RWANDA POLYTECHNIC

MUSANZE COLLEGE

DEPARTMENT: ICT

PROGRAM: INFORMATION TECHNOLOGY

RQF LEVEL: 8

MODULE: CYBERSECURITY

Academic: 2024-2025

ASSISSGNMENT 2

Date: 2/04/2025

Name: NIYIGABA Claude

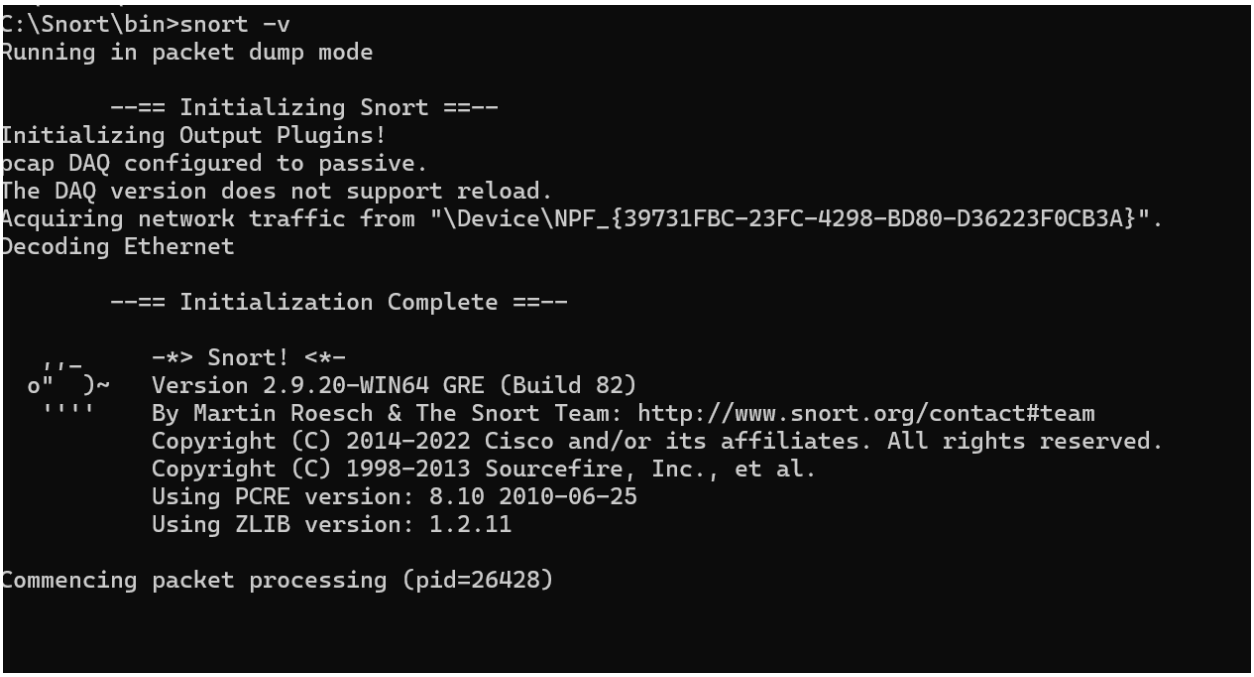
Reg No: 24RP14647

Assignment 2

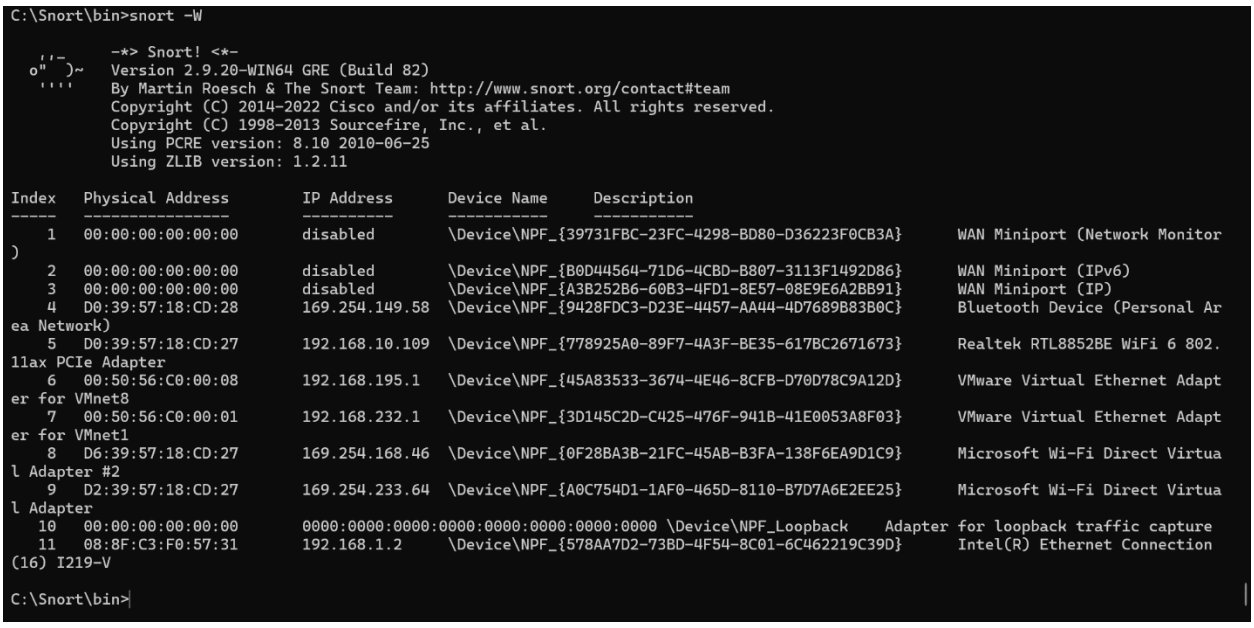
Q. In summary, with examples of screenshots from snort and RBAC/window server, describe the best practices measures to implement for protection of information.

I. with examples of screenshots from snort

1. Snort –v



2. Cmd snort/bin > snort -W / show interfaces



3. Snort -I 4 -c c:\snort\etc\snort.conf -T for checking error

```
MaxRss at the end of rules:615907472

[ Port Based Pattern Matching Memory ]
+- [ Aho-Corasick Summary ] ------------------------------------
| Storage Format    : Full-Q
| Finite Automaton  : DFA
| Alphabet Size     : 256 Chars
| Sizeof State      : Variable (1,2,4 bytes)
| Instances         : 225
|     1 byte states : 212
|     2 byte states : 11
|     4 byte states : 2
| Characters        : 226099
| States            : 179269
| Transitions       : 31396069
| State Density     : 68.4%
| Patterns          : 10652
| Match States      : 10948
| Memory (MB)       : 160.31
|   Patterns        : 1.24
|   Match Lists     : 2.82
|   DFA
|     1 byte states : 1.24
|     2 byte states : 18.60
|     4 byte states : 136.03
+--------------------------------------------------------------
[ Number of patterns truncated to 20 bytes: 618 ]

MaxRss at the end of detection rules:615907472
```

```
MaxRss at the end of detection rules:615907472
pcap DAQ configured to passive.
