and provisioning the IPAM role
- IPAM administration
- Demonstration: Administering IPAM
- Configuring IPAM options
- How to manage DNS by using IPAM
- Demonstration: Managing DNS with IPAM
- How to configure DHCP servers by using IPAM
- Demonstration: Managing DHCP scopes with IPAM

Process of implementing IPAM

Perform the following steps to implement IPAM:

1. Install the IPAM Server feature
2. Provision IPAM servers
3. Configure and run server discovery
4. Choose and manage discovered servers

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Demonstration: Installing and provisioning the IPAM role

In this demonstration, you will learn how to:

- Install IPAM
- Provision IPAM

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IPAM administration

- You implement role-based management in IPAM by using:
  - Role-based security groups
  - Access scopes
  - Access policies
- IPAM includes several built-in roles
- You can also create and configure custom roles

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IPAM administration

IPAM has several built-in role-based security groups that you can use for managing your IPAM infrastructure:

- IPAM DNS Administrator
- IPAM MSM Administrator
- IPAM ASM Administrator
- IP Address Record Administrator
- IPAM Administrator
- IPAM DHCP Administrator
- IPAM DHCP Reservations Administrator
- IPAM DHCP Scope Administrator
- DNS Record Administrator

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Demonstration: Administering IPAM

In this demonstration, you will learn how to:

- Add a custom role group
- Add a custom scope
- Add an IPAM access policy
- Set the access scope

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Configuring IPAM options

- You can configure IPAM by using the following GPOs:
  - \<Prefix\>_DHCP
  - \<Prefix\>_DNS
  - \<Prefix\>_DC_NPS
- To finalize the IPAM configuration, run the **Invoke-IpamGpoProvisioning** cmdlet

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How to manage DNS by using IPAM

You can perform the following DNS management tasks in IPAM:

- View DNS servers and zones
- Create new zones
- Open the **DNS** console for any server that IPAM manages
- Create DNS records
- Manage conditional forwarders

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Demonstration: Managing DNS with IPAM

In this demonstration, you will learn how to:

- Add a conditional forwarder

- Create a DNS zone

- Add a DNS record

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How to configure DHCP servers by using IPAM

- You can perform all DHCP configuration tasks for a DHCP server in the IPAM administration interface
- You configure DHCP servers and scopes

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Demonstration: Managing DHCP scopes with IPAM

