

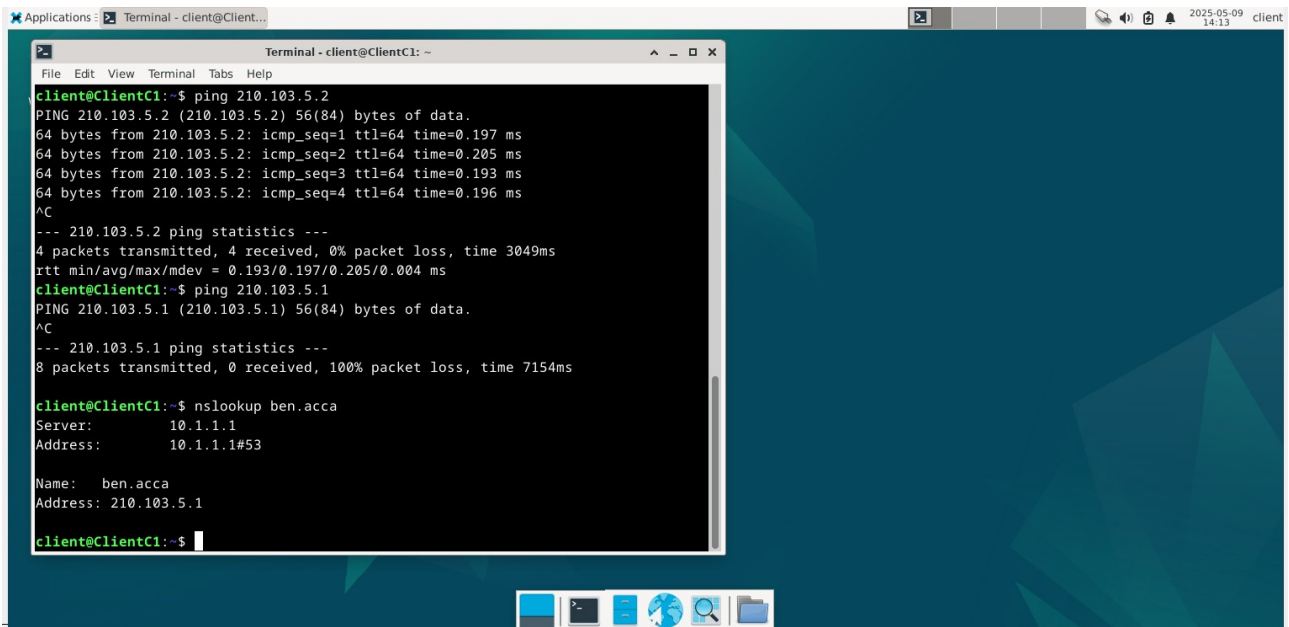


Figure 1: Debian client successfully using nslookup

```
subnet 10.1.1.0 netmask 255.255.255.224 {  
    option routers 10.1.1.1;  
    option subnet-mask 255.255.255.224;  
    option domain-name-servers 10.1.1.1;  
    range 10.1.1.10 10.1.1.20;  
}
```

Figure 2: DHCP configuration of Debian

```

GNU nano 7.2 /etc/default/isc-dhcp-server
# Defaults for isc-dhcp-server (sourced by /etc/init.d/isc-dhcp-server)

# Path to dhcpd's config file (default: /etc/dhcp/dhcpd.conf).
#DHCPDv4_CONF=/etc/dhcp/dhcpd.conf
#DHCPDv6_CONF=/etc/dhcp/dhcpd6.conf

# Path to dhcpd's PID file (default: /var/run/dhcpd.pid).
#DHCPDv4_PID=/var/run/dhcpd.pid
#DHCPDv6_PID=/var/run/dhcpd6.pid

# Additional options to start dhcpd with.
# Don't use options -cf or -pf here; use DHCPD_CONF/ DHCPD_PID instead
#OPTIONS=""

# On what interfaces should the DHCP server (dhcpd) serve DHCP requests?
# Separate multiple interfaces with spaces, e.g. "eth0 eth1".
INTERFACESv4="onp0s8"

[ Read 17 lines ]
^G Help      ^O Write Out  ^W Where Is   ^K Cut        ^T Execute    ^C Location   M-U Undo     M-A Set Mark  M-I To Bracket M-Q Previous
^X Exit      ^R Read File  ^N Replace    ^U Paste      ^J Justify    ^_ Go To Line  M-E Redo     M-G Copy      ^O Where Was  M-W Next

```

Figure 3: Debian DHCP interface

```

-t, --terse           Omit contents of sets.
-S, --service         Translate ports to service names as described in /etc/services.
-N, --reversedns      Translate IP addresses to names.
-U, --guid            Print UID/GID as defined in /etc/passwd and /etc/group.
-n, --numeric         Print fully numerical output.
-y, --numeric-priority Print chain priority numerically.
-p, --numeric-protocol Print layer 4 protocols numerically.
-T, --numeric-time    Print time values numerically.

Options (command output formatting):
-e, --echo            Echo what has been added, inserted or replaced.
-j, --json            Format output in JSON
-d, --debug <level [,level...]> Specify debugging level (scanner, parser, eval, netlink, mnl, proto-ctx, segtree, all)

sysadmin@C-Server:~$ nft -e
nft: no command specified
sysadmin@C-Server:~$ nft add table inet filter
Error: Could not process rule: Operation not permitted
add table inet filter
^C
sysadmin@C-Server:~$ sudo nft add table inet filter
sysadmin@C-Server:~$ sudo nft add chain inet filter input {type filter hook input priority 0 \;}
sysadmin@C-Server:~$ sudo nft add rule inet filter input counter accept
sysadmin@C-Server:~$ nft list
Operation not permitted (you must be root)
Error: syntax error, unexpected newline
list
^C
sysadmin@C-Server:~$ sudo nft list
Error: syntax error, unexpected newline
list
^C
sysadmin@C-Server:~$ sudo nft list table inet filter
table inet filter {
    chain input {
        type filter hook input priority filter; policy accept;
        counter packets 0 bytes 0 accept
    }

    chain forward {
        type filter hook forward priority filter; policy accept;
    }

    chain output {
        type filter hook output priority filter; policy accept;
    }
}
sysadmin@C-Server:~$ date
Thu  8 May 13:53:03 BST 2025
sysadmin@C-Server:~$

```

Figure 4: Debian DNS file

```

-t, --terse           Omit contents of sets.
-S, --service         Translate ports to service names as described in /etc/services.
-N, --reversedns      Translate IP addresses to names.
-u, --guid            Print UID/GID as defined in /etc/passwd and /etc/group.
-n, --numeric         Print fully numerical output.
-y, --numeric-priority Print chain priority numerically.
-p, --numeric-protocol Print layer 4 protocols numerically.
-T, --numeric-time     Print time values numerically.

Options (command output formatting):
-e, --echo            Echo what has been added, inserted or replaced.
