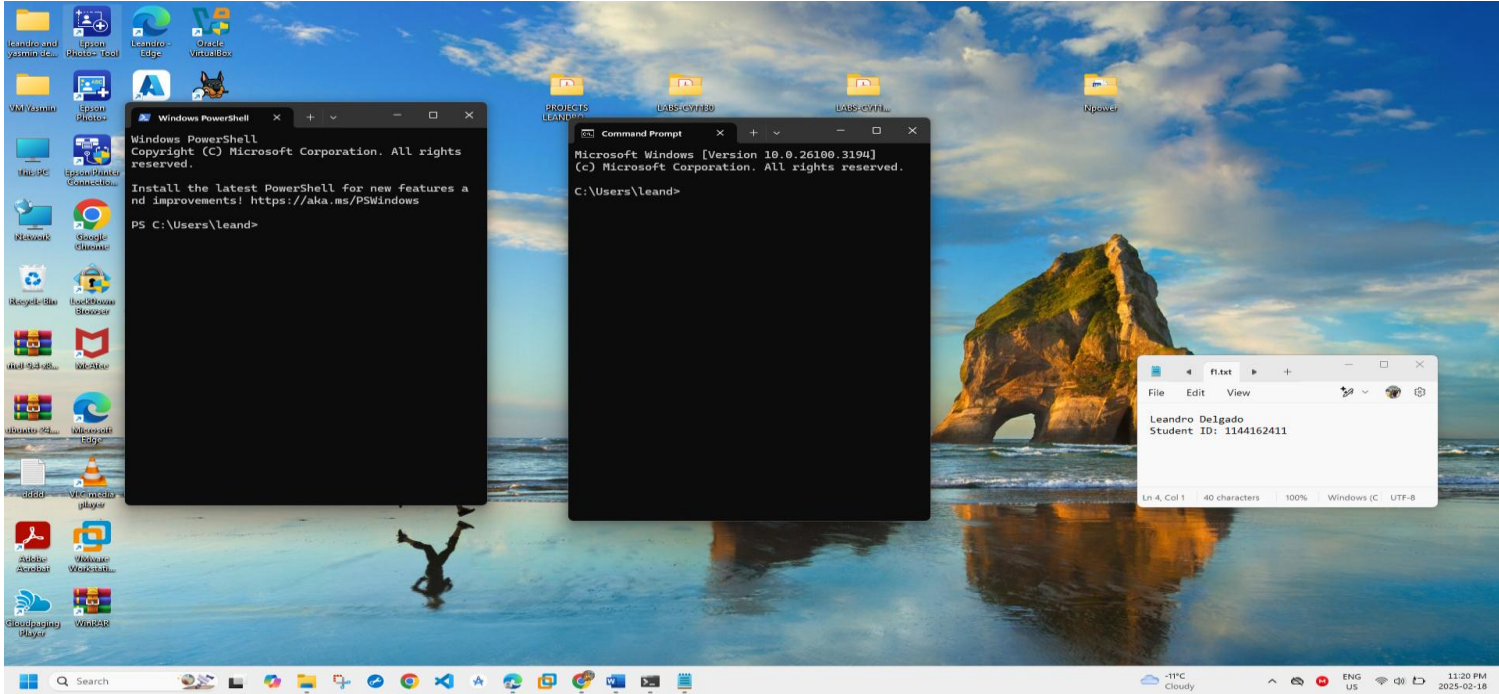


Put Student Name(s) ↓	Put Student IDs ↓	Due Date	Grade Weight
Leandro Delgado	114416241	As Posted	6%

