

Адміністрування комп'ютерних систем

Модуль 1. Адміністрування ОС Windows Server

Лекція 3. Налаштування служби ДНСР

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The **Dynamic Host Configuration Protocol**

використовується для спрощення конфігурування IP-клієнтів у мережі TCP/IP шляхом їх автоматичного налаштування.

Переваги використання протоколу:

- дозволяє уникнути ручного налаштування комп'ютерів мережі;
- зменшити кількість помилок при налаштуванні.

Процес отримання IP-адреси:

1. Виявлення DHCP (**D**iscover)
2. Запрошення DHCP (**O**ffer)
3. Запит DHCP (**R**equest)
4. Підтвердження DHCP (**A**cknowledge)

Процес оновлення IP-адреси:

1. Запит DHCP (**R**equest)
2. Підтвердження DHCP (**A**cknowledge)

Select server roles

- Before You Begin
- Installation Type
- Server Selection
- Server Roles**
- Features
- Confirmation
- Results

Select one or more roles to install on the selected server.

Roles

- Active Directory Certificate Services
- Active Directory Domain Services (Installed)
- Active Directory Federation Services
- Active Directory Lightweight Directory Services
- Active Directory Rights Management Services
- Device Health Attestation
- DHCP Server
- DNS Server (Installed)
- Fax Server
- File and Storage Services (2 of 12 installed)
- Host Guardian Service
- Hyper-V
- MultiPoint Services
- Network Controller
- Network Policy and Access Services
- Print and Document Services
- Remote Access
- Remote Desktop Services
- Volume Activation Services
- Web Server (IIS)

Description

Active Directory Certificate Services (AD CS) is used to create certification authorities and related role services that allow you to issue and manage certificates used in a variety of applications.

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Install

Cancel

Services

Services

Services

Installation progress

DESTINATION SERVER
DC-1.landonhotel.local

Before You Begin

Installation Type

Server Selection

Server Roles

Features

DHCP Server

Confirmation

Results

View installation progress

i Feature installation

Configuration required. Installation succeeded on DC-1.landonhotel.local.

DHCP Server

Launch the DHCP post-install wizard

[Complete DHCP configuration](#)

Remote Server Administration Tools

Role Administration Tools

DHCP Server Tools

1 You can close this wizard without interrupting running tasks. View task progress or open this page again by clicking Notifications in the command bar, and then Task Details.

[Export configuration settings](#)