The DAQ version does not support reload.
Acquiring network traffic from "\Device\NPF_{778925A0-89F7-4A3F-BE35-617BC2671673}".

       --== Initialization Complete ==--

   ,,_     -*> Snort! <*-
  o"  )~   Version 2.9.20-WIN64 GRE (Build 82)
   ''''    By Martin Roesch & The Snort Team: http://www.snort.org/contact#team
           Copyright (C) 2014-2022 Cisco and/or its affiliates. All rights reserved.
           Copyright (C) 1998-2013 Sourcefire, Inc., et al.
           Using PCRE version: 8.10 2010-06-25
           Using ZLIB version: 1.2.11

           Rules Engine: SF_SNORT_DETECTION_ENGINE  Version 3.2  <Build 1>
           Preprocessor Object: SF_SSLPP  Version 1.1  <Build 4>
           Preprocessor Object: SF_SSH  Version 1.1  <Build 3>
           Preprocessor Object: SF_SMTP  Version 1.1  <Build 9>
           Preprocessor Object: SF_SIP  Version 1.1  <Build 1>
           Preprocessor Object: SF_SDF  Version 1.1  <Build 1>
           Preprocessor Object: SF_REPUTATION  Version 1.1  <Build 1>
           Preprocessor Object: SF_POP  Version 1.0  <Build 1>
           Preprocessor Object: SF_MODBUS  Version 1.1  <Build 1>
           Preprocessor Object: SF_IMAP  Version 1.0  <Build 1>
           Preprocessor Object: SF_GTP  Version 1.1  <Build 1>
           Preprocessor Object: SF_FTPTELNET  Version 1.2  <Build 13>
           Preprocessor Object: SF_DNS  Version 1.1  <Build 4>
           Preprocessor Object: SF_DNP3  Version 1.1  <Build 1>
           Preprocessor Object: SF_DCERPC2  Version 1.0  <Build 3>

Total snort Fixed Memory Cost - MaxRss:1744646816
Snort successfully validated the configuration!
```