Name	Lab5: PoisonedCredentials Network Forensics Challenge
Instructions	<ul style="list-style-type: none"> <li>It is an Individual assignment. Put your name + Student ID in the empty spaces above.</li> <li>Submit via the BB relevant link ONLY. NO submission via email please. Be sure to submit the final version file ONLY.</li> <li>Show your genuine signs of your work is done on your machine. This includes: <ul style="list-style-type: none"> <li>Screenshots that show your desktop background with Date/Time.</li> <li>Show a pop-up bx that shows "your name + IP".</li> <li>Show your logged account when applicable. Optional: Your photo.</li> </ul> </li> <li>Submit your report name: <b>CYT215-Lab5-Student Name &amp; ID</b></li> </ul>
Challenge Scenario	<p>Your organization's security team has detected a surge in suspicious network activity. There are concerns that LLMNR (Link-Local Multicast Name Resolution) and NBT-NS (NetBIOS Name Service) poisoning attacks may be occurring within your network. These attacks are known for exploiting these protocols to intercept network traffic and potentially compromise user credentials. Your task is to investigate the network logs and examine captured network traffic.</p>
	 <p>The screenshot displays a Windows 10 desktop environment. The desktop background is a scenic image of a rocky coastline with a person diving into the water. Several icons are visible on the left side of the desktop, including folders for 'Leandro and yasminda...', 'VM's folder', and 'Google Chrome'. Two windows are open: a 'Windows PowerShell' window showing the command 'PS C:\Users\Leand&gt;' and a 'Command Prompt' window showing the command 'C:\Users\Leand&gt;'. A third window, 'f1.txt', is open in the bottom right corner, displaying the text 'Leandro Delgado' and 'Student ID: 114416241'. The taskbar at the bottom shows the Start button, a search bar, and several pinned applications. The system tray in the bottom right corner indicates the date and time as '11:20 PM 2025-02-18'.</p>

Challenge Questions To be Answered

1. In the context of the incident described in the scenario, the attacker initiated their actions by taking advantage of benign network traffic from legitimate machines. Can you identify the specific mistyped query made by the machine with the IP address 192.168.232.162?

CyberDefenders: Blue team CTF Challenges | PoisonedCredentials

https://cyberdefenders.org/proyard/start/146/poisonedcredentials/

New tab | iBienvenido a Faceb... | lucidpress.com | Dell | Nueva pestaña | Nueva carpeta

00:33:11 | Extend Time | PoisonedCredentials | Help ? | Full Screen | Instructions & Questions

Tools - Thunar | Wireshark

PoisonedCredentials.pcap

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

Filter: |lmnr and ip.src == 192.168.232.162

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	192.168.232.162	192.168.232.148	TCP	66	51874 → 445 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 WS=256 SACK PERM
2	0.000238	192.168.232.148	192.168.232.162	TCP	66	445 → 51874 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=1460 WS=256 SACK PERM
3	0.000382	192.168.232.162	192.168.232.148	TCP	60	51874 → 445 [ACK] Seq=1 Ack=1 Win=2102272 Len=0
4	0.000486	192.168.232.162	192.168.232.148	SMB	127	Negotiate Protocol Request
5	0.000983	192.168.232.148	192.168.232.162	SMB2	306	Negotiate Protocol Response
6	0.003196	192.168.232.162	192.168.232.148	SMB2	310	Negotiate Protocol Request
7	0.003753	192.168.232.148	192.168.232.162	SMB2	366	Negotiate Protocol Response
8	0.005024	192.168.232.162	192.168.232.148	TCP	1514	51874 → 445 [ACK] Seq=330 Ack=565 Win=2101760 Len=1460 [TCP segment of a reassembled PDU]
9	0.005032	192.168.232.162	192.168.232.148	TCP	1514	51874 → 445 [ACK] Seq=1790 Ack=565 Win=2101760 Len=1460 [TCP segment of a reassembled PDU]
10	0.005117	192.168.232.148	192.168.232.162	TCP	60	[TCP ACKed unseen segment] 445 → 51874 [ACK] Seq=565 Ack=3764 Win=2102272 Len=0
11	0.006592	192.168.232.162	192.168.232.148	SMB2	188	[TCP ACKed unseen segment] [TCP Previous segment not captured] Tree Connect Request Tree: \\DC01.cybercactus.local\IPC\$
12	0.006786	192.168.232.148	192.168.232.162	SMB2	138	[TCP Previous segment not captured] Tree Connect Response
13	0.006904	192.168.232.162	192.168.232.148	SMB2	178	Ioctl Request FSCTL_QUERY_NETWORK_INTERFACE_INFO
14	0.007083	192.168.232.162	192.168.232.148	SMB2	182	Ioctl Request FSCTL_DFS_GET_REFERRALS, File:
15	0.007087	192.168.232.148	192.168.232.162	SMB2	474	Ioctl Response FSCTL_QUERY_NETWORK_INTERFACE_INFO
16	0.007319	192.168.232.148	192.168.232.162	SMB2	278	Ioctl Response FSCTL_DFS_GET_REFERRALS
17	0.007395	192.168.232.162	192.168.232.148	TCP	60	51874 → 445 [ACK] Seq=4150 Ack=1531 Win=2102272 Len=0
18	0.007940	192.168.232.162	192.168.232.148	SMB2	178	Ioctl Request FSCTL_QUERY_NETWORK_INTERFACE_INFO
19	0.007947	192.168.232.148	192.168.232.162	SMB2	474	Ioctl Response FSCTL_QUERY_NETWORK_INTERFACE_INFO
20	4.701862	192.168.232.148	192.168.232.162	TCP	474	[TCP Retransmission] 445 → 51874 [PSH, ACK] Seq=1531 Ack=4274 Win=2101760 Len=420
21	4.701866	192.168.232.162	192.168.232.148	TCP	66	51874 → 445 [ACK] Seq=4274 Ack=1951 Win=0 SLE=1531 SRE=1951