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Next >

Close

Cancel

DHCP Post-Install configuration wizard



Description

Description

Authorization

Summary

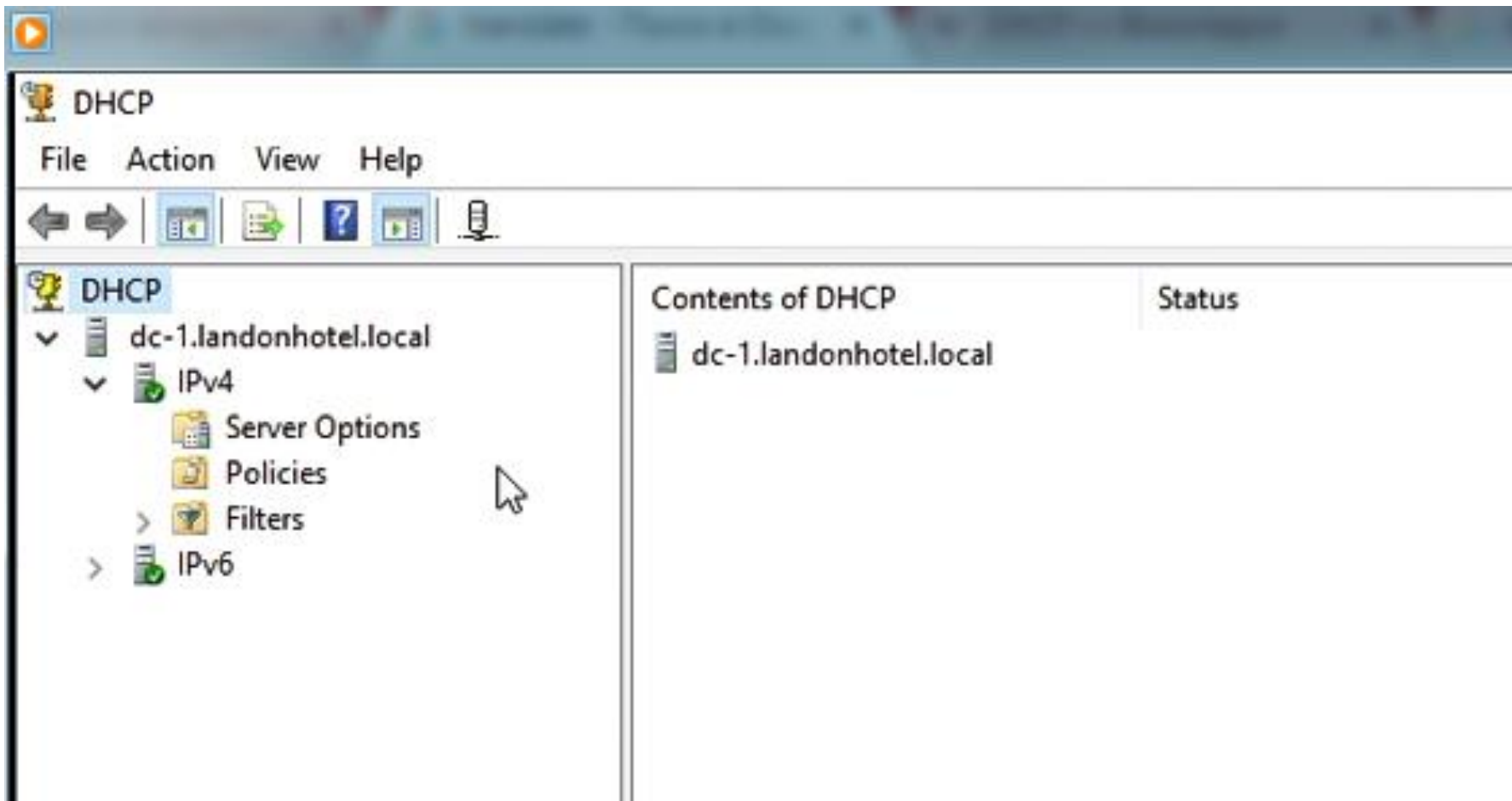
The following steps will be performed to complete the configuration of the DHCP Server on the target computer:

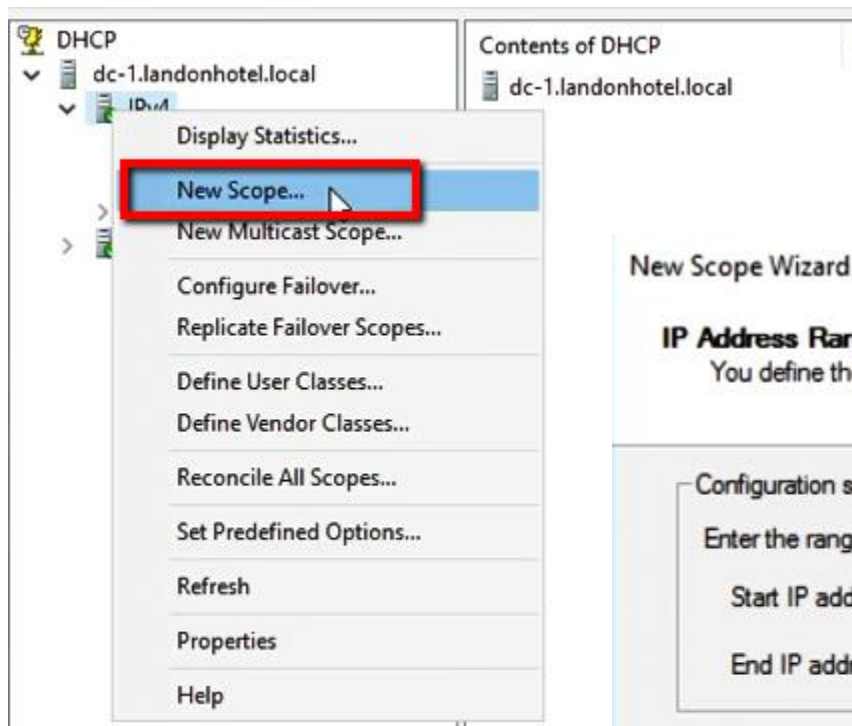
Create the following security groups for delegation of DHCP Server Administration.

- DHCP Administrators
- DHCP Users



Authorize DHCP server on target computer (if domain joined).





New Scope Wizard

IP Address Range

You define the scope address range by identifying a set of consecutive IP addresses.



Configuration settings for DHCP Server

Enter the range of addresses that the scope distributes.