4. Checking white.list and black.list are exit

backdoor.rules	4/16/2024 1
bad-traffic.rules	4/16/2024 1
black.list	3/17/2025 1
blacklist.rules	3/17/2025 1

5. Create Local.rules file for protection

```
# In order to determine what rules are VRT Certified Rules or GPL Rules, please refer
# to the VRT Certified Rules License Agreement (v2.0).
#
#-------------
# LOCAL RULES
#-------------

Alert icmp  any any -> any any (msg:"testing ICMP alert"; sid:1000001;)
Alert udp  any any -> any any (msg:"testing udp alert"; sid:1000002;)
Alert tcp any any -> any any (msg:"testing tcp alert"; sid:1000003;)

```

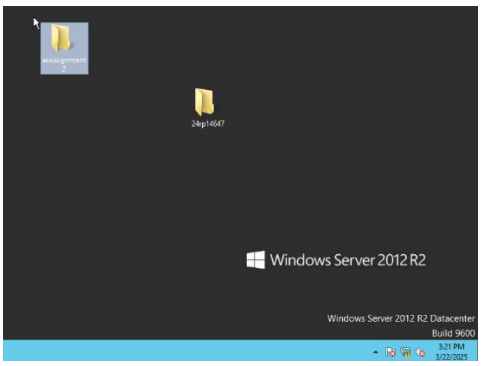
6. Snort -i 4 -c c:\snort\etc\snort.conf -A console for checking service

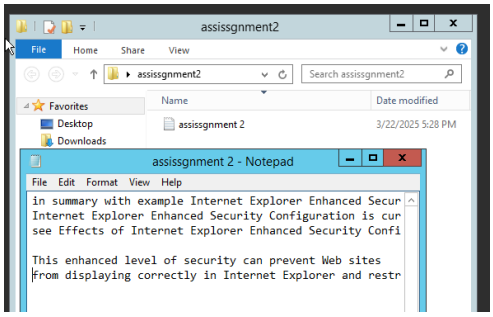
```
03/22-15:13:56.491931  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 172.217.170.163:443 -> 192.168.10.109:6300
9
03/22-15:13:56.567361  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 172.217.170.163:443 -> 192.168.10.109:6300
5
03/22-15:13:57.395913  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.109:63012 -> 192.168.10.1:53
03/22-15:13:57.398403  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.1:53 -> 192.168.10.109:63012
03/22-15:13:57.398497  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.109:63012 -> 192.168.10.1:53
03/22-15:13:57.398629  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.109:63012 -> 192.168.10.1:53
03/22-15:13:57.398676  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.109:63012 -> 192.168.10.1:53
03/22-15:13:57.401039  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.1:53 -> 192.168.10.109:63012
03/22-15:13:57.401039  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.1:53 -> 192.168.10.109:63012
03/22-15:13:57.409431  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.1:53 -> 192.168.10.109:63012
03/22-15:13:57.409868  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.109:63013 -> 192.168.10.1:53
03/22-15:13:57.410024  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.109:63014 -> 192.168.10.1:53
03/22-15:13:57.411998  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.1:53 -> 192.168.10.109:63013
03/22-15:13:57.412034  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.109:63013 -> 192.168.10.1:53
03/22-15:13:57.412207  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.109:63013 -> 192.168.10.1:53
03/22-15:13:57.412250  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.109:63013 -> 192.168.10.1:53
03/22-15:13:57.415234  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.1:53 -> 192.168.10.109:63014
03/22-15:13:57.415322  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.109:63014 -> 192.168.10.1:53
03/22-15:13:57.415489  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.109:63014 -> 192.168.10.1:53
03/22-15:13:57.415551  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.109:63014 -> 192.168.10.1:53
03/22-15:13:57.418755  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.1:53 -> 192.168.10.109:63013
03/22-15:13:57.418979  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.1:53 -> 192.168.10.109:63013
03/22-15:13:57.418979  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.1:53 -> 192.168.10.109:63014
03/22-15:13:57.418979  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.1:53 -> 192.168.10.109:63014
03/22-15:13:57.428639  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.1:53 -> 192.168.10.109:63014
03/22-15:13:57.454779  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 172.161.47.103:443 -> 192.168.10.109:54628
03/22-15:13:57.455532  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.109:54628 -> 172.161.47.103:443
03/22-15:13:57.457381  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.109:63012 -> 192.168.10.1:53
03/22-15:13:57.477489  [**] [1:1000003:0] ΓÇ¥testing tcp alertΓÇ¥ [**] [Priority: 0] {TCP} 192.168.10.109:63014 -> 192.168.10.1:53
```