-J, --json            Format output in JSON
-d, --debug <level [,level...]> Specify debugging level (scanner, parser, eval, netlink, mnl, proto-ctx, segtree, all)

sysadmin@C-Server:~$ nft -e
nft: no command specified
sysadmin@C-Server:~$ nft add table inet filter
Error: Could not process rule: Operation not permitted
add table inet filter
~~~~~
sysadmin@C-Server:~$ sudo nft add table inet filter
sysadmin@C-Server:~$ sudo nft add chain inet filter input {type filter hook input priority 0 \;}
sysadmin@C-Server:~$ sudo nft add rule inet filter input counter accept
sysadmin@C-Server:~$ nft list
Operation not permitted (you must be root)
Error: syntax error, unexpected newline
list
^
sysadmin@C-Server:~$ sudo nft list
Error: syntax error, unexpected newline
list
^
sysadmin@C-Server:~$ sudo nft list table inet filter
table inet filter {
    chain input {
        type filter hook input priority filter; policy accept;
        counter packets 0 bytes 0 accept
    }

    chain forward {
        type filter hook forward priority filter; policy accept;
    }

    chain output {
        type filter hook output priority filter; policy accept;
    }
}
sysadmin@C-Server:~$ date
Thu  8 May 13:53:03 BST 2025
sysadmin@C-Server:~$

```

Figure 5: Debian firewall configuration

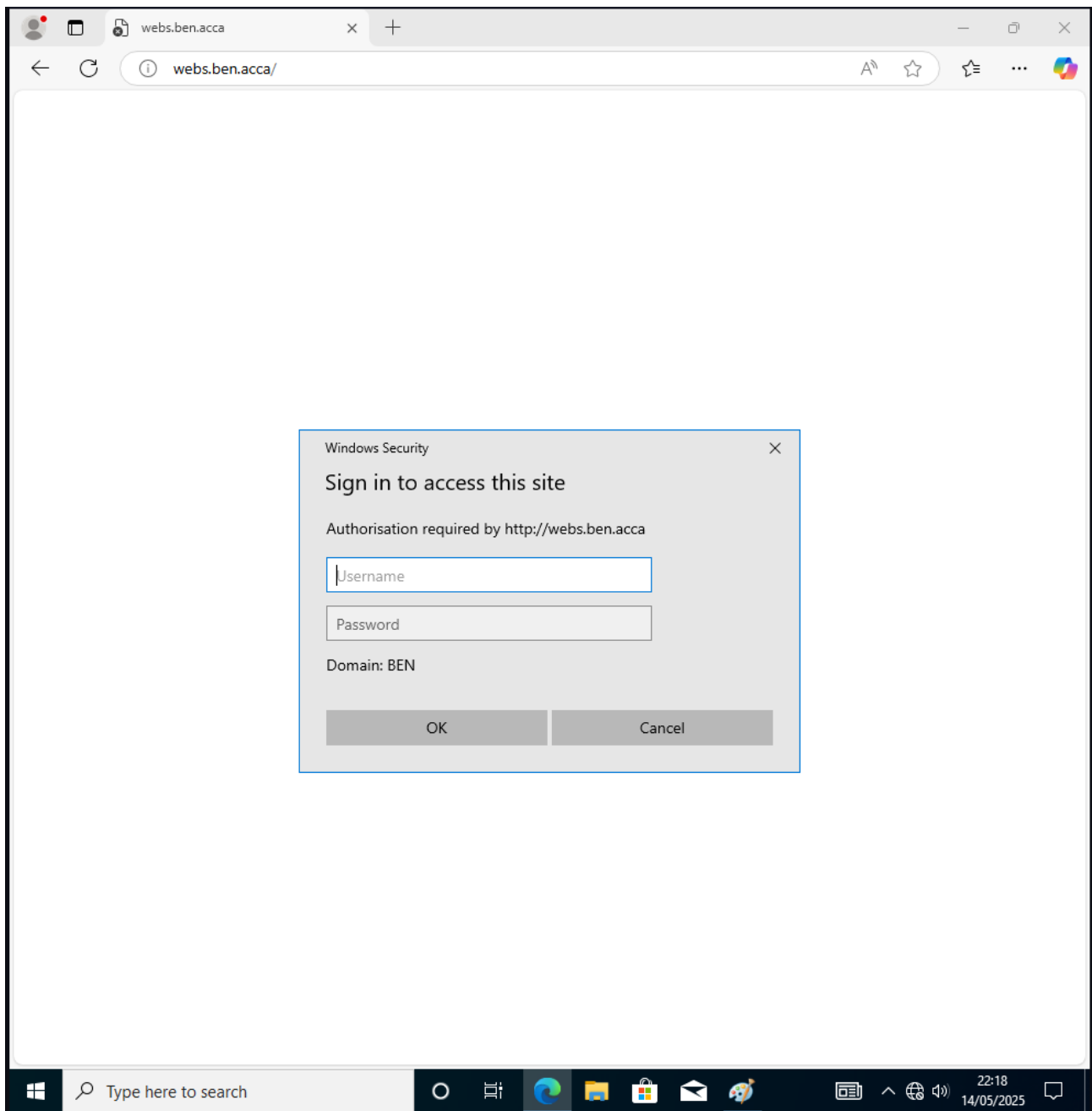


Figure 6: Windows Server IIS login screen

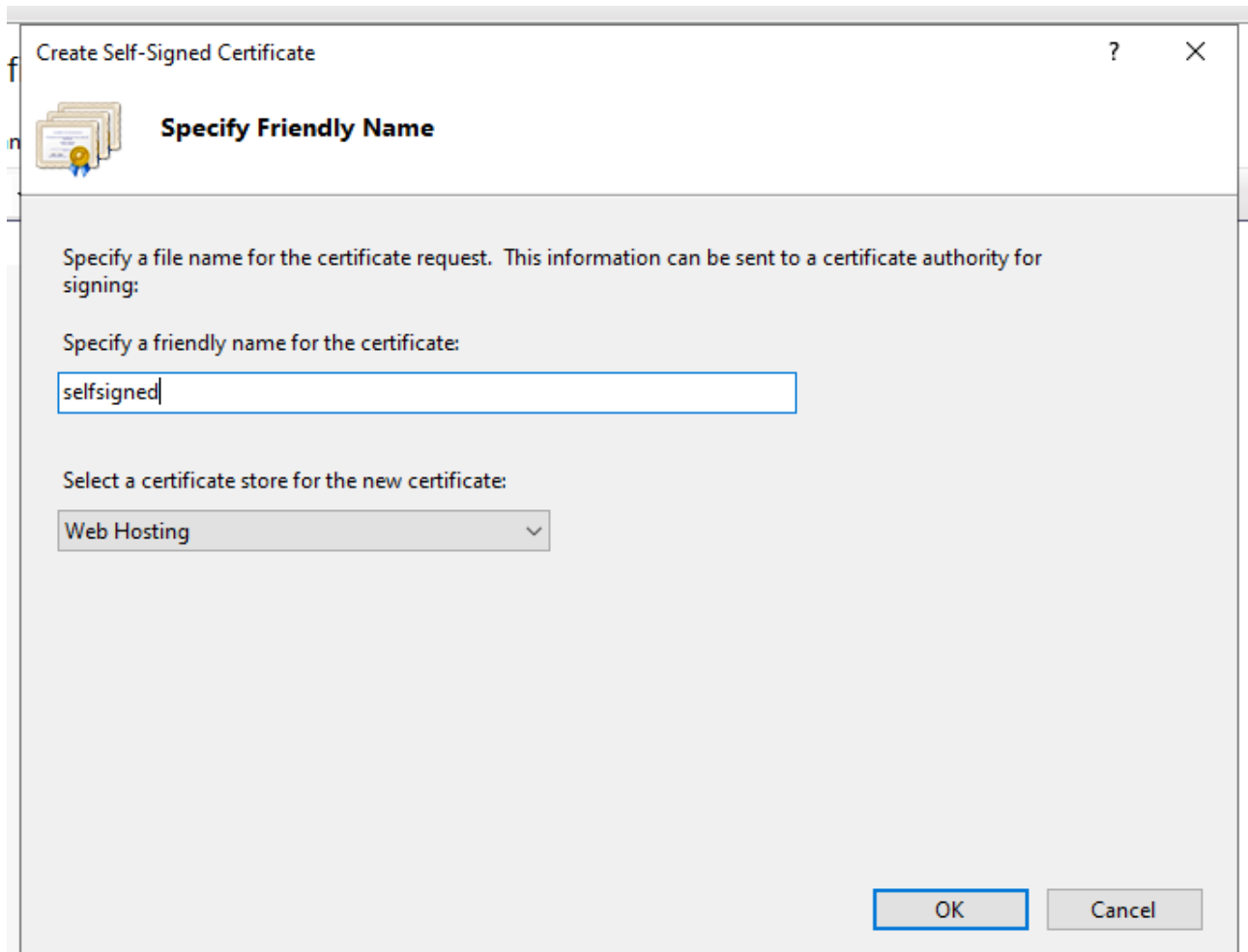


Figure 7: IIS generating self-signed SSL certificate

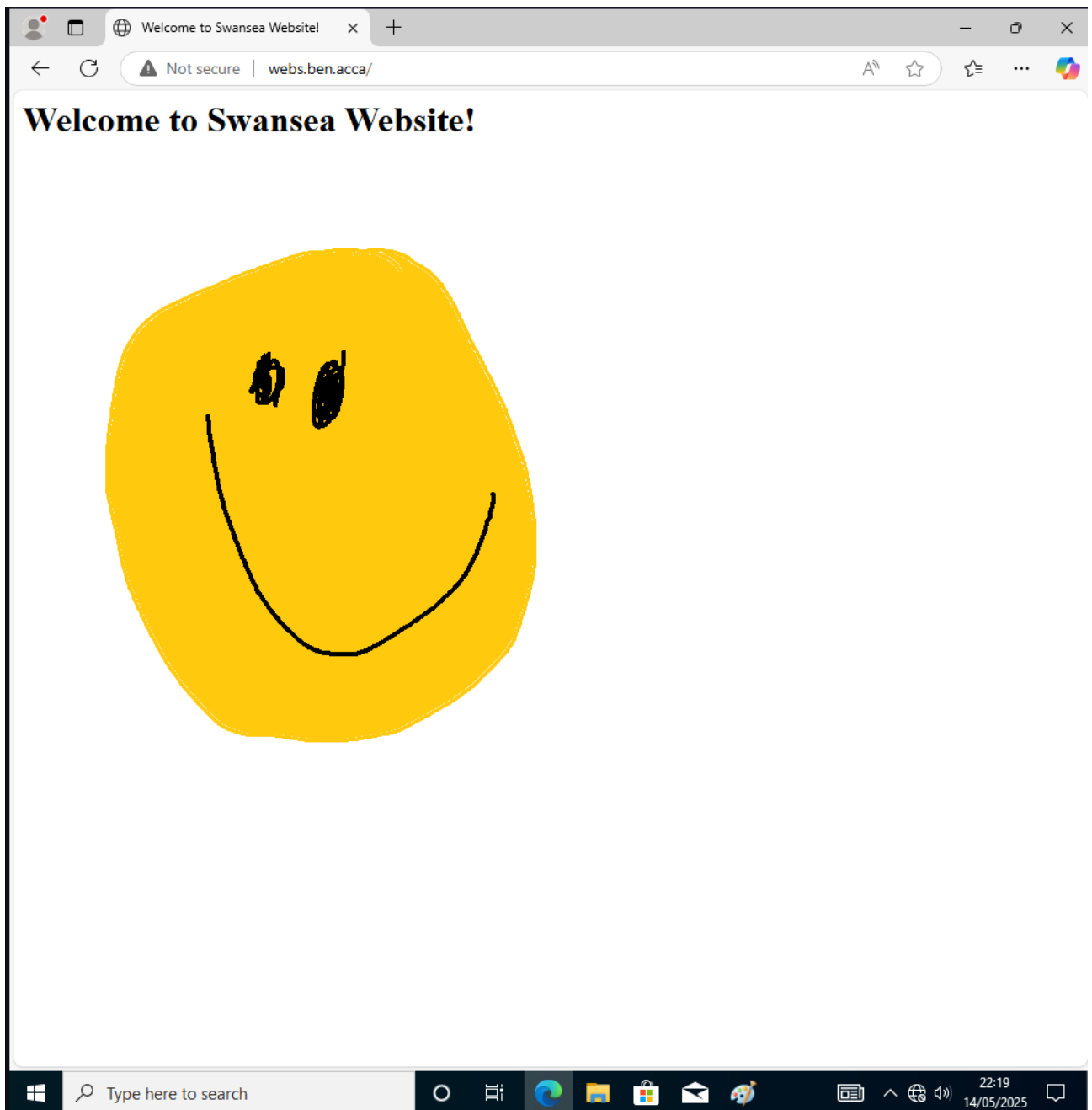