- In this demonstration, you will learn how to add a DHCP scope

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Lesson 3: Managing IP address spaces by using IPAM
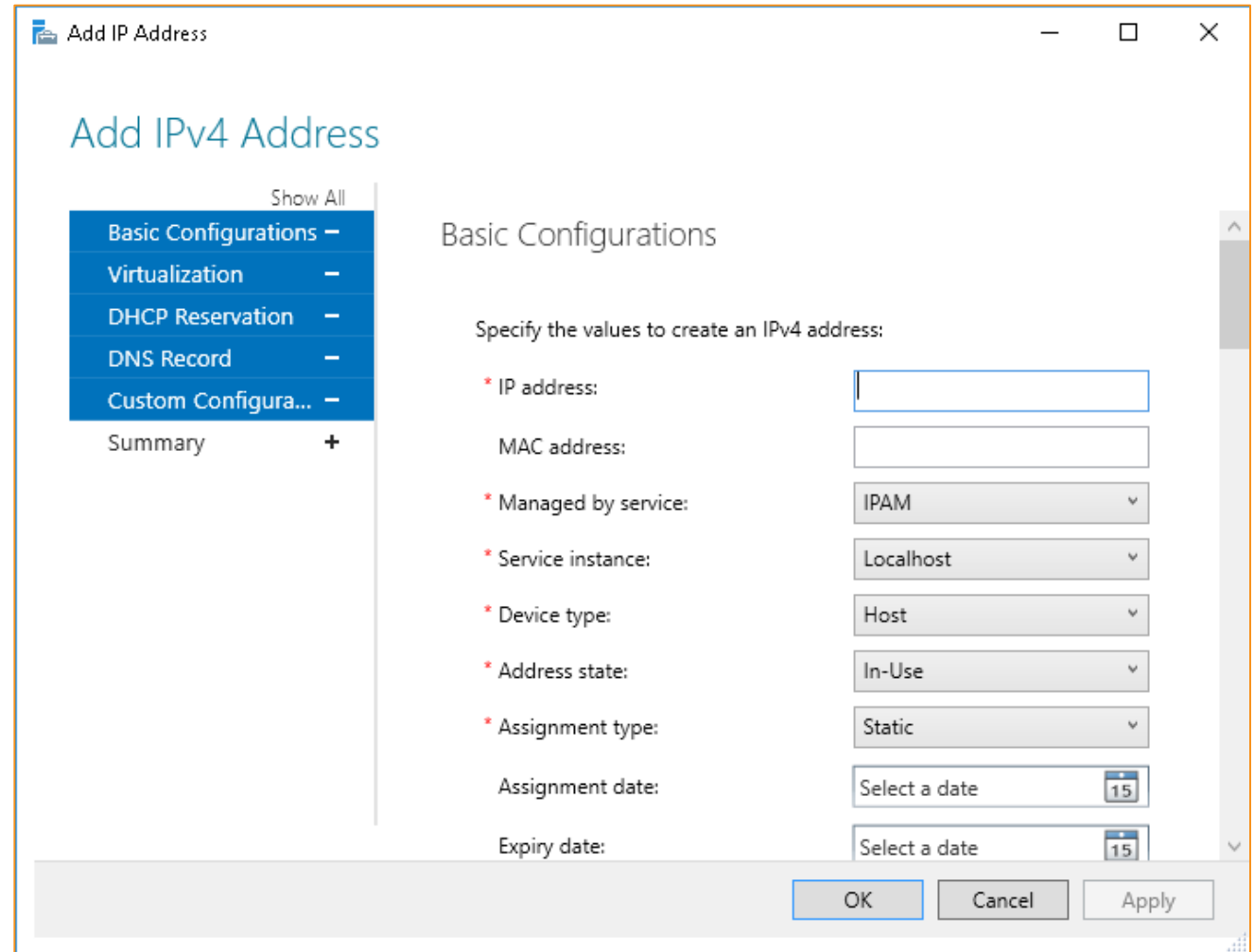
- Using IPAM to manage IP addressing
- Adding address spaces to IPAM
- Importing and updating address spaces
- Finding, allocating, and reclaiming IP addresses
- Maintaining IP address inventory in IPAM
- Demonstration: Managing IP addressing with IPAM
- Monitoring and reporting in IPAM

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Using IPAM to manage IP addressing

- You can view and manage an IP address space by using the following views:

  - **IP address blocks**

  - **IP address ranges**

  - **IP addresses**

  - **IP address inventory**

  - **IP address range groups**

- You can monitor the IP address space by using the following views:

  - **DNS and DHCP servers**

  - **DHCP scopes**

  - **DNS zone monitoring**

  - **Server groups**

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Adding address spaces to IPAM

You can add address spaces to IPAM to provide comprehensive management of IP addressing

Importing and updating address spaces

- You can import the following into IPAM by using CSV files:
    - IP addresses
    - IP address ranges
    - IP address blocks
- The mandatory fields for importing are:
    - **IP addresses**. IP address, managed by service, service instance, device type, IP address state, and assignment type
    - **IP address range**. Network, start IP address, end IP address, managed by service, service instance, and assignment type
    - **IP address block**. Network, start IP address, end IP address, and RIR