I. RBAC/window server, describe the best practices measures to implement for protection of information.

1. Create a folder and create file use to protect

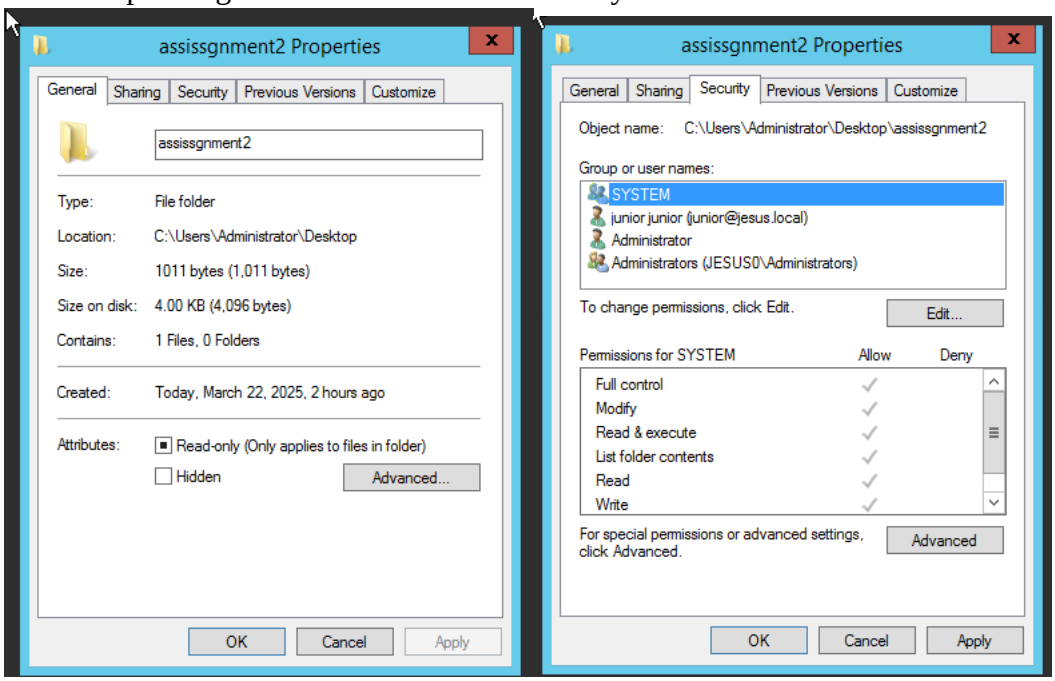
I was create this folder for prevent access and manage user access and create file used to managing user where some user has full access other don't have it