Frame 1: 66 bytes on wire (528 bits), 66 bytes captured (528 bits)  
Ethernet II, Src: VMware\_fa:cb:e9 (00:0c:29:fa:cb:e9), Dst: VMware\_9f:6d:22 (00:0c:29:9f:6d:22)  
Internet Protocol Version 4, Src: 192.168.232.162, Dst: 192.168.232.148  
Transmission Control Protocol, Src Port: 51874, Dst Port: 445, Seq: 0, Len: 0

Packets: 269 - Displayed: 269 (100.0%) | Profile: Default

Leandro Delgado  
Student ID: 1144162411

Ln 4, Col 1 | 40 characters | 100% | Windows (C) | UTF-8

2. We are investigating a network security incident. For a thorough investigation, we need to determine the IP address of the rogue machine. What is the IP address of the machine acting as the rogue entity?

CyberDefenders: Blue team CTF Challenges | PoisonedCredentials

https://cyberdefenders.org/proyard/start/146/poisonedcredentials/

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00:22:25 Extend Time

PoisonedCredentials Help ? Full Screen Instructions & Questions

Tools - Thunar Wireshark EN 2025-02-19 04:54 Ubuntu

PoisonedCredentials.pcap

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

ip.addr == <poisoned IP address>

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	192.168.232.162	192.168.232.148	TCP	66	51874 → 445 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 WS=256 SACK_PERM
2	0.000236	192.168.232.148	192.168.232.162	TCP	66	445 → 51874 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=1460 WS=256 SACK_PERM
3	0.000382	192.168.232.162	192.168.232.148	TCP	60	51874 → 445 [ACK] Seq=1 Ack=1 Win=2102272 Len=0
4	0.000486	192.168.232.162	192.168.232.148	SMB	127	Negotiate Protocol Request
5	0.002983	192.168.232.148	192.168.232.162	SMB	306	Negotiate Protocol Response
6	0.003196	192.168.232.162	192.168.232.148	SMB	310	Negotiate Protocol Request
7	0.003753	192.168.232.148	192.168.232.162	SMB	366	Negotiate Protocol Response
8	0.005024	192.168.232.162	192.168.232.148	TCP	1514	51874 → 445 [ACK] Seq=330 Ack=565 Win=2101760 Len=1460 [TCP segment of a reassembled PDU]
9	0.005032	192.168.232.162	192.168.232.148	TCP	1514	51874 → 445 [ACK] Seq=1790 Ack=565 Win=2101760 Len=1460 [TCP segment of a reassembled PDU]
10	0.005117	192.168.232.148	192.168.232.162	TCP	60	TCP ACKed unseen segment: 445 → 51874 [ACK] Seq=565 Ack=3764 Win=2102272 Len=0
11	0.006592	192.168.232.162	192.168.232.148	SMB	188	TCP ACKed unseen segment: [TCP Previous segment not captured] Tree Connect Request Tree: \\0001.cybercactus.local\IPC\$
12	0.006786	192.168.232.148	192.168.232.162	SMB	138	TCP Previous segment not captured] Tree Connect Response
13	0.006904	192.168.232.162	192.168.232.148	SMB	178	Ioctl Request FSCTL_QUERY_NETWORK_INTERFACE_INFO
14	0.007083	192.168.232.162	192.168.232.148	SMB	182	Ioctl Request FSCTL_DFS_GET_REFERRALS, File:
15	0.007087	192.168.232.148	192.168.232.162			
16	0.007319	192.168.232.148	192.168.232.162			
17	0.007395	192.168.232.148	192.168.232.162			
18	4.670940	192.168.232.148	192.168.232.162			
19	4.671187	192.168.232.148	192.168.232.162			
20	4.701882	192.168.232.148	192.168.232.162			
21	4.701886	192.168.232.148	192.168.232.162			