Start IP address:

End IP address:

Configuration settings that propagate to DHCP Client

Length:

Subnet mask:

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Cancel

New Scope Wizard

Add Exclusions and Delay

Exclusions are addresses or a range of addresses that are not distributed by the server. A delay is the time duration by which the server will delay the transmission of a DHCP OFFER message.



New Scope Wizard

Add Exclusions and Delay

Exclusions are addresses or a range of addresses that are not distributed by the server. A delay is the time duration by which the server will delay the transmission of a DHCP OFFER message.

Type the IP address range that you want to exclude. If you want to exclude a single address, type an address in Start IP address only.

Start IP address:

10 . 3 . 66 . 225

End IP address:

10 . 3 . 66 . 226

Add

Excluded address range:

Remove

Subnet delay in milliseconds

0

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Next >

Type the IP address range that you want to exclude. If you want to exclude a single address, type an address in Start IP address only.

Start IP address:

. . .

End IP address:

. . .

Add

Excluded address range:

10.3.66.225 to 10.3.66.226

Remove

Subnet delay in milliseconds

- DHCP
 - dc-1.landonhotel.local
 - IPv4
 - Scope [10.3.66.0] LandonHotelClients

Display Statistics...

Advanced... >

Configure Failover...

Reconcile...

Activate

View >

Delete

Refresh

Export List...

Properties

Help

Contents of Scope

Address Pool

Address Leases

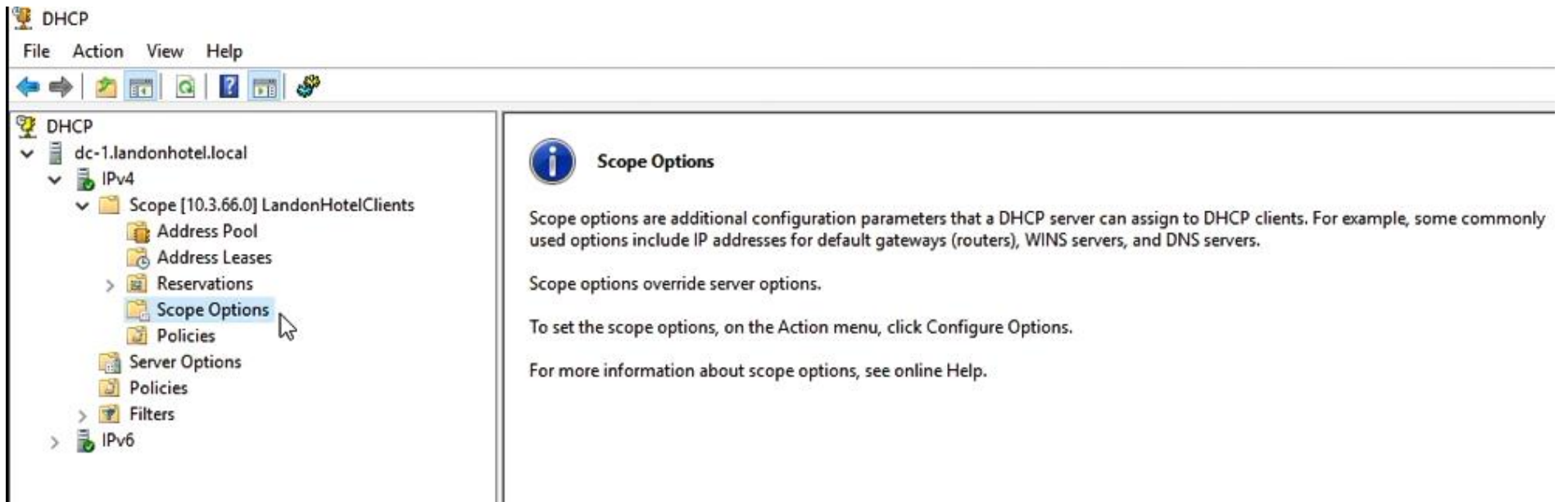
Reservations

Scope Options

Policies

Cancel

Налаштування властивостей DHCP



DHCP

File Action View Help

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DHCP

- dc-1.landonhotel.local
 - IPv4
 - Scope [10.3.66.0] LandonHotelClients
 - Address Pool
 - Address Leases
 - Reservations
 - Scope Options**
 - Policies
 - Server Options
 - Policies
 - Filters
 - IPv6