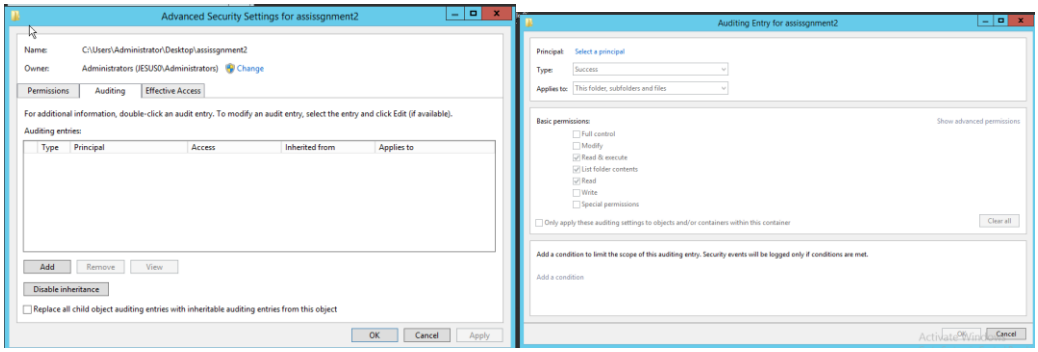
2. Selection on folder for security and permission to the users:

I. Now I was select assessgnment2 and make it as right click, select advance for separating user access and select security

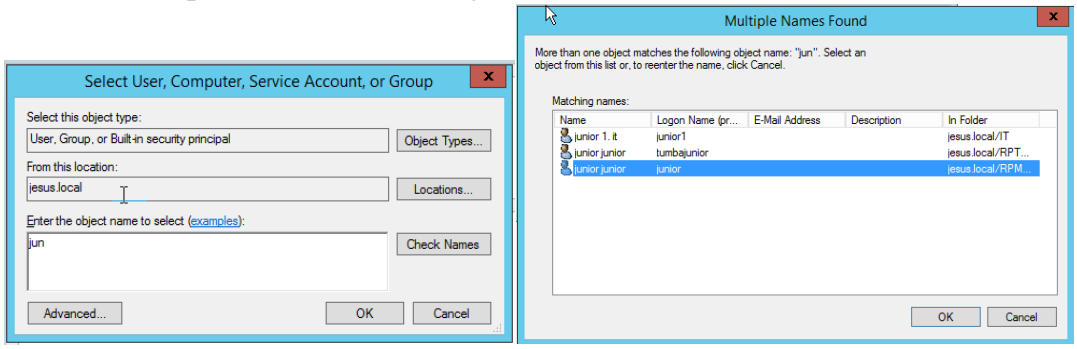


II. This a picture that show user access now select auditing and add users want toaccess and select principle

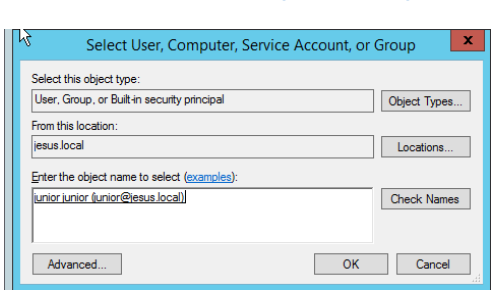
- ❖ Read
- ❖ Read and execute
- ❖ Read folder content

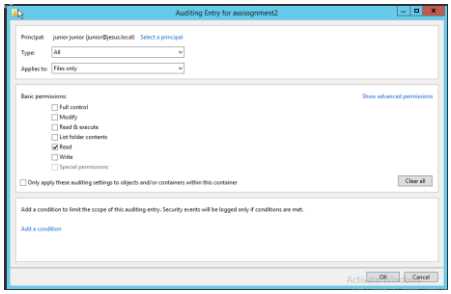


III. Example of user used as junior has select from user list

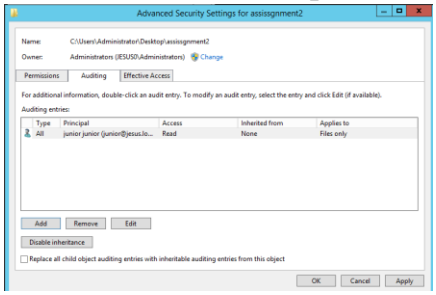


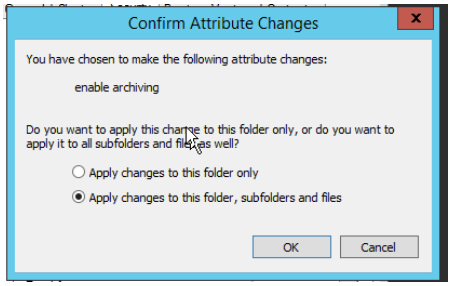
IV. After select junior@jesus.local now has access for read only





