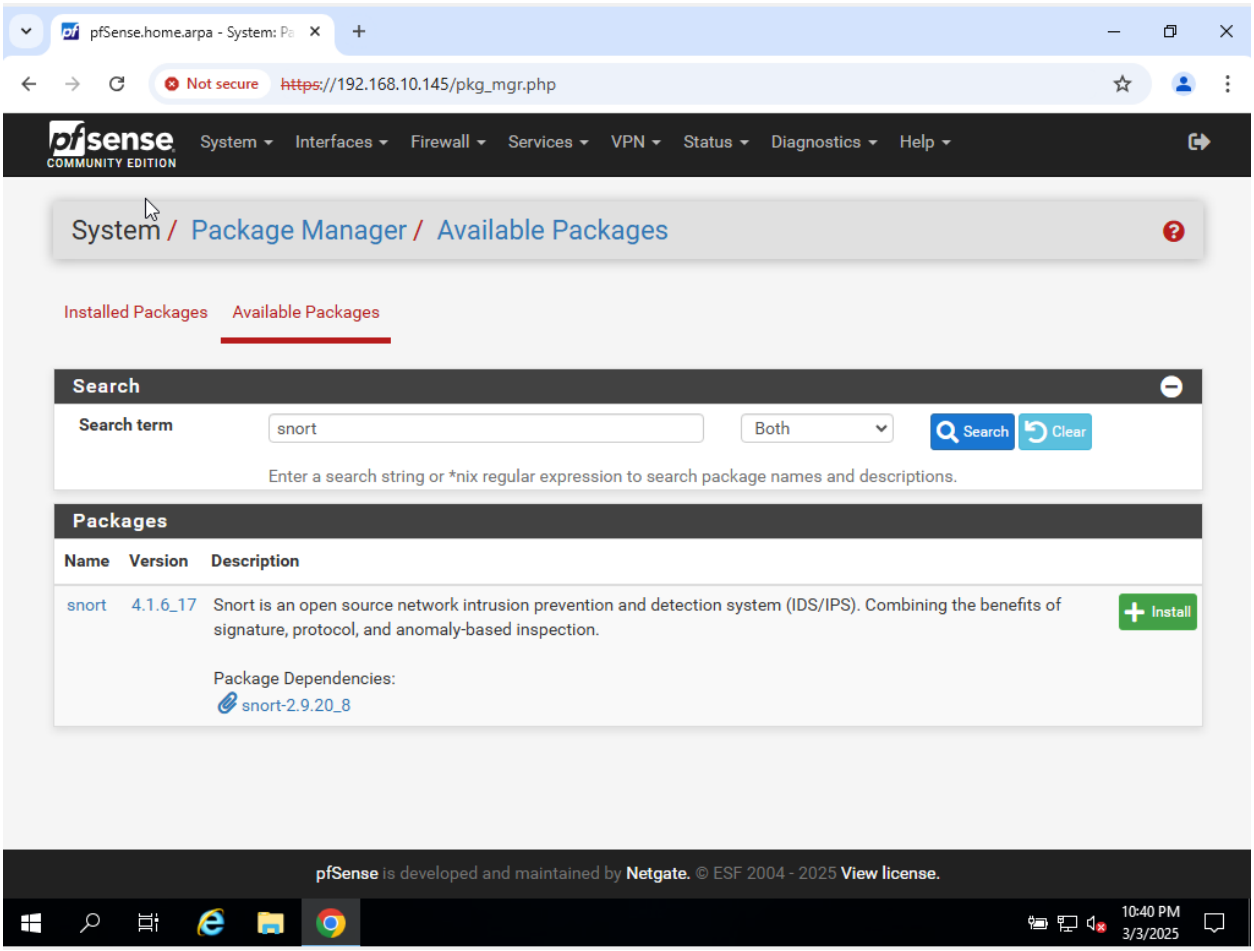
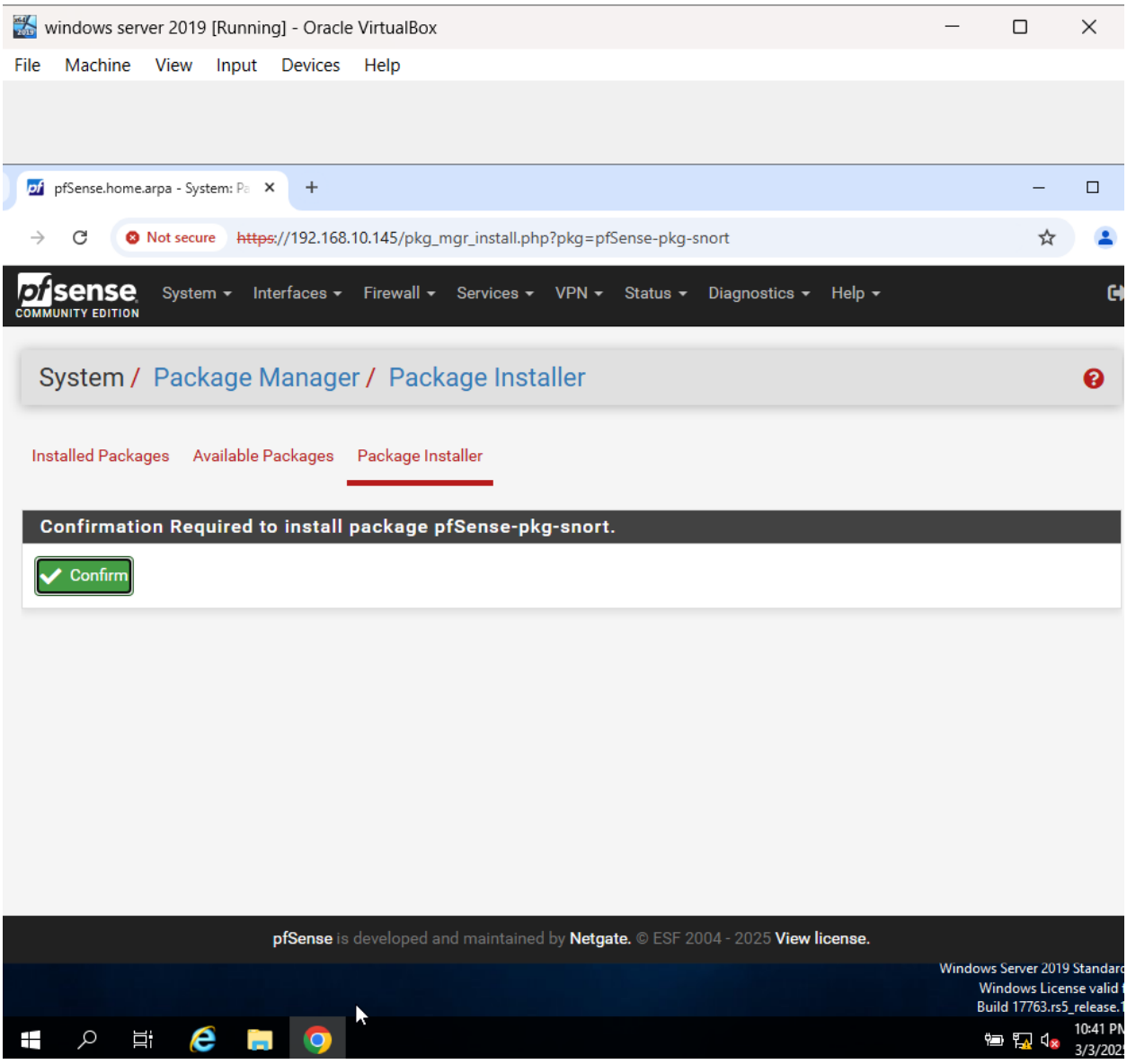
Lab 4: Adding a Snort IDS to pfSense

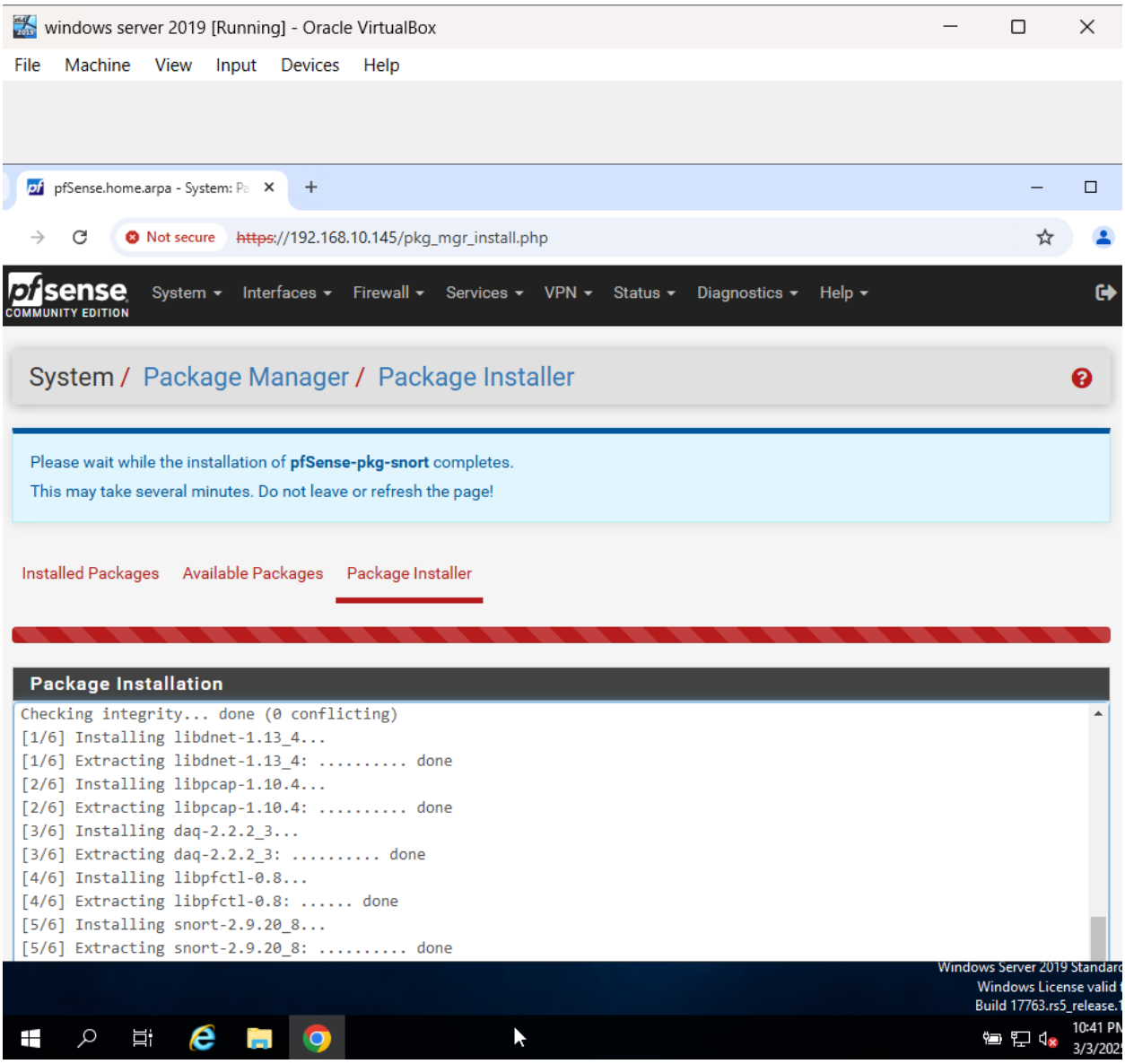
Objective 1: Installation and Initial Setup

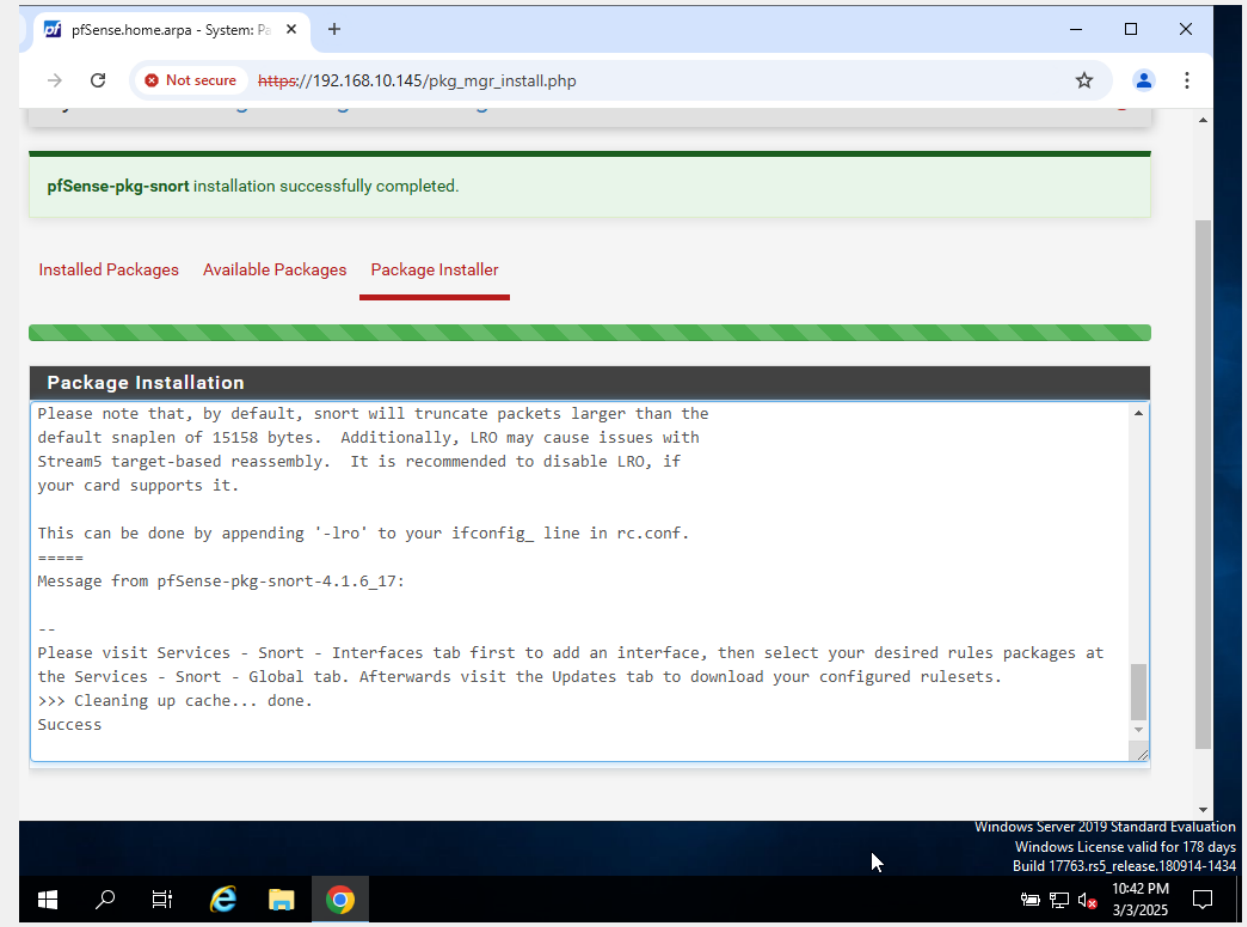
- I accessed the **pfSense Web Portal** by opening my browser and logging into the interface.

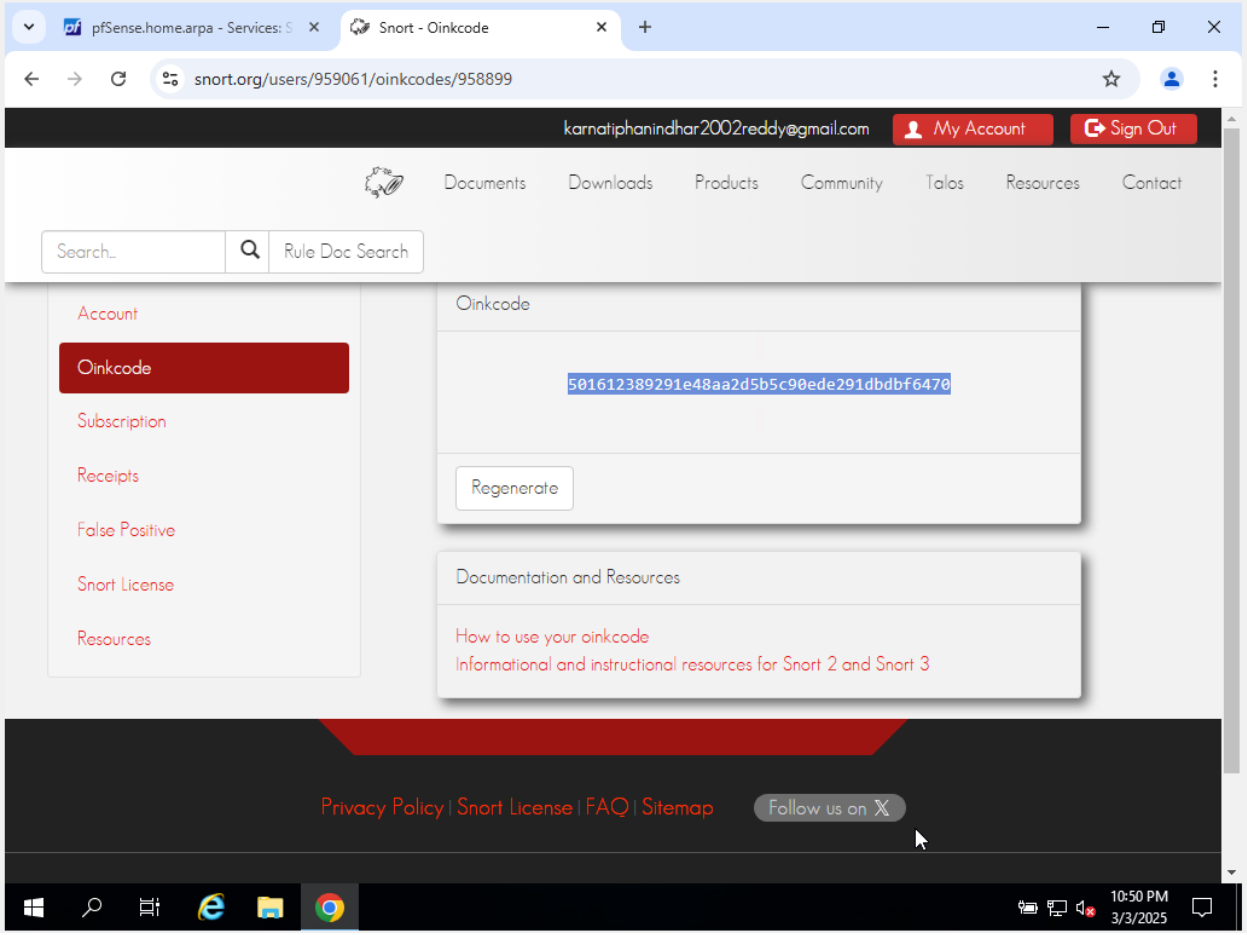
- I navigated to **System > Package Manager** to install the necessary package.
- In the **Available Packages** tab, I searched for **Snort**, clicked **Install**, and confirmed the installation.