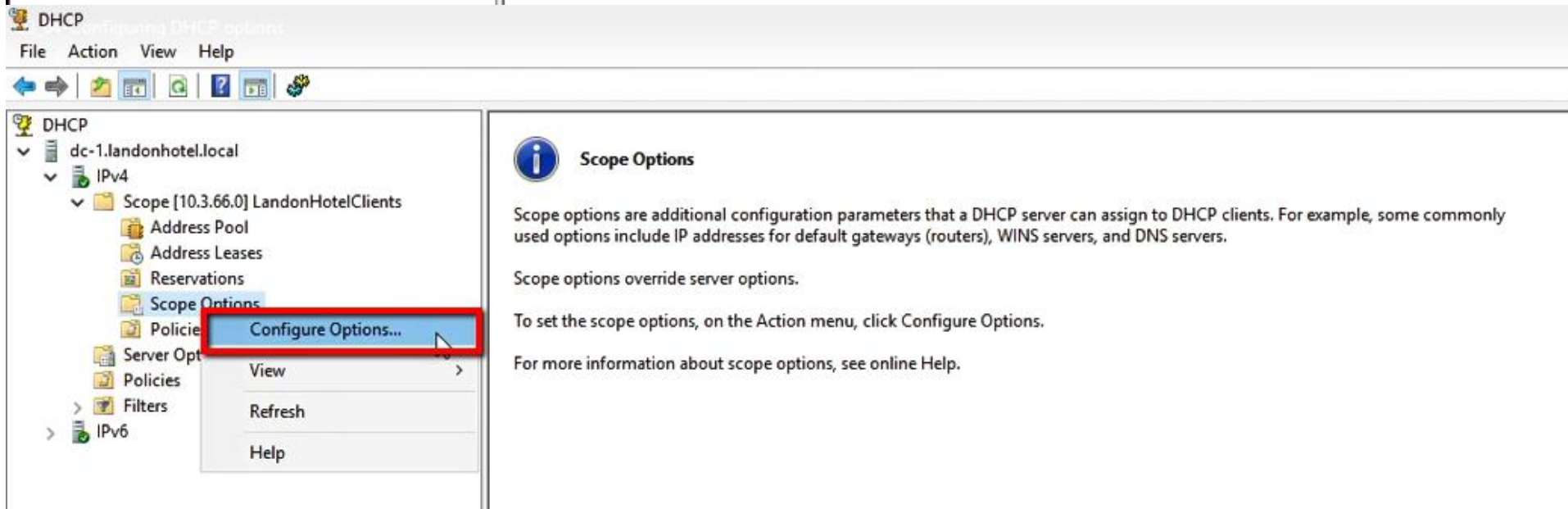
Scope Options

Scope options are additional configuration parameters that a DHCP server can assign to DHCP clients. For example, some commonly used options include IP addresses for default gateways (routers), WINS servers, and DNS servers.

Scope options override server options.

To set the scope options, on the Action menu, click Configure Options.

For more information about scope options, see online Help.



DHCP

File Action View Help

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DHCP

- dc-1.landonhotel.local
 - IPv4
 - Scope [10.3.66.0] LandonHotelClients
 - Address Pool
 - Address Leases
 - Reservations
 - Scope Options
 - Policies
 - Server Options
 - Policies
 - Filters
 - IPv6

Scope Options

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Налаштування властивостей DHCP

Scope Options

General **Advanced**

Available Options	Description
<input checked="" type="checkbox"/> 003 Router	Array of rout
<input type="checkbox"/> 004 Time Server	Array of time
<input type="checkbox"/> 005 Name Servers	Array of nam
<input checked="" type="checkbox"/> 006 DNS Servers	Array of DN

Data entry

Server name:

IP address:

10.3.66.201

Scope Options

General **Advanced**

Available Options	Description
<input type="checkbox"/> 014 Merit Dump File	Path name f
<input checked="" type="checkbox"/> 015 DNS Domain Name	DNS Domai
<input type="checkbox"/> 016 Swap Server	Address of c
<input type="checkbox"/> 017 Root Path	Path name f

Data entry

String value:

Налаштування клієнта DHCP

Internet Protocol Version 4 (TCP/IPv4) Properties

General **Alternate Configuration**

You can get IP settings assigned automatically if your network has this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

Obtain an IP address automatically

Use the following IP address:

IP address: . . .

Subnet mask: . . .

Default gateway: . . .

Obtain DNS server address automatically

Use the following DNS server addresses:

Preferred DNS server: . . .

Alternate DNS server: . . .