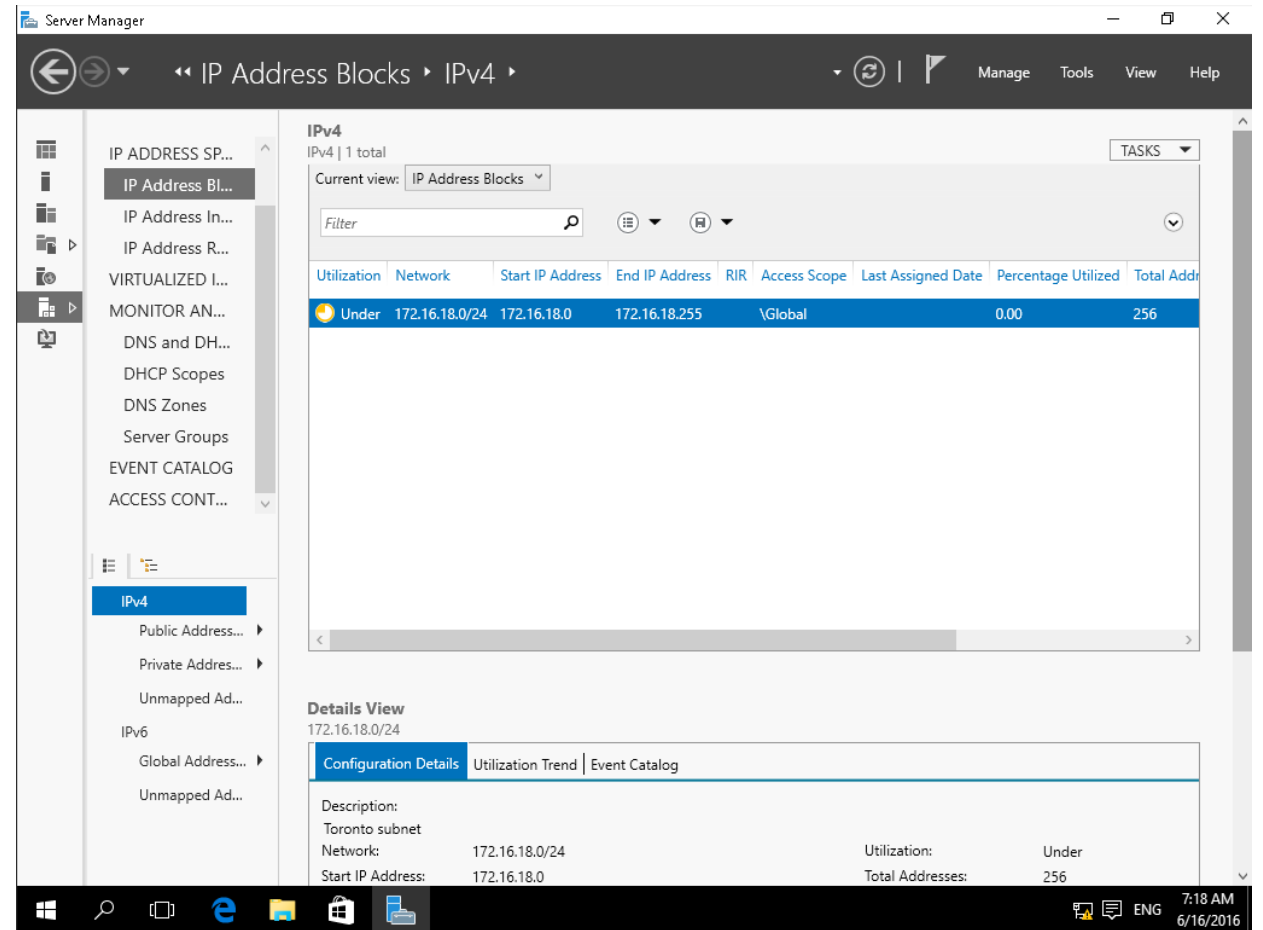# Finding, allocating, and reclaiming IP addresses

You can use IPAM to find, allocate, and reclaim an IP address if:

- The IP address does not exist in IPAM
- The IP address is not reserved in the range
- The IP address is not excluded from the range
- The IP address does not respond to a ping request
- A DNS pointer (PTR) resource is not found for the IP address

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Maintaining IP address inventory in IPAM

You can use the following IPAM pages to assess and maintain IP address inventory:

- **IP Address Blocks** (with the **IP Addresses** view)
- **IP Address Inventory**

Demonstration: Managing IP addressing with IPAM *(optional)*

In this demonstration, you will learn how to:

- Add an address block in IPAM
- Create an IP address reservation

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Monitoring and reporting in IPAM

With IPAM, you can:

- Monitor IP address space utilization

- Monitor DNS and DHCP health

- Configure many DHCP properties and values from the **IPAM** console

- Use the event catalog to view a centralized repository for all configuration changes

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Hvala na pažnji!