Wireshark - Packet 11 - PoisonedCredentials.pcap

Frame 11: 188 bytes on wire (1504 bits), 188 bytes captured (1504 bits) on interface 0  
Ethernet II, Src: VMware fa:cb:e9 (00:0c:29:fa:cb:e9), Dst: VMware 9f:6d:22 (00:0c:29:9f:6d:22)  
Internet Protocol Version 4, Src: 192.168.232.162, Dst: 192.168.232.148  
Transmission Control Protocol, Src Port: 51874, Dst Port: 445, Seq: 3764, Ack: 803, Len: 134

Source Port: 51874  
Destination Port: 445  
[Stream index: 0]  
[Conversation completeness: Complete, WITH\_DATA (47)]  
[TCP Segment Len: 134]  
Sequence Number: 3764 (relative sequence number)  
Sequence Number (raw): 3750345386  
[Next Sequence Number: 3898 (relative sequence number)]  
Acknowledgment Number: 803 (relative ack number)  
Acknowledgment number (raw): 1046941302  
0101 ..... = Header Length: 20 bytes (5)  
Flags: 0x018 (PSH, ACK)

0000 00 0c 29 9f 6d 22 00 0c 29 fa cb e9 00 00 45 00 --) m\*... ).....E  
0010 00 ae 07 c0 40 00 00 06 a0 01 c0 a8 e8 a2 c0 a8 .....@.....  
0020 e8 94 ca a2 01 bd df 89 ba aa 3e 67 0e 76 50 18 .....>g vP  
0030 20 11 2a 58 00 00 00 00 00 82 fe 53 4d 42 40 00 --X.....SMB  
0040 01 00 00 00 00 00 03 00 01 00 18 00 00 00 00 00 .....  
0050 00 00 03 00 00 00 00 00 00 00 ff fe 00 00 00 00 .....  
0060 00 00 41 00 00 0c 00 5c 00 00 7f 8f 1a 37 95 d1 --A.....7..  
0070 a1 ae 07 ab 77 fe f3 4c 5f 22 00 00 00 00 48 00 --w..L.....H..  
0080 3a 00 5c 00 5c 00 44 00 43 00 30 00 31 00 2e 00 :\\ \ D C 0 1 .  
0090 63 00 79 00 62 00 65 00 72 00 63 00 61 00 63 00 : y b e r c a c .  
00a0 74 00 75 00 73 00 2e 00 6c 00 6f 00 63 00 61 00 t u s . . l o c a .  
00b0 6c 00 5c 00 49 00 50 00 43 00 24 00 ..... l \ I P C \$ .

File Edit View

Leandro Delgado  
Student ID: 1144162411

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Search

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ENG US

11:54 PM  
2025-02-18



3. During our investigation, it's crucial to identify all affected machines. What is the IP address of the second machine that received poisoned responses from the rogue machine?