Validate settings upon exit

OK

Ethernet adapter Ethernet:

```
Connection-specific DNS Suffix . : landonhotel.local
Description . . . . . : Microsoft Hyper-V Network Adapter
Physical Address. . . . . : 00-15-5D-42-64-24
DHCP Enabled. . . . . : Yes
Autoconfiguration Enabled . . . : Yes
Link-local IPv6 Address . . . . : fe80::380d:476f:7c28:8fcb%4(Preferred)
IPv4 Address. . . . . : 10.3.66.222(Preferred)
Subnet Mask . . . . . : 255.255.255.0
Lease Obtained. . . . . : Wednesday, October 19, 2016 11:23:22 AM
Lease Expires . . . . . : Thursday, October 27, 2016 11:23:20 AM
Default Gateway . . . . . : 10.3.66.1
DHCP Server . . . . . : 10.3.66.201
DHCPv6 IAID . . . . . : 33559901
DHCPv6 Client DUID. . . . . : 00-01-00-01-1F-98-63-AC-00-15-5D-42-64-24
DNS Servers . . . . . : 10.3.66.201
                        10.3.66.202
NetBIOS over Tcpi. . . . . : Enabled
```

Tunnel adapter isatap.landonhotel.local:

```
Media State . . . . . : Media disconnected
Connection-specific DNS Suffix . : landonhotel.local
Description . . . . . : Microsoft ISATAP Adapter
```

Client IP Address	Name
10.3.66.221	car-booth-05-pc
10.3.66.222	Client-1.landonhot...

The image shows a Windows DHCP console window and a file explorer window. The DHCP console window displays the hierarchy: DHCP > dc-1.landonhotel.local > IPv4. The context menu for IPv4 is open, showing options like 'Display Statistics...' and 'New Scope...'. The 'Properties' option is highlighted with a red box. The 'dc-1.landonhotel.local Properties' dialog box is open, showing the 'Advanced' tab with 'Database path' and 'Backup path' fields, both pointing to 'C:\Windows\system32\dhcp'. The file explorer window shows the directory 'C:\Windows\system32\dhcp' with a list of files and folders.

Name	Date modified	Type	Size
backup	10/19/2016 1:11 PM	File folder	
dhcp.jfm	10/19/2016 10:06 ...	JFM File	16 KB
dhcp.mdb	10/19/2016 10:11 ...	MDB File	1,024 KB
dhcp.pat	10/19/2016 1:11 PM	PAT File	0 KB
DhcpSrvLog-Wed	10/19/2016 10:06 ...	Text Document	3 KB
DhcpV6SrvLog-Wed	10/19/2016 10:06 ...	Text Document	2 KB
j50.chk	10/19/2016 10:06 ...	Recovered File Fra...	8 KB
j50	10/19/2016 1:11 PM	Text Document	1,024 KB
j50res00001.jrs	10/19/2016 10:01 ...	JRS File	1,024 KB
j50res00002.jrs	10/19/2016 10:01 ...	JRS File	1,024 KB
j50tmp	10/19/2016 1:11 PM	Text Document	1,024 KB

The screenshot shows the DHCP console interface. On the left, a tree view shows the hierarchy: DHCP > dc-1.landonhotel.local > IPv4. The main pane displays the 'Contents of DHCP Server' for the selected scope, listing 'Server Options', 'Scope [10.3.66.0] LandonHotelClients' (marked as '** Active **'), 'Policies', and 'Filters'. An 'IPv4 Properties' dialog box is open, showing the 'General' tab. The 'Server' icon is visible. The 'Enable DHCP audit logging' checkbox is checked and highlighted with a red rectangle. Below it, the text reads: 'Writes server activity to a file daily to monitor system performance and troubleshoot service issues.' Other options include 'Automatically update statistics every:' (with spinners for 0 hours and 10 minutes) and 'Show the BOOTP table folder'.

Contents of DHCP Server	Status	Description	Fail
Server Options			
Scope [10.3.66.0] LandonHotelClients	** Active **		
Policies			
Filters			

IPv4 Properties

General DNS Filters Failover Advanced

Server

Automatically update statistics every:
Hours: Minutes:

Enable DHCP audit logging
Writes server activity to a file daily to monitor system performance and troubleshoot service issues.

Show the BOOTP table folder
Displays the server table which can contain configuration entries to support BOOTP clients.

