# Implementing and Troubleshooting an IPv4 Network

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MSSA Cohort #2

Lab Summary 1B

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# Implementing and Troubleshooting an IPv4 Network

In the previous assignment, the administrators have planned how the implementation of the IPv4 network is going to be in each branch office in Houston, Mexico City, and Portland. From Domain Controller in London, IP address 172.16.18.0 /18 has been assigned to Toronto regional office, which is the head office in the North America region. The regional office is using /24 subnets for their connections so that other branch offices should have the /24 subnets because they are connected with private connections.

Implementing the IPv4 network is the next task so that from the European region could access servers in the North American region. The scenario is that the networking is already established successfully between the London headquarters and the Toronto regional office. The admin should verify how the IPv4 traffic looks like.

PowerShell is a great tool to use to test the connections. There are two command prompts used in this lab: Test-NetConnection and Test-NetConnection -TraceRoute. The first command prompt is to test a ping, TCP, route tracing, and route selection. To have successful connectivity between two sites, the session for PingSucceeded should have a result of true. The second command prompt is to have a record of hops from a starting computer to a destination computer.

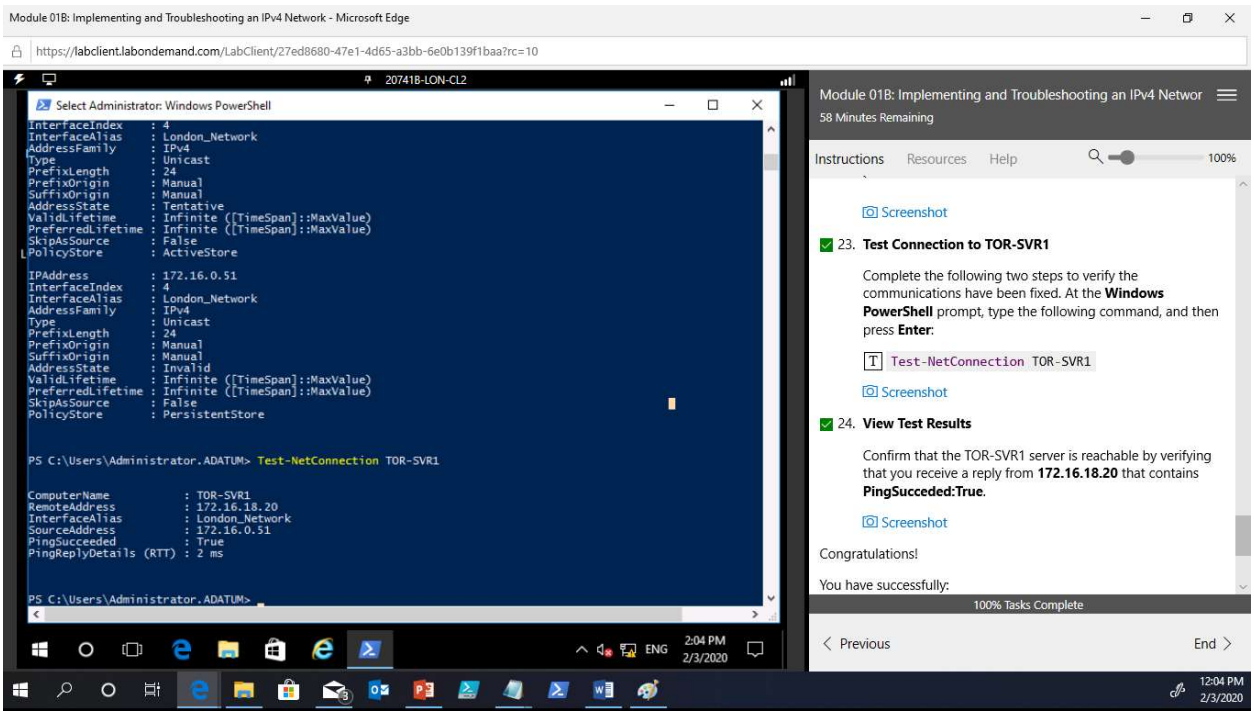
Once the networking between the two sites is verified with these command prompts, the admin should troubleshoot any issues that arise between the clients and another server in Toronto. There are two client systems: LON-CL1 and LON-CL2. The admin copies and pastes a file from Domain Controller in London to the client computers. Since it is a new circuit, they want to see if these would create any issues.

On LON-CL1, the net connection test has performed with the result of false in PingSucceded, which means that ICMP Ping has been forbidden on a remote server. The client is

getting the IPv4 address with DHCP and does not have the address because it starts with 169.254.x.x. The new IP address is assigned to the client with 172.16.0.50 as a source address. The London headquarters have a Class B subnet so that by assigning the IP address, the client should be able to receive replies from 172.16.18.20.

For LON-CL2, it is getting a reply from Domain Controller in London with 172.16.0.10. The source address is 172.16.0.51, which receives a ping from the headquarters. The client, however, could not communicate with the server in Toronto because DestinationHostUnreachable status is shown on the screen. The default gateway is set up incorrectly with the wrong IP address because when doing traceroute, the packets could not leave the source address, which means could not make any hops.

The last step is to test the connection with the Toronto regional office network with the command prompt, Test-NetConnection TOR-SVR1. The source address should be changed from .52 to .51, having PingedSucceded: True. Overall, troubleshooting the network is to ping the destination network and fix any errors in the IP addresses. This lab helped read the results on the screen and the way to fix the errors.


Module 01B: Implementing and Troubleshooting an IPv4 Network - Microsoft Edge
https://labclient.labondemand.com/LabClient/27ed8680-47e1-4d65-a3bb-6e0b139f1baa?rc=10
20741B-LON-CL2
Select Administrator: Windows PowerShell
InterfaceIndex : 4
InterfaceAlias : London_Network
AddressFamily : IPv4
Type : Unicast
PrefixLength : 24
PrefixOrigin : Manual
SuffixOrigin : Manual
AddressState : Tentative
ValidLifetime : Infinite ([TimeSpan]::MaxValue)
PreferredLifetime : Infinite ([TimeSpan]::MaxValue)
SkipAsSource : False
PolicyStore : ActiveStore
IPAddress : 172.16.0.51
InterfaceIndex : 4
InterfaceAlias : London_Network
AddressFamily : IPv4
Type : Unicast
PrefixLength : 24
PrefixOrigin : Manual
SuffixOrigin : Manual
AddressState : Invalid
ValidLifetime : Infinite ([TimeSpan]::MaxValue)
PreferredLifetime : Infinite ([TimeSpan]::MaxValue)
SkipAsSource : False
PolicyStore : PersistentStore
PS C:\Users\Administrator.ADATUM> Test-NetConnection TOR-SVR1
ComputerName : TOR-SVR1
RemoteAddress : 172.16.18.20
InterfaceAlias : London_Network
SourceAddress : 172.16.0.51
PingSucceeded : True
PingReplyDetails (RTT) : 2 ms
PS C:\Users\Administrator.ADATUM>
ENG
2:04 PM
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Module 01B: Implementing and Troubleshooting an IPv4 Networ
58 Minutes Remaining
Instructions
Resources
Help
100%
Screenshot
23. Test Connection to TOR-SVR1
Complete the following two steps to verify the communications have been fixed. At the Windows PowerShell prompt, type the following command, and then press Enter:
Test-NetConnection TOR-SVR1
Screenshot
24. View Test Results
Confirm that the TOR-SVR1 server is reachable by verifying that you receive a reply from 172.16.18.20 that contains PingSucceeded:True.
Screenshot
Congratulations!
You have successfully:
100% Tasks Complete
Previous
End
12:04 PM
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