CyberDefenders: Blue team CTF Challenges | PoisonedCredentials

https://cyberdefenders.org/proyard/start/146/poisonedcredentials/

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00:22:25 Extend Time

PoisonedCredentials Help ? Full Screen Instructions & Questions

Tools - Thunar Wireshark

PoisonedCredentials.pcap

File Edit View Go Capture Analyze Statistics Telephony Wireless Tools Help

ip.addr == <poisoned IP address>

No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000	192.168.232.162	192.168.232.148	TCP	66	51874 → 445 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 WS=256 SACK_PERM
2	0.000238	192.168.232.148	192.168.232.162	TCP	66	445 → 51874 [SYN, ACK] Seq=0 Ack=1 Win=65535 Len=0 MSS=1460 WS=256 SACK_PERM
3	0.000382	192.168.232.162	192.168.232.148	TCP	60	51874 → 445 [ACK] Seq=1 Ack=1 Win=2102272 Len=0
4	0.000486	192.168.232.162	192.168.232.148	SMB	127	Negotiate Protocol Request
5	0.000983	192.168.232.148	192.168.232.162	SMB2	306	Negotiate Protocol Response
6	0.003196	192.168.232.162	192.168.232.148	SMB2	310	Negotiate Protocol Request
7	0.003753	192.168.232.148	192.168.232.162	SMB2	366	Negotiate Protocol Response
8	0.005024	192.168.232.162	192.168.232.148	TCP	1514	51874 → 445 [ACK] Seq=330 Ack=565 Win=2101760 Len=1460 [TCP segment of a reassembled PDU]
9	0.005032	192.168.232.162	192.168.232.148	TCP	1514	51874 → 445 [ACK] Seq=1790 Ack=565 Win=2101760 Len=1460 [TCP segment of a reassembled PDU]
10	0.005117	192.168.232.148	192.168.232.162	TCP	60	[TCP ACKed unseen segment] 445 → 51874 [ACK] Seq=565 Ack=3764 Win=2102272 Len=0
11	0.006592	192.168.232.162	192.168.232.148	SMB2	188	[TCP ACKed unseen segment] [TCP Previous segment not captured] Tree Connect Request Tree: \\DC01.cybercactus.local\IPC\$
12	0.006786	192.168.232.148	192.168.232.162	SMB2	138	[TCP Previous segment not captured] Tree Connect Response
13	0.006904	192.168.232.162	192.168.232.148	SMB2	178	Ioctl Request FSCTL_QUERY_NETWORK_INTERFACE_INFO
14	0.007083	192.168.232.162	192.168.232.148	SMB2	182	Ioctl Request FSCTL_DFS_GET_REFERALS. File:
15	0.007087	192.168.232.162	192.168.232.148	SMB2	182	Ioctl Request FSCTL_DFS_GET_REFERALS. File:
16	0.007319	192.168.232.162	192.168.232.148	SMB2	182	Ioctl Request FSCTL_DFS_GET_REFERALS. File:
17	0.007395	192.168.232.162	192.168.232.148	SMB2	182	Ioctl Request FSCTL_DFS_GET_REFERALS. File:
18	4.670940	192.168.232.162	192.168.232.148	SMB2	182	Ioctl Request FSCTL_DFS_GET_REFERALS. File:
19	4.671187	192.168.232.162	192.168.232.148	SMB2	182	Ioctl Request FSCTL_DFS_GET_REFERALS. File:
20	4.701862	192.168.232.162	192.168.232.148	SMB2	182	Ioctl Request FSCTL_DFS_GET_REFERALS. File:
21	4.701886	192.168.232.162	192.168.232.148	SMB2	182	Ioctl Request FSCTL_DFS_GET_REFERALS. File:

Wireshark - Packet 11 - PoisonedCredentials.pcap

Frame 11: 188 bytes on wire (1504 bits), 188 bytes captured (1504 bits) on interface 0  
Ethernet II, Src: VMware fa:cb:e9 (00:0c:29:fa:cb:e9), Dst: VMware 9f:6d:22 (00:0c:29:9f:6d:22)  
Internet Protocol Version 4, Src: 192.168.232.162, Dst: 192.168.232.148  
Transmission Control Protocol, Src Port: 51874, Dst Port: 445, Seq: 3764, Ack: 803, Len: 134