V. Conform that permission rules

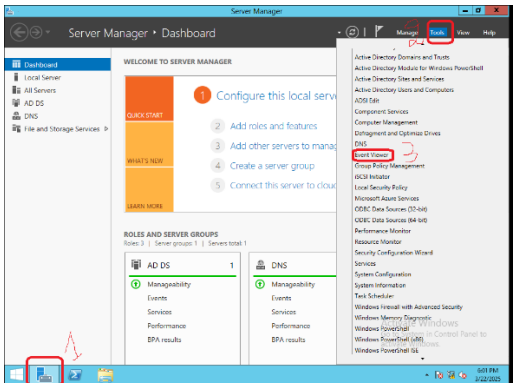


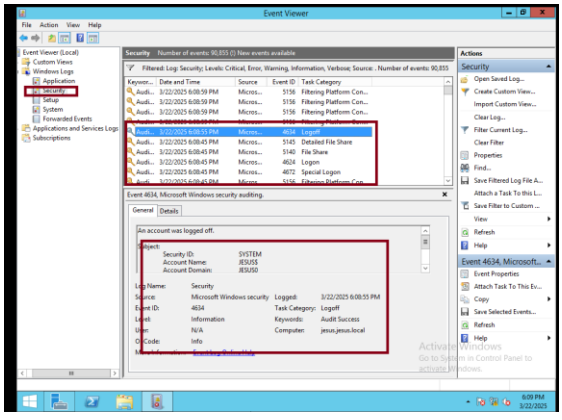


3. Review event

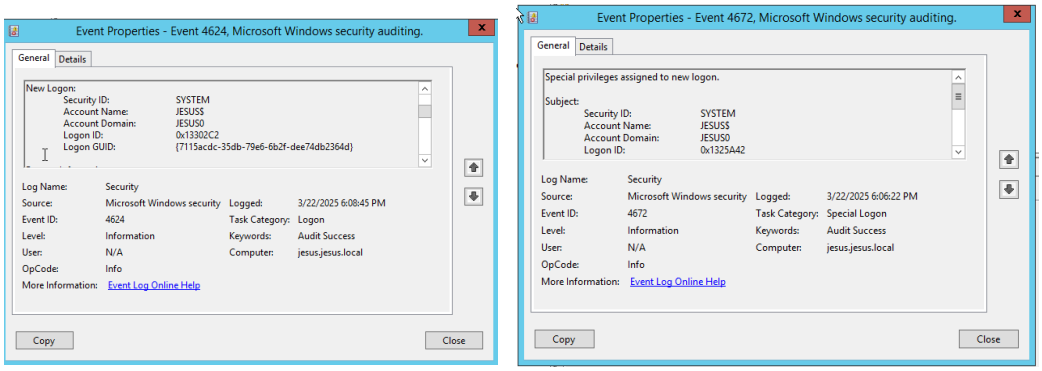
Now I open server manager for control user logon

First open tools ⟶ select security ⟶ open event logon ⟶ select logon event that ⟶ has event id 4624

