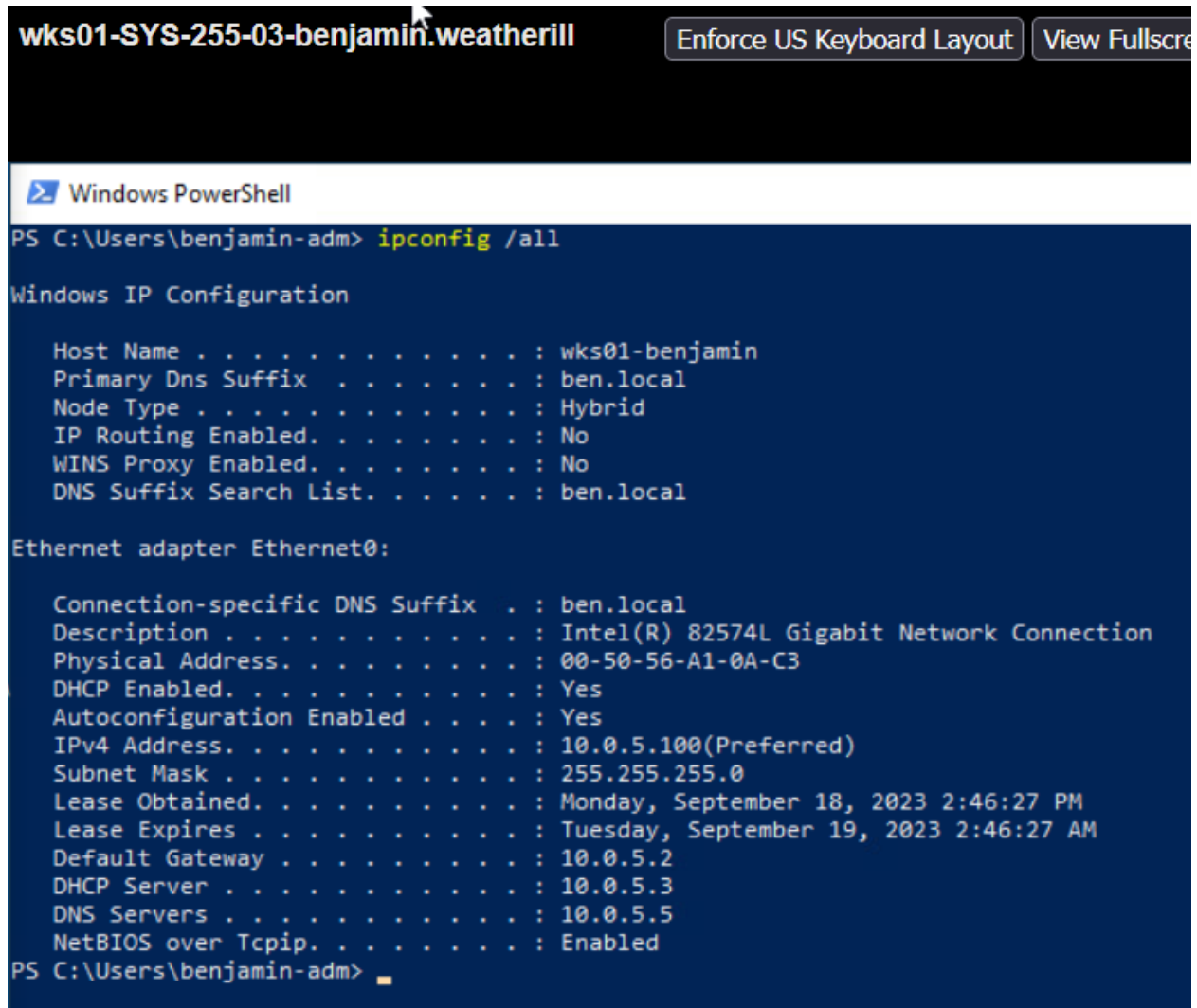


Lab 04: DHCP  
SYS255  
Ben W  
FA23

Deliverables:

1. The results of `ipconfig /all` on `wsk01`



The screenshot shows a Windows PowerShell window titled "wks01-SYS-255-03-benjamin.weatherill". The command prompt shows the user running `ipconfig /all`. The output displays the Windows IP Configuration details for the Ethernet adapter Ethernet0, including the host name, DNS suffix, IP address, subnet mask, default gateway, and DHCP server information.

```
wks01-SYS-255-03-benjamin.weatherill
Enforce US Keyboard Layout View Fullscreen

Windows PowerShell
PS C:\Users\benjamin-adm> ipconfig /all

Windows IP Configuration

Host Name . . . . . : wks01-benjamin
Primary Dns Suffix . . . . . : ben.local
Node Type . . . . . : Hybrid
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
DNS Suffix Search List. . . . . : ben.local

Ethernet adapter Ethernet0:

    Connection-specific DNS Suffix . : ben.local
    Description . . . . . : Intel(R) 82574L Gigabit Network Connection
    Physical Address. . . . . : 00-50-56-A1-0A-C3
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
    IPv4 Address. . . . . : 10.0.5.100(Preferred)
    Subnet Mask . . . . . : 255.255.255.0
    Lease Obtained. . . . . : Monday, September 18, 2023 2:46:27 PM
    Lease Expires . . . . . : Tuesday, September 19, 2023 2:46:27 AM
    Default Gateway . . . . . : 10.0.5.2
    DHCP Server . . . . . : 10.0.5.3
    DNS Servers . . . . . : 10.0.5.5
    NetBIOS over Tcpi. . . . . : Enabled
PS C:\Users\benjamin-adm>
```

2. System logs of `wks01-benjamin` requesting DHCP

```

ben-loc@dhcp01-benjamin ~]$ sudo cat /var/log/messages | grep wks01-benjamin
[sudo] password for ben-loc:
Sep 18 14:47:12 dhcp01-benjamin dhcpd: DHCPOFFER on 10.0.5.100 to 00:50:56:a1:0a:c3 (wks01-benjamin)
via ens192
Sep 18 14:47:12 dhcp01-benjamin dhcpd: DHCPREQUEST for 10.0.5.100 (10.0.5.3) from 00:50:56:a1:0a:c3
(wks01-benjamin) via ens192
Sep 18 14:47:12 dhcp01-benjamin dhcpd: DHCPACK on 10.0.5.100 to 00:50:56:a1:0a:c3 (wks01-benjamin)
via ens192
Sep 18 15:04:20 dhcp01-benjamin dhcpd: DHCPRELEASE of 10.0.5.100 from 00:50:56:a1:0a:c3 (wks01-benja
min) via ens192 (found)
Sep 18 15:04:28 dhcp01-benjamin dhcpd: DHCPOFFER on 10.0.5.100 to 00:50:56:a1:0a:c3 (wks01-benjamin)
via ens192
Sep 18 15:04:28 dhcp01-benjamin dhcpd: DHCPREQUEST for 10.0.5.100 (10.0.5.3) from 00:50:56:a1:0a:c3
(wks01-benjamin) via ens192
Sep 18 15:04:28 dhcp01-benjamin dhcpd: DHCPACK on 10.0.5.100 to 00:50:56:a1:0a:c3 (wks01-benjamin)
via ens192
ben-loc@dhcp01-benjamin ~]$

```

### 3. Wireshark Capture DHCP Messages

Wireshark capture of DHCP messages on Ethernet0. The packet list shows a DHCP Release, Discover, Offer, Request, and ACK. The packet details for Frame 1 (DHCP Release) are expanded, showing fields like Message type, Hardware type, Transaction ID, and Client IP address.