Source Port: 51874  
Destination Port: 445  
[Stream index: 0]  
[Conversation completeness: Complete, WITH DATA (47)]  
[TCP Segment Len: 134]  
Sequence Number: 3764 (relative sequence number)  
Sequence Number (raw): 3750345386  
[Next Sequence Number: 3898 (relative sequence number)]  
Acknowledgment Number: 803 (relative ack number)  
Acknowledgment number (raw): 1046941302  
0101 .... = Header Length: 20 bytes (5)  
Flags: 0x018 (PSH, ACK)  
0000 00 0c 29 9f 6d 22 00 0c 29 fa cb e9 08 00 45 00 ...m"...).....E  
0010 00 ae 07 c0 40 00 00 06 a0 01 c0 a8 e8 a2 c0 a8 ....@.....  
0020 e8 94 ca a2 01 bd df 09 ba aa 3e 67 0e 76 50 18 ....>g vP  
0030 20 11 2a 58 00 00 00 00 00 82 fe 53 4d 42 40 00 \*X.....SMB  
0040 00 00 00 00 00 03 00 01 00 18 00 00 00 00 00 .....  
0050 00 00 03 00 00 00 00 00 00 00 ff fe 00 00 00 00 .....  
0060 00 00 41 00 00 0c 00 0c 00 00 f7 8f 1a 37 95 d1 ..A...7..  
0070 a1 ae d7 ab 77 f6 f3 4c 5f 22 09 00 00 00 48 00 ....w.L".....H  
0080 3a 00 5c 00 5c 00 44 00 43 00 30 00 31 00 2e 00 :\\.\D.C.0.1..  
0090 63 00 79 00 62 00 65 00 72 00 63 00 61 00 63 00 c y b e r c a c t u s . l o c a l  
00a0 74 00 75 00 73 00 2e 00 6c 00 6f 00 63 00 61 00 t u s : l o c a l  
00b0 6c 00 5c 00 49 00 50 00 43 00 24 00