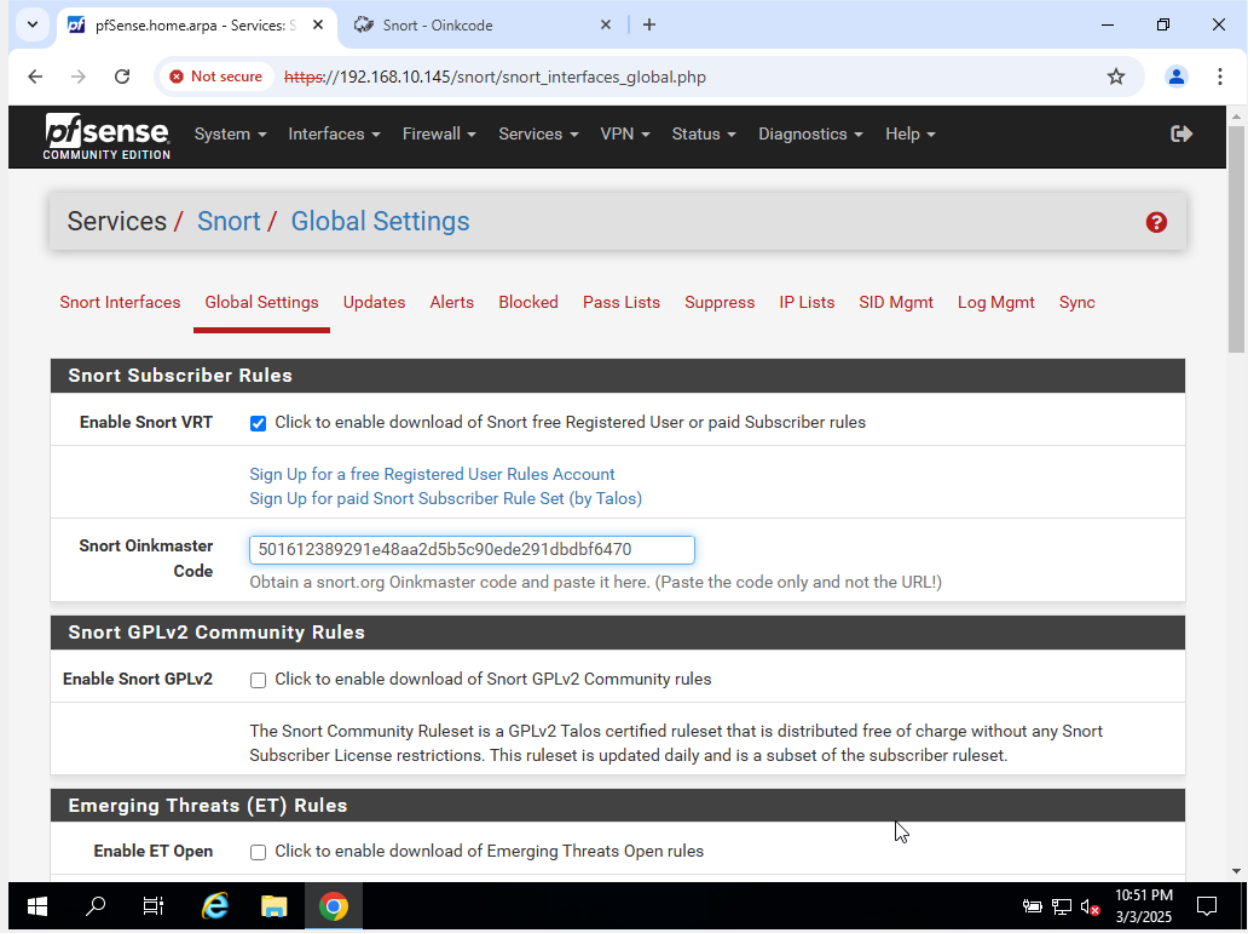

windows server 2019 [Running] - Oracle VirtualBox
File Machine View Input Devices Help
pfSense.home.arpa - System: Pa
Not secure https://192.168.10.145/pkg_mgr_install.php?pkg=pfSense-pkg-snort
pfsense COMMUNITY EDITION
System Interfaces Firewall Services VPN Status Diagnostics Help
System / Package Manager / Package Installer
Installed Packages
Available Packages
Package Installer
Confirmation Required to install package pfSense-pkg-snort.
Confirm