Figure 8: Screenshot of the webpage after successful authentication

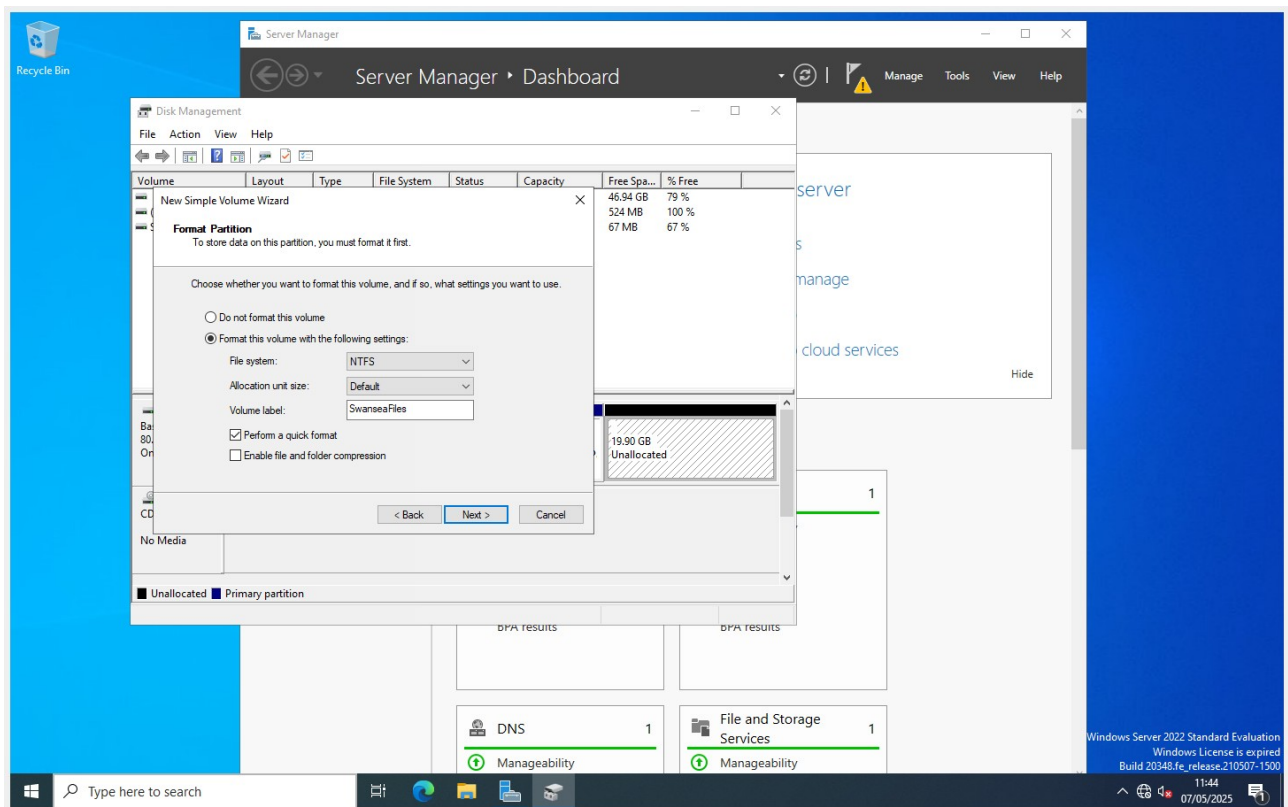


Figure 9: Formatting a blank 20GB partition as NTFS to use as an SMB share

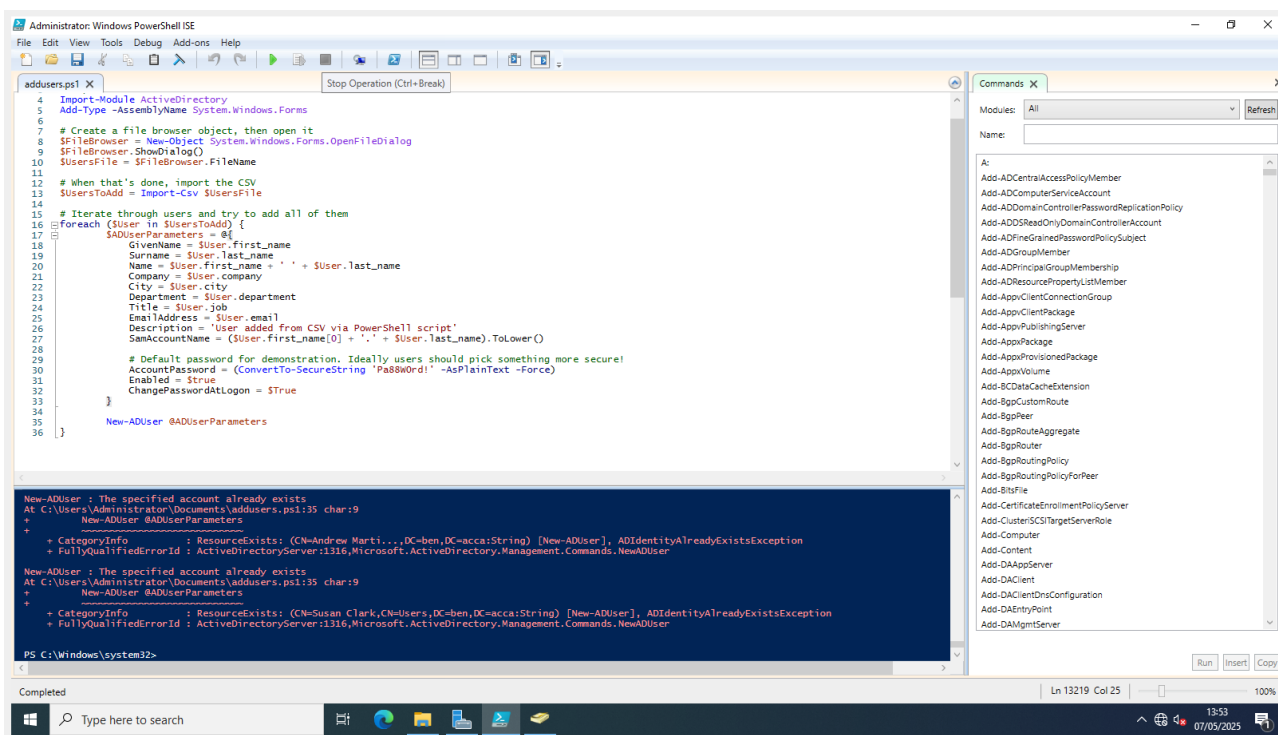


Figure 10: PowerShell script which adds users

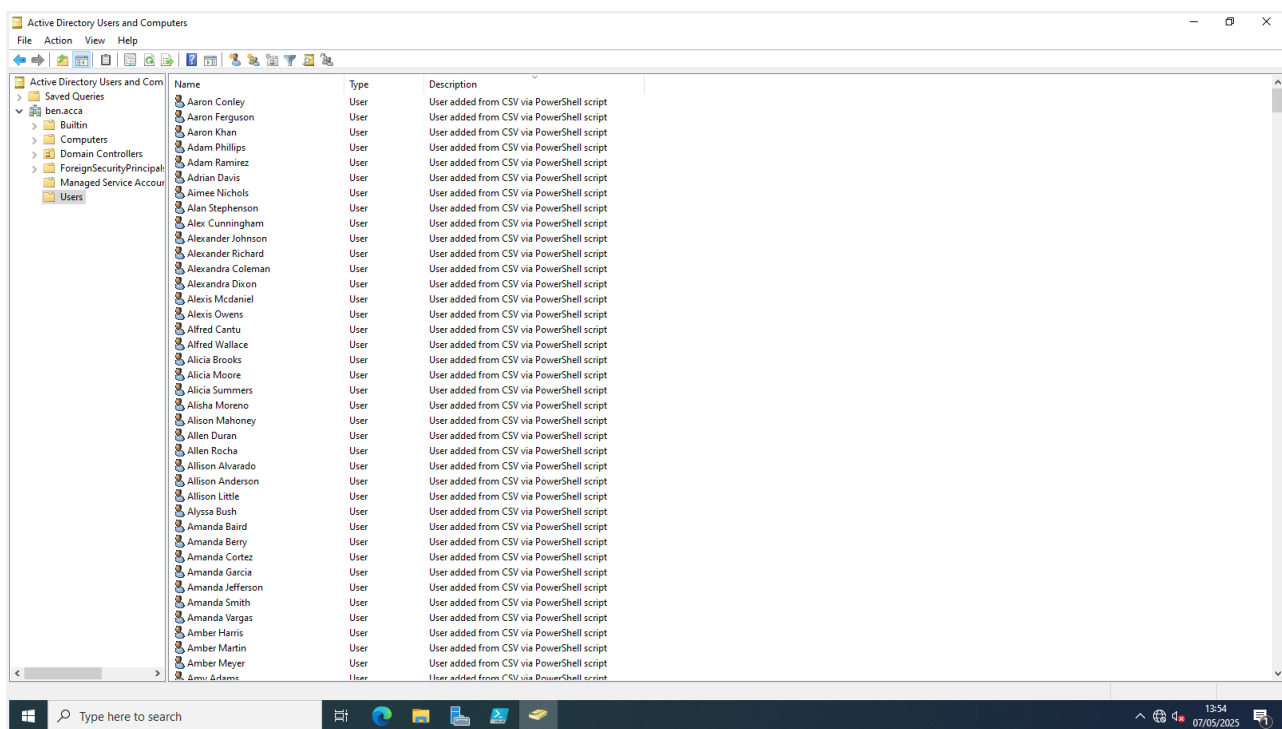


Figure 11: Users added in bulk by the above script

```
Debian GNU/Linux 12 C-Server tty1
C-Server login: broberts@ben.acca
Password:
Linux C-Server 6.1.0-32-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.1.129-1 (2025-03-06) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Creating directory '/home/broberts@ben.acca'.
broberts@ben.acca@C-Server:~$ ls
broberts@ben.acca@C-Server:~$ ping ben.acca -c 4
PING ben.acca (210.103.5.1) 56(84) bytes of data.