File Edit View

Leandro Delgado  
Student ID: 1144162411

Ln 4, Col 1 40 characters 100% Windows (C) UTF-8

Search

-12°C Cloudy

ENG US

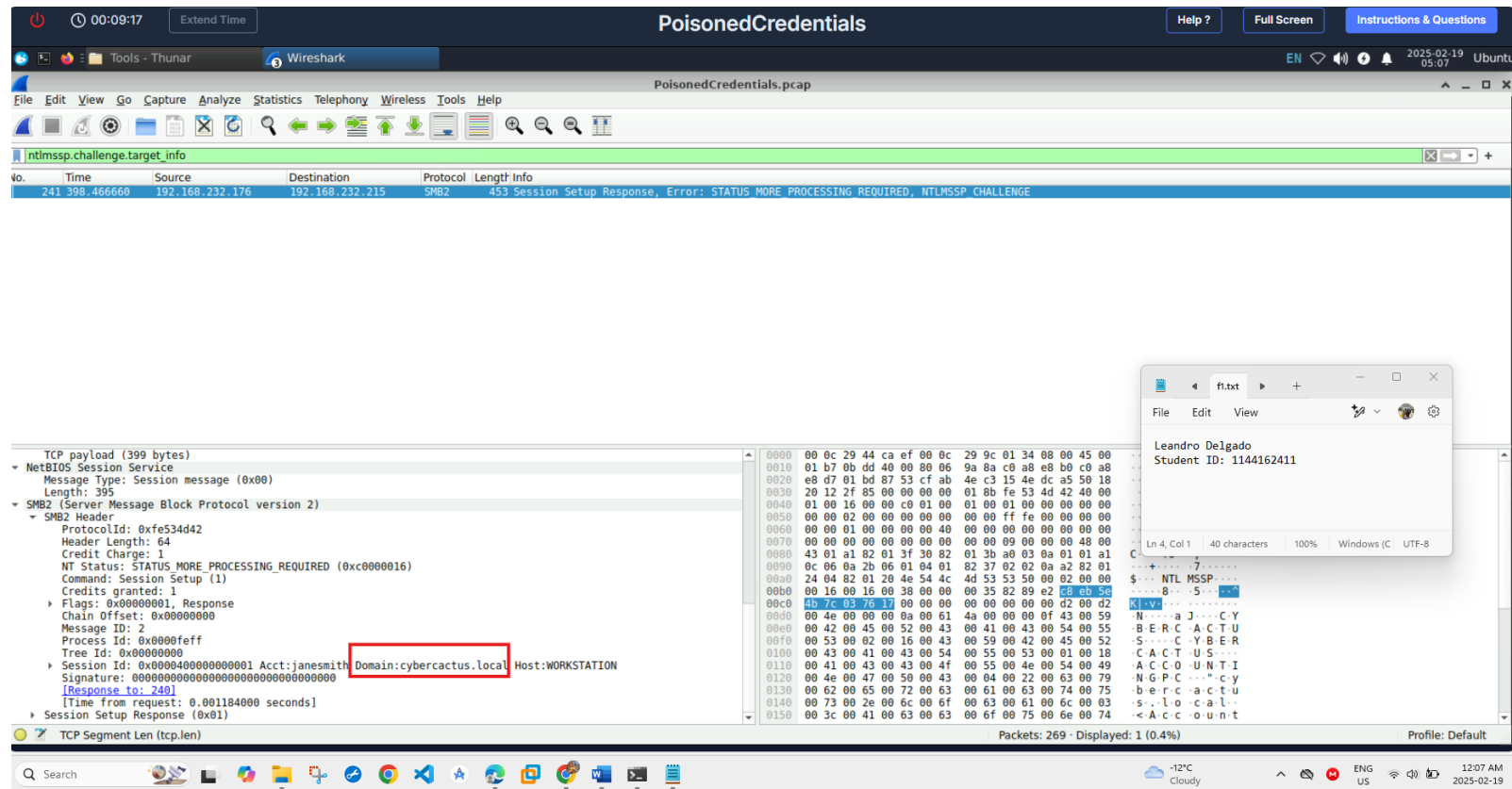
11:54 PM 2025-02-18

4. We suspect that user accounts may have been compromised. To assess this, we must determine the username associated with the compromised account. What is the username of the account that the attacker compromised?

The image shows a Wireshark network capture titled "PoisonedCredentials.pcap". The main display area shows a list of packets, with packet 242 selected. The packet details pane on the left shows the structure of the selected packet, including the Ethernet II header, Internet Protocol Version 4 header, and Transmission Control Protocol header. The packet bytes pane on the right shows the raw data of the packet, with the NTLMSSP authentication request structure visible. The authentication request contains the username "User: cybercactus.local" and the password "janesmith". A small text editor window titled "ft.txt" is open in the foreground, displaying the text "Leandro Delgado" and "Student ID: 1144162411".

Wireshark interface showing a capture of an NTLMSSP authentication request. The packet list shows a packet from 192.168.232.215 to 192.168.232.176, identified as "User: cybercactus.local" and "janesmith". The packet details pane shows the structure of the NTLMSSP authentication request, including the Session Setup Request, NTLMSSP AUTH, and the username/password fields. The packet bytes pane shows the raw data of the packet, with the NTLMSSP authentication request structure visible. A small text editor window titled "ft.txt" is open in the foreground, displaying the text "Leandro Delgado" and "Student ID: 1144162411".

5. As part of our investigation, we aim to understand the extent of the attacker's activities. What is the hostname of the machine that the attacker accessed via SMB?



### Summary:

The workshop gave an excellent opportunity to practice the detection of LLMNR and NBT-NS poisoning attacks with the aid of Wireshark. I learned how attackers use network queries for the interception of credentials and taught me how to use packet analysis to identify rogue machines. The tracking of mistyped queries, compromised user accounts, and unauthorized SMB access incidents served to bolster investigative techniques. The challenge gave further weight to the need to disable vulnerable protocols, secure logs, and adhere to forensic best practices. With this, the most pertinent thing learned from this training was honing my network forensics skill set and gaining insight into credential theft attacks in the real world.

Students Work required for this activity	<ul style="list-style-type: none"><li>• Go to the challenge <a href="https://cyberdefenders.org/blueteam-ctf-challenges/146#nav-overview">https://cyberdefenders.org/blueteam-ctf-challenges/146#nav-overview</a></li><li>• Create an account and Login.</li><li>• Download the Challenge (Attached also hereby). Uncompress the challenge (pass: cyberdefenders.org)</li><li>• Answer the 5 challenge questions.</li><li>• Tool Used: <a href="#">Wireshark</a>.</li><li>• Show complete screenshots of all your work.</li></ul>
Grading Alerts	<ul style="list-style-type: none"><li>• Use the provided template</li><li>• Show your account real name</li><li>• Show your machine desktop background (with date &amp; time) for all the screenshots</li></ul> Write in your own words and do not copy from other resources