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	10.0.5.100	10.0.5.3	DHCP	342	DHCP Release - Transaction ID: 0x5c816945
29	6.323308	0.0.0.0	255.255.255.255	DHCP	343	DHCP Discover - Transaction ID: 0x5c816945
32	7.326263	10.0.5.3	10.0.5.100	DHCP	342	DHCP Offer - Transaction ID: 0x5c816945
33	7.327966	0.0.0.0	255.255.255.255	DHCP	378	DHCP Request - Transaction ID: 0x5c816945
34	7.330154	10.0.5.3	10.0.5.100	DHCP	342	DHCP ACK - Transaction ID: 0x5c816945

Frame 1: 342 bytes on wire (2736 bits), 342 bytes captured (2736 bits) on interface \Device\NPF\_{0C133...}

Ethernet II, Src: VMware\_a1:0a:c3 (00:50:56:a1:0a:c3), Dst: VMware\_a1:8a:09 (00:50:56:a1:8a:09)

Internet Protocol Version 4, Src: 10.0.5.100, Dst: 10.0.5.3

User Datagram Protocol, Src Port: 68, Dst Port: 67

Dynamic Host Configuration Protocol (Release)

- Message type: Boot Request (1)
- Hardware type: Ethernet (0x01)
- Hardware address length: 6
- Hops: 0
- Transaction ID: 0x5c816945
- Seconds elapsed: 0
- Bootp flags: 0x0000 (Unicast)
- Client IP address: 10.0.5.100
- Your (client) IP address: 0.0.0.0
- Next server IP address: 0.0.0.0
- Relay agent IP address: 0.0.0.0
- Client MAC address: VMware\_a1:0a:c3 (00:50:56:a1:0a:c3)
- Client hardware address padding: 00000000000000000000
- Server host name not given
- Boot file name not given
- Magic cookie: DHCP

### 4. Changing the lease time

Original Default Lease time:

34	7.330154	10.0.5.3	10.0.5.100	DHCP	342	DHCP ACK
<pre> &gt; Bootp flags: 0x0000 (Unicast)   Client IP address: 0.0.0.0   Your (client) IP address: 10.0.5.100   Next server IP address: 0.0.0.0   Relay agent IP address: 0.0.0.0   Client MAC address: VMware_a1:0a:c3 (00:50:56:a1:0a:c3)   Client hardware address padding: 00000000000000000000   Server host name not given   Boot file name not given   Magic cookie: DHCP &gt; Option: (53) DHCP Message Type (ACK) &gt; Option: (54) DHCP Server Identifier (10.0.5.3) ▼ Option: (51) IP Address Lease Time   Length: 4   IP Address Lease Time: (43200s) 12 hours </pre>						

Changed Lease time:

Changed the configuration file:

```

# DHCP Server Configuration file.
# see /usr/share/doc/dhcp*/dhcpcd.conf.example
# see dhcpcd.conf(5) man page
#
subnet 10.0.5.0 netmask 255.255.255.0 {
    default-lease-time 600;
    max-lease-time 7200;
    option routers 10.0.5.2;
    option subnet-mask 255.255.255.0;
    option domain-name "ben.local";
    option domain-name-servers 10.0.5.5;
    range 10.0.5.100 10.0.5.150;
}

```

Updated Lease time in packet capture:

24	4.041216	10.0.5.3	10.0.5.100	DHCP	342	DHCP ACK
Server host name not given Boot file name not given Magic cookie: DHCP ✓ Option: (53) DHCP Message Type (ACK) Length: 1 DHCP: ACK (5) ✓ Option: (54) DHCP Server Identifier (10.0.5.3) Length: 4 DHCP Server Identifier: 10.0.5.3 ✓ Option: (51) IP Address Lease Time Length: 4 IP Address Lease Time: (600s) 10 minutes ✓ Option: (1) Subnet Mask (255.255.255.0)						

5. <https://github.com/benjamin-weatherill/SYS255/wiki/Lab-4-Configuring-DHCP>