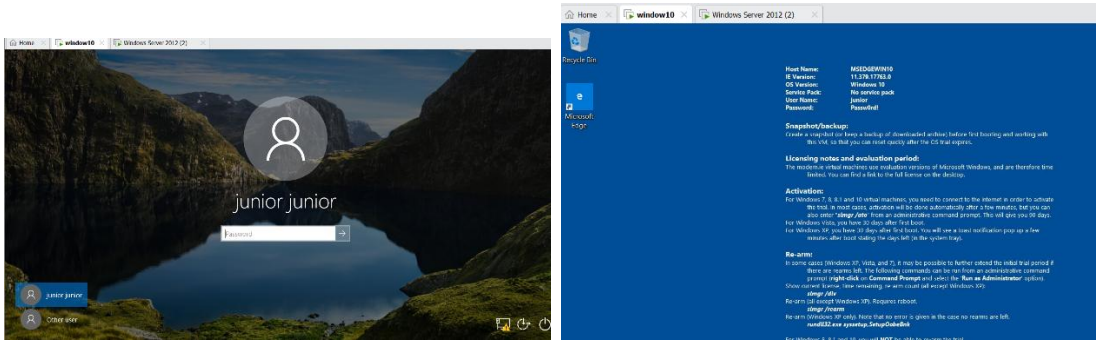




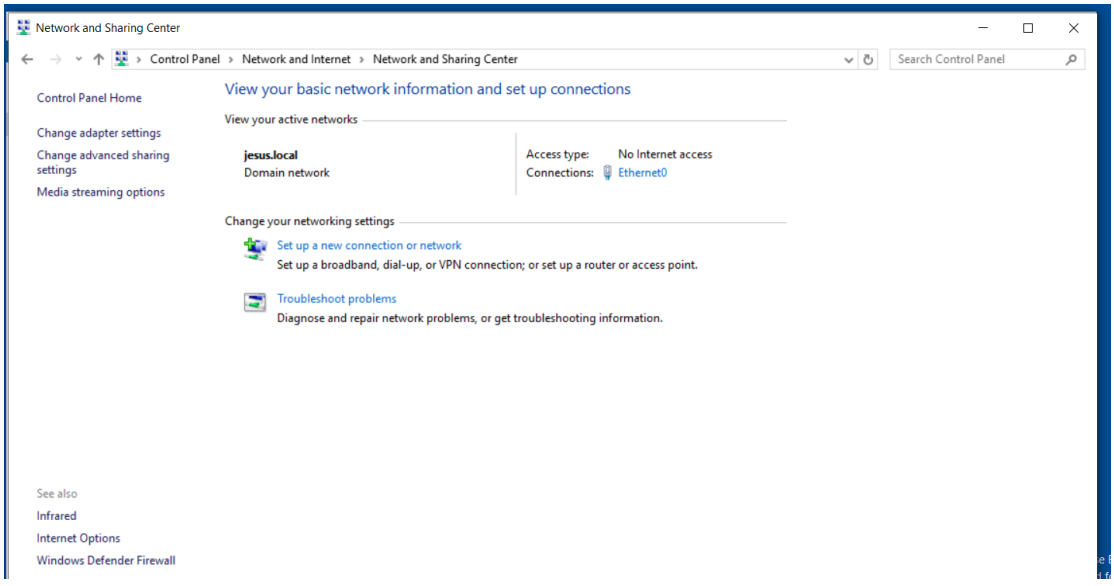
This all detail of jesus user where recording when , what and where she logon



4. Login with window 10



5. Checking when window 10 connected to server and when is connected to domain name after login using junior user to verify the domain name is available.



6. After connected to domain check permission

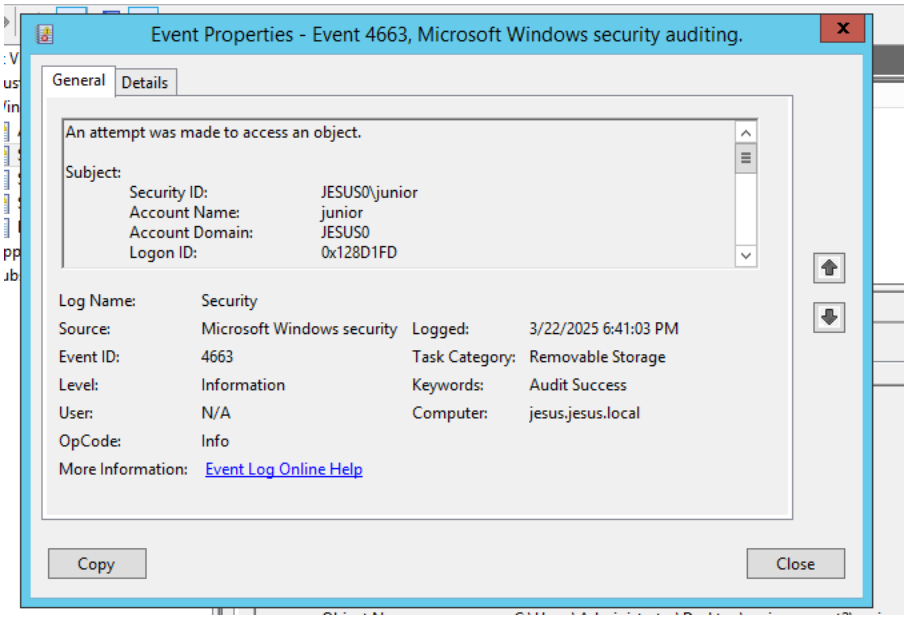


Figure 1: this a record where junion try to make login using domain name