64 bytes from ben.acca (210.103.5.1): icmp_seq=1 ttl=128 time=0.262 ms
64 bytes from ben.acca (210.103.5.1): icmp_seq=2 ttl=128 time=0.234 ms
64 bytes from ben.acca (210.103.5.1): icmp_seq=3 ttl=128 time=0.233 ms
64 bytes from ben.acca (210.103.5.1): icmp_seq=4 ttl=128 time=0.252 ms

--- ben.acca ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3066ms
rtt min/avg/max/mdev = 0.233/0.245/0.262/0.012 ms
broberts@ben.acca@C-Server:~$ _
```

Figure 12: Active Directory user logged into Debian Server

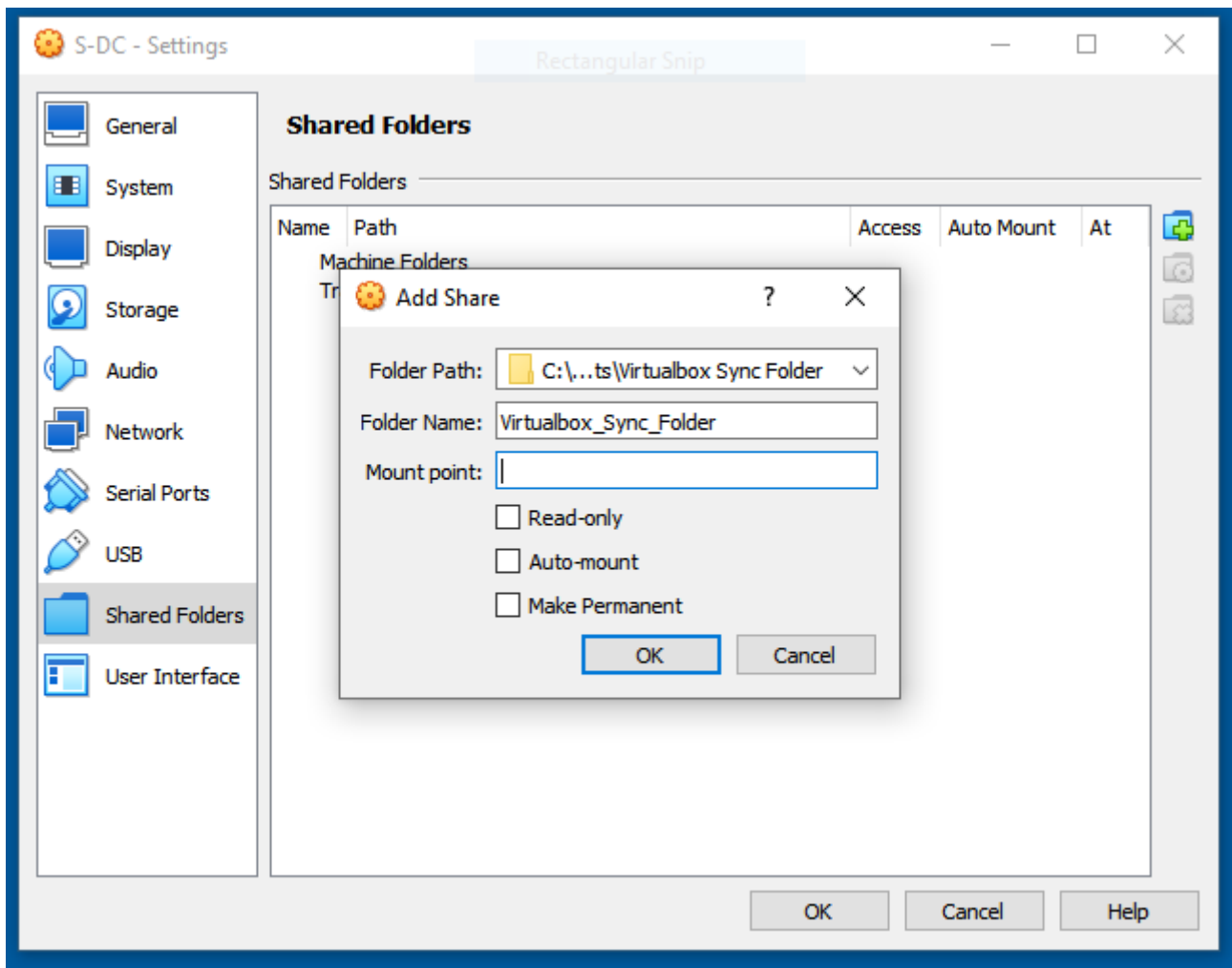


Figure 13: Configuring the VirtualBox Sync Folder

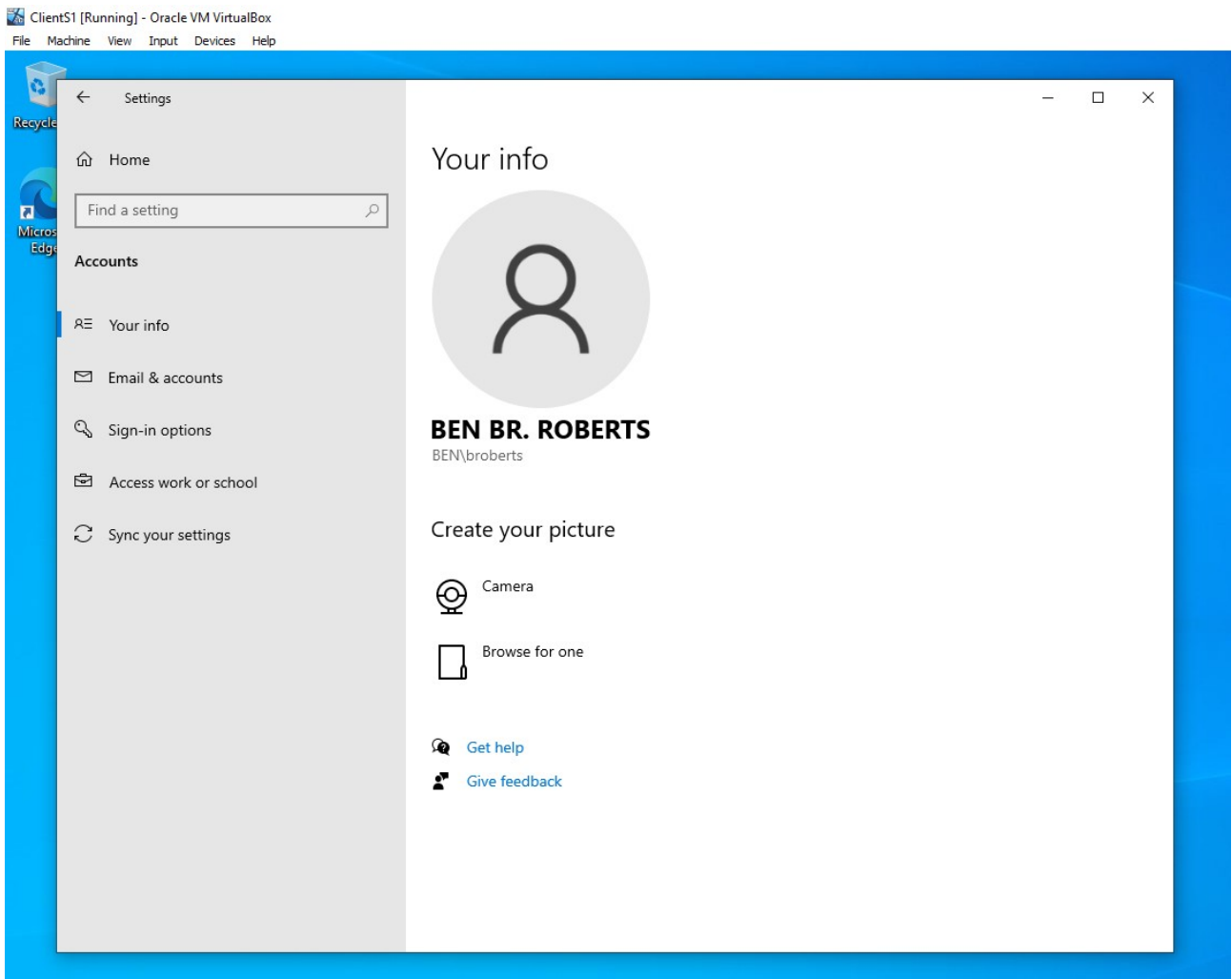


Figure 14: Windows client with added Active Directory user