OK Cancel Apply

The screenshot shows the DHCP console in Windows Server. The left pane shows the hierarchy: DHCP > dc-1.landonhotel.local > IPv4 > Scope [10.3.66.0] LandonHotelCie. The right pane shows the 'Contents of DHCP Server' for this scope, with 'Scope [10.3.66.0] LandonHotelCie' selected and marked as '** Active **'. An 'IPv4 Properties' dialog box is open, showing the 'DNS' tab. The dialog contains the following text and options:

You can setup the DHCP server to automatically update authoritative DNS servers with the host (A) and pointer (PTR) records of DHCP clients.

- Enable DNS dynamic updates according to the settings below:
 - Dynamically update DNS records only if requested by the DHCP clients
 - Always dynamically update DNS records
- Discard A and PTR records when lease is deleted
- Dynamically update DNS records for DHCP clients that do not request updates (for example, clients running Windows NT 4.0)
- Disable dynamic updates for DNS PTR records

Name Protection

DHCP name protection is disabled at the server level.

Buttons: OK, Cancel, Apply, and a 'Configure' button in the Name Protection section.

- Конфлікт IP адрес

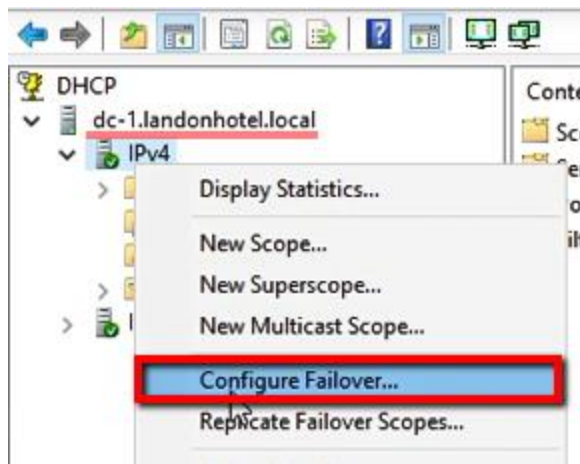
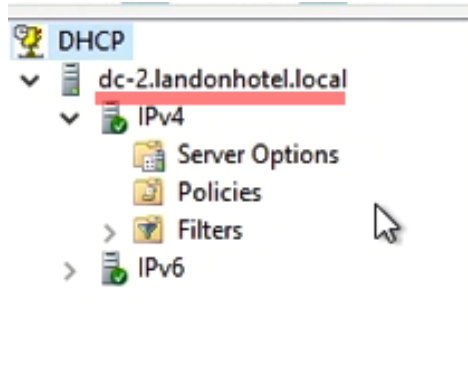
Одна IP адреса пропонується декільком клієнтам

- Клієнт не отримує IP адресу від DHCP

Клієнту призначається APIPA адреса (Automatic Private IP Addressing) з діапазону від 169.254.1.0 до 169.254.254.255

- Клієнт отримує IP адресу з невірною діапазону адрес

- Помилка зчитування бази даних DHCP сервера



Configure Failover

Create a new failover relationship

Create a new failover relationship with partner dc-2

Relationship Name:

Maximum Client Lead Time: hours minutes

Mode:

Load Balance Percentage

Local Server: %

Partner Server: %

State Switchover Interval: minutes

Enable Message Authentication

Shared Secret:

< Back Next > Cancel

Scope 10.3.66.0 Statistics

Description	Details
Total Addresses	8
In Use	2 (25%)
Available	6 (75%)
Addresses Available (this Server's Pool)	3 (37%)
Addresses Available (Partner Pool)	3 (37%)
Addresses granted (this Server's Pool)	1 (12%)
Addresses granted (Partner Pool)	1 (12%)

Refresh Close

Configure Failover

Create a new failover relationship

Create a new failover relationship with partner dc-2

Relationship Name:

Maximum Client Lead Time: hours minutes

Mode:

Hot Standby Configuration

Role of Partner Server:

Addresses reserved for standby server: %

State Switchover Interval: minutes

Enable Message Authentication

Shared Secret:

< Back

Next >

Cancel

DHCP console tree structure:

- DHCP
 - File Action View Help
 - dc-2.landonhotel.local
 - IPv4
 - Scope [10.3.66.0] LandonHotelClients
 - Address Pool

Для виконання лабораторної роботи знадобиться:

1. Сервер Windows Server 2016 виділений для підвищення до ролі DHCP.
2. Клієнт, що буде отримувати конфігурацію IP.
3. Додатковий сервер DHCP для забезпечення відмовостійкості.

Резюме (що встигли за лекцію)

- Розглянули деякі особливості Windows Server 2016 DHCP.
- Розглянули процедуру налаштування Windows Server 2016 DHCP.
- Розглянули деякі додаткові можливості.