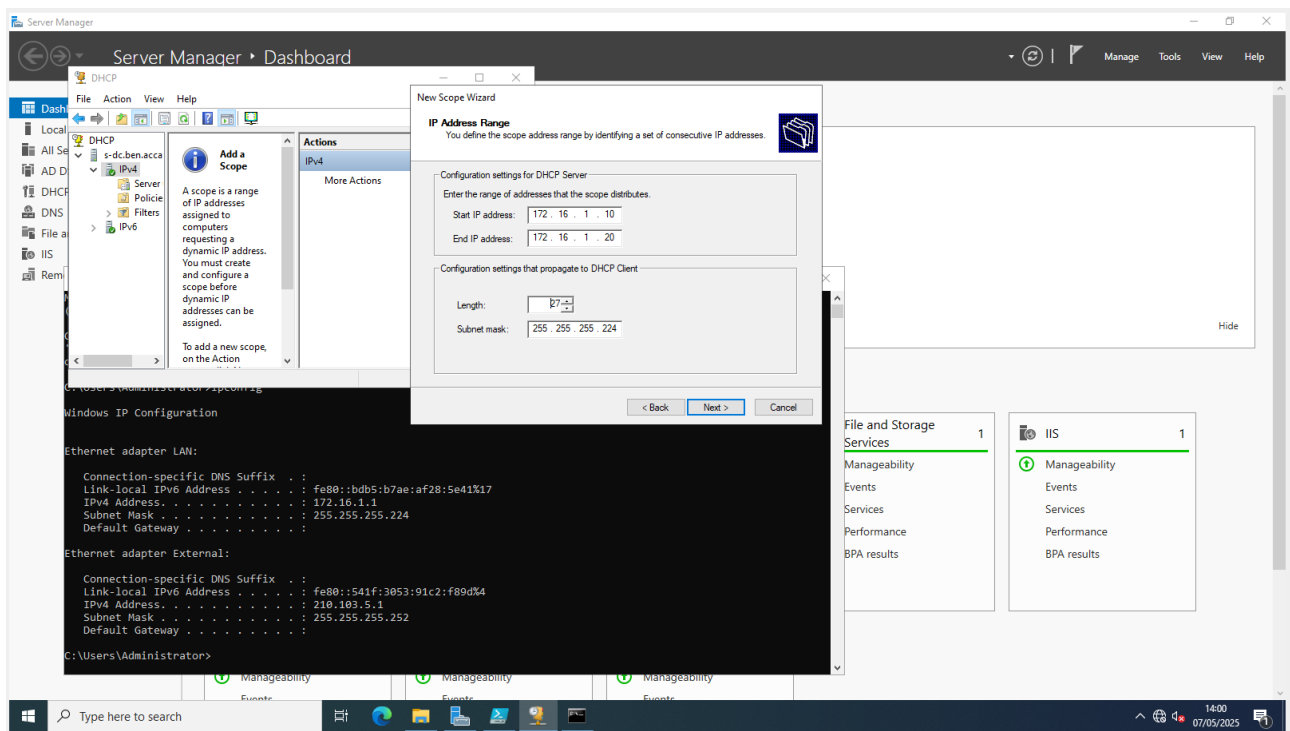


Figure 15: Windows DHCP range configuration

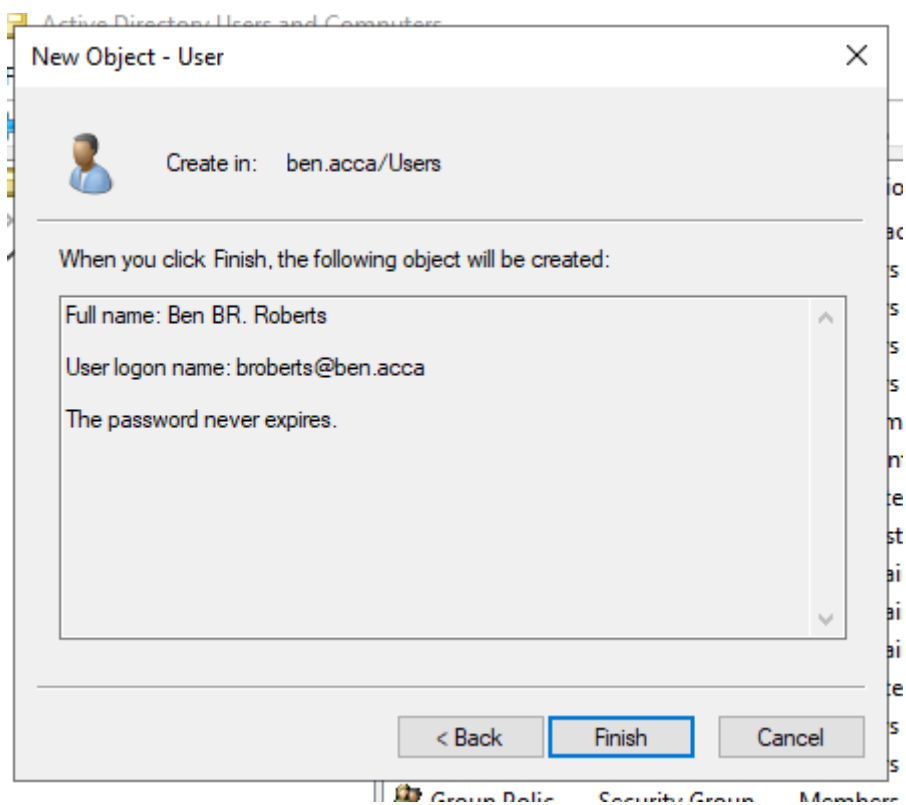


Figure 16: Adding user to Windows Server

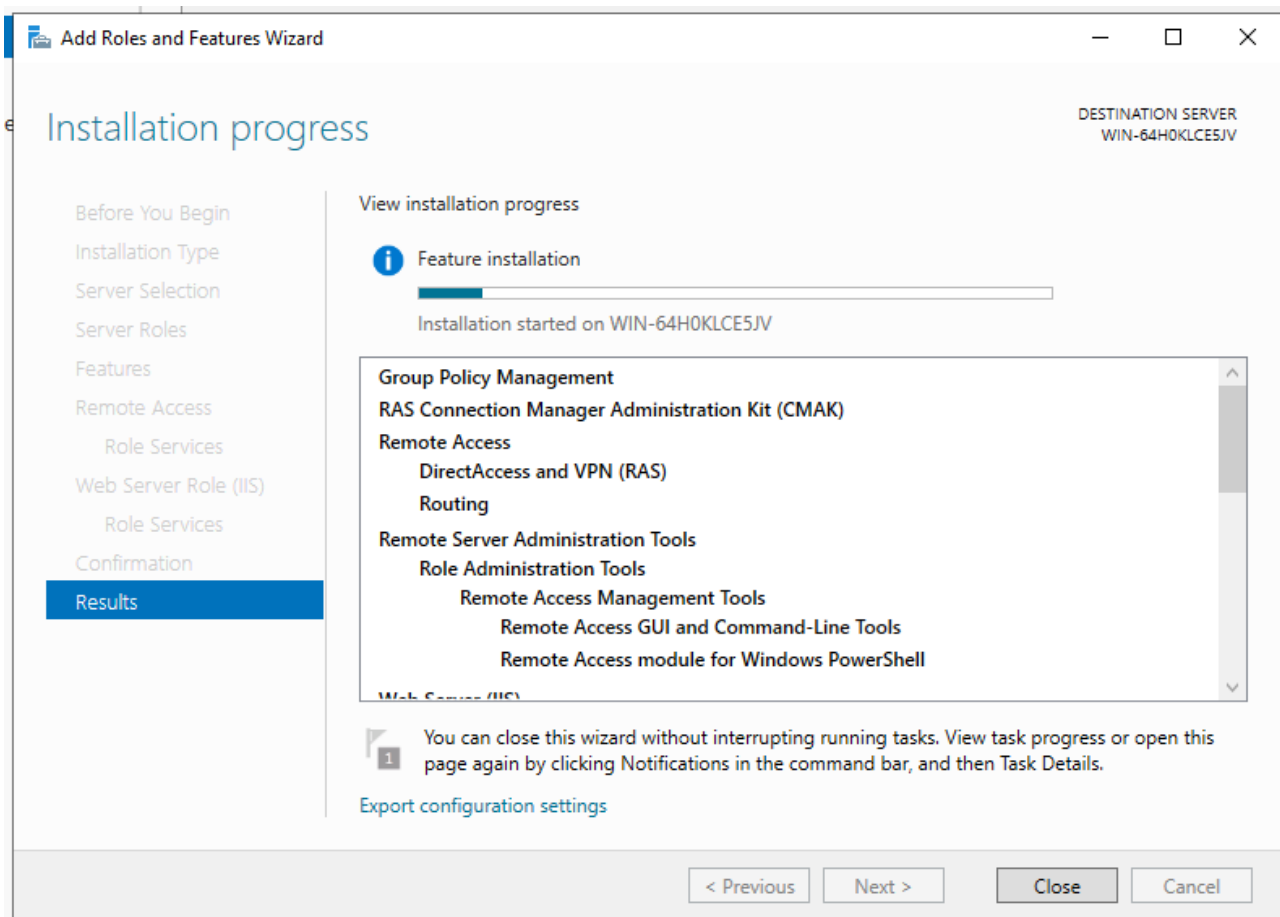


Figure 18: Installing Windows Server Routing & Remote Access

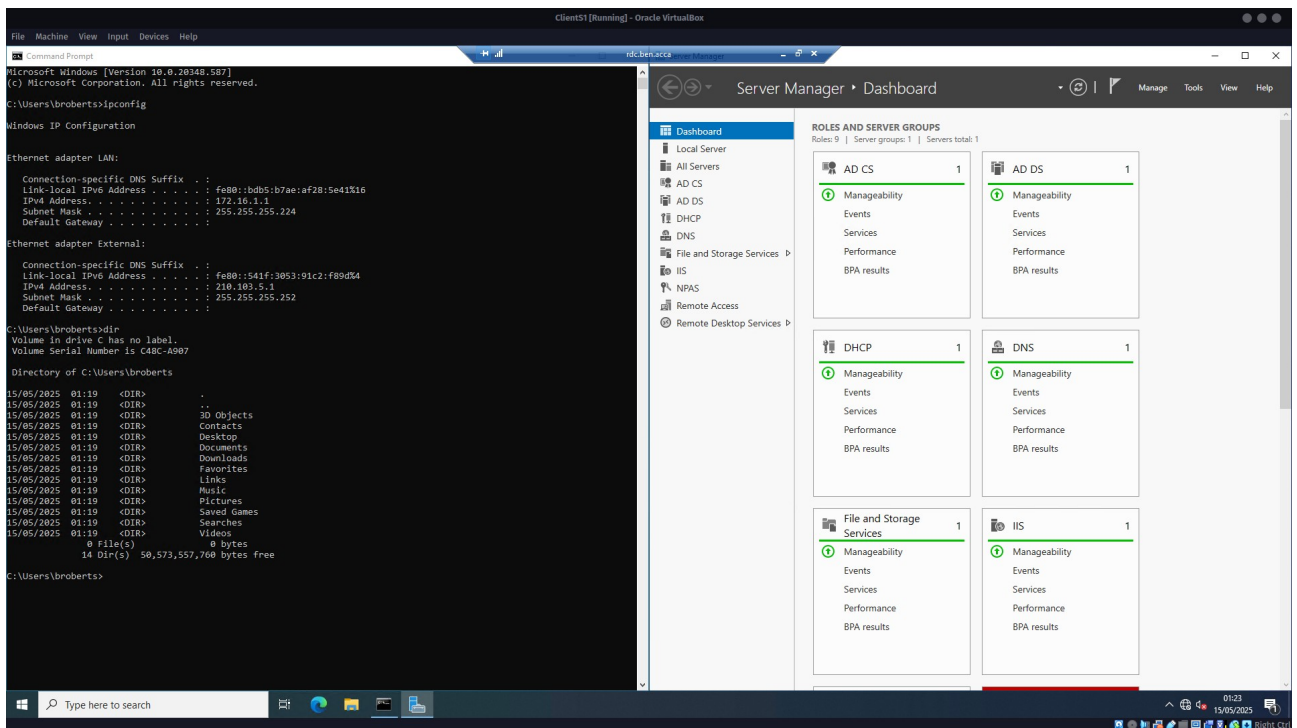


Figure 19: Windows Client accessing host via Remote Desktop Services

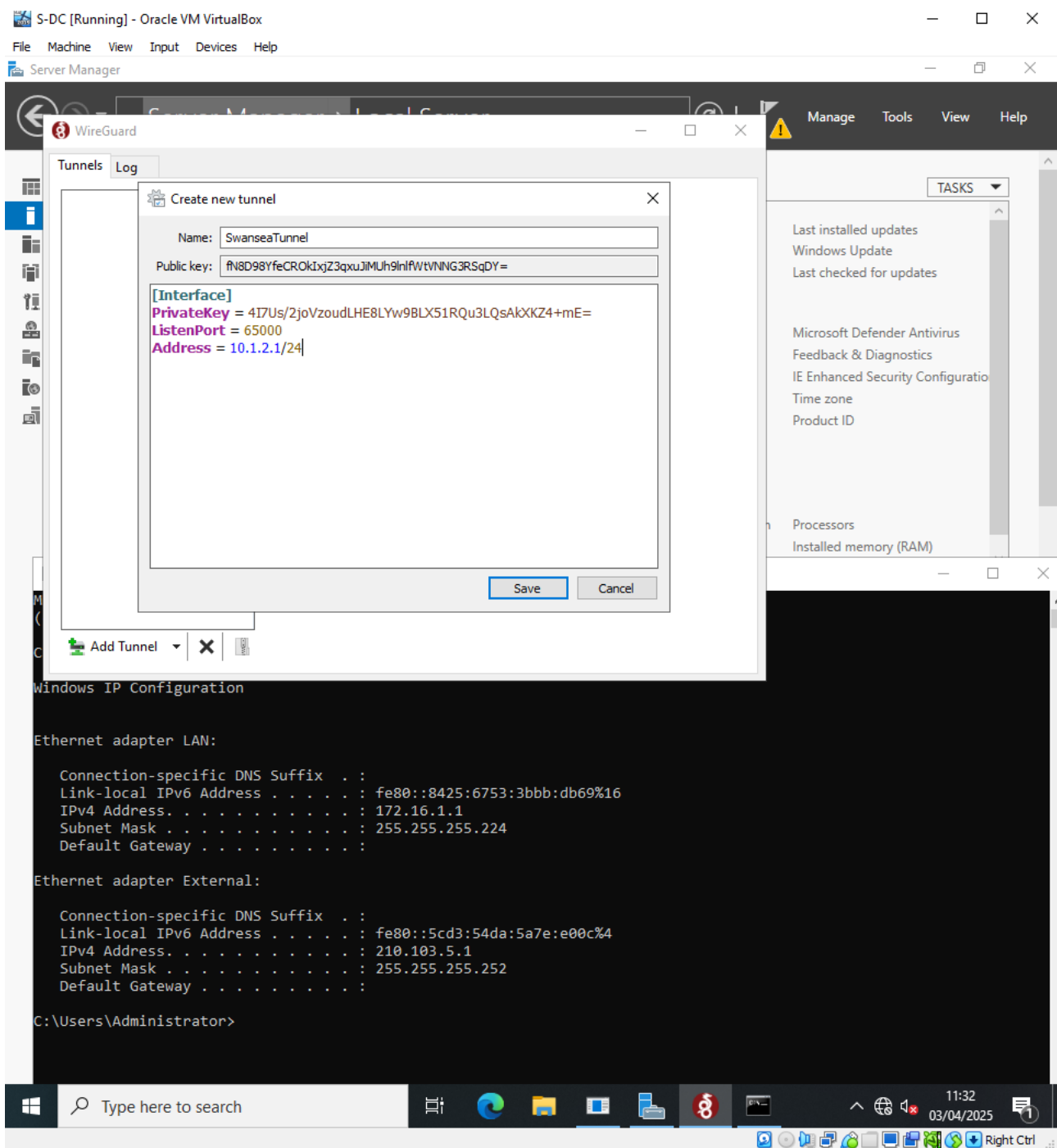


Figure 20: Configuring Wireguard on Windows Server

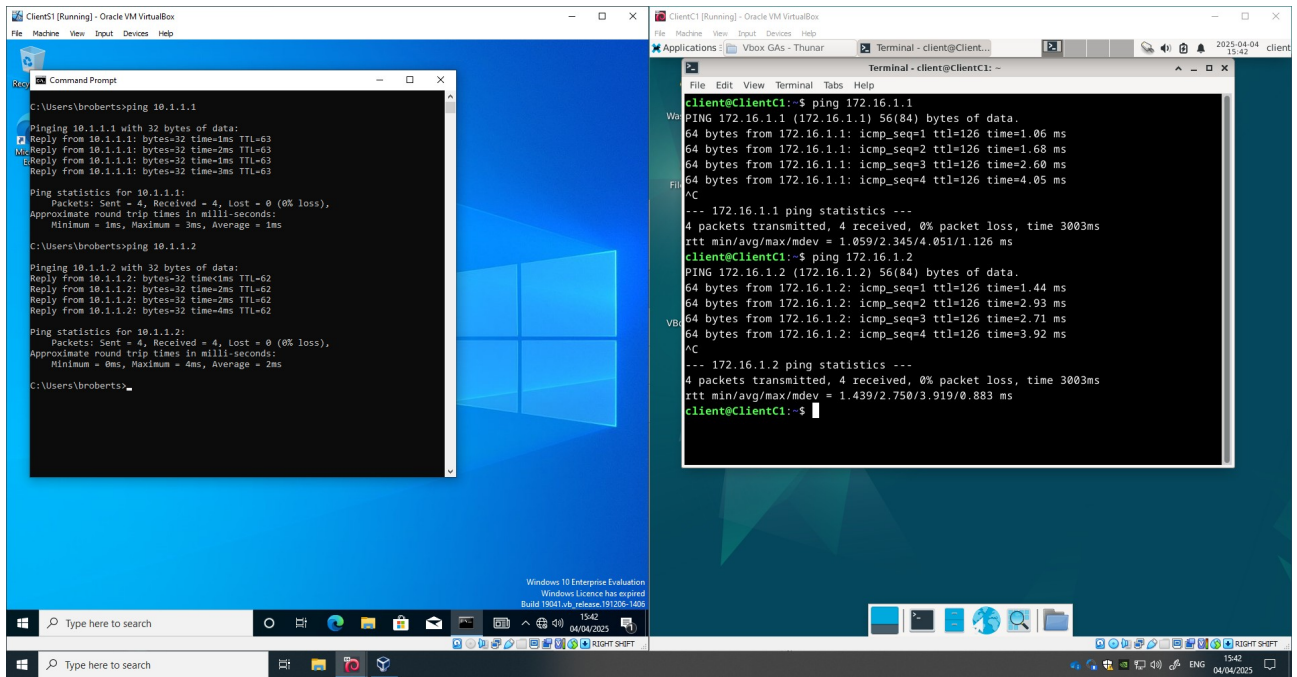


Figure 21: Windows & Debian clients pinging each other via Wireguard VPN

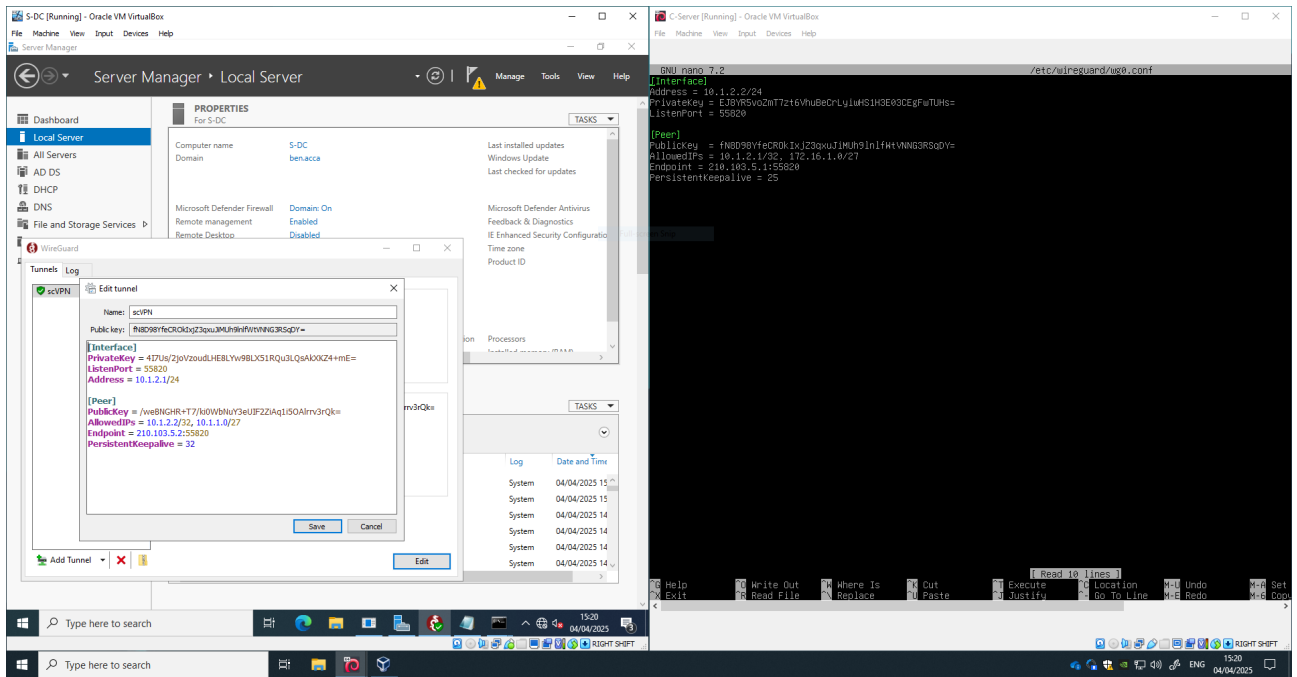


Figure 22: Both completed Wireguard configuration files