pfSense is developed and maintained by Netgate. © ESF 2004 - 2025 View license.
Windows Server 2019 Standard
Windows License valid
Build 17763.rs5_release.
10:41 PM
3/3/2025


windows server 2019 [Running] - Oracle VirtualBox
File Machine View Input Devices Help
pfSense.home.arpa - System: Pa
Not secure https://192.168.10.145/pkg_mgr_install.php
pfsense COMMUNITY EDITION
System Interfaces Firewall Services VPN Status Diagnostics Help
System / Package Manager / Package Installer
Please wait while the installation of pfSense-pkg-snort completes.
This may take several minutes. Do not leave or refresh the page!
Installed Packages
Available Packages
Package Installer
Package Installation
Checking integrity... done (0 conflicting)
[1/6] Installing libdnet-1.13_4...
[1/6] Extracting libdnet-1.13_4: .... done
[2/6] Installing libpcap-1.10.4...
[2/6] Extracting libpcap-1.10.4: .... done
[3/6] Installing daq-2.2.2_3...
[3/6] Extracting daq-2.2.2_3: .... done
[4/6] Installing libpfctl-0.8...
[4/6] Extracting libpfctl-0.8: ...... done
[5/6] Installing snort-2.9.20_8...
[5/6] Extracting snort-2.9.20_8: .... done
Windows Server 2019 Standard
Windows License valid
Build 17763.rs5_release.
10:41 PM
3/3/202


pfSense.home.arpa - System: Pa
Not secure
https://192.168.10.145/pkg_mgr_install.php
pfSense-pkg-snort installation successfully completed.
Installed Packages
Available Packages
Package Installer
Package Installation
Please note that, by default, snort will truncate packets larger than the
default snaplen of 15158 bytes. Additionally, LRO may cause issues with
Stream5 target-based reassembly. It is recommended to disable LRO, if
your card supports it.
This can be done by appending '-lro' to your ifconfig_ line in rc.conf.
=====
Message from pfSense-pkg-snort-4.1.6_17:
--
Please visit Services - Snort - Interfaces tab first to add an interface, then select your desired rules packages at
the Services - Snort - Global tab. Afterwards visit the Updates tab to download your configured rulesets.
>>> Cleaning up cache... done.
Success
Windows Server 2019 Standard Evaluation
Windows License valid for 178 days
Build 17763.rs5_release.180914-1434
10:42 PM
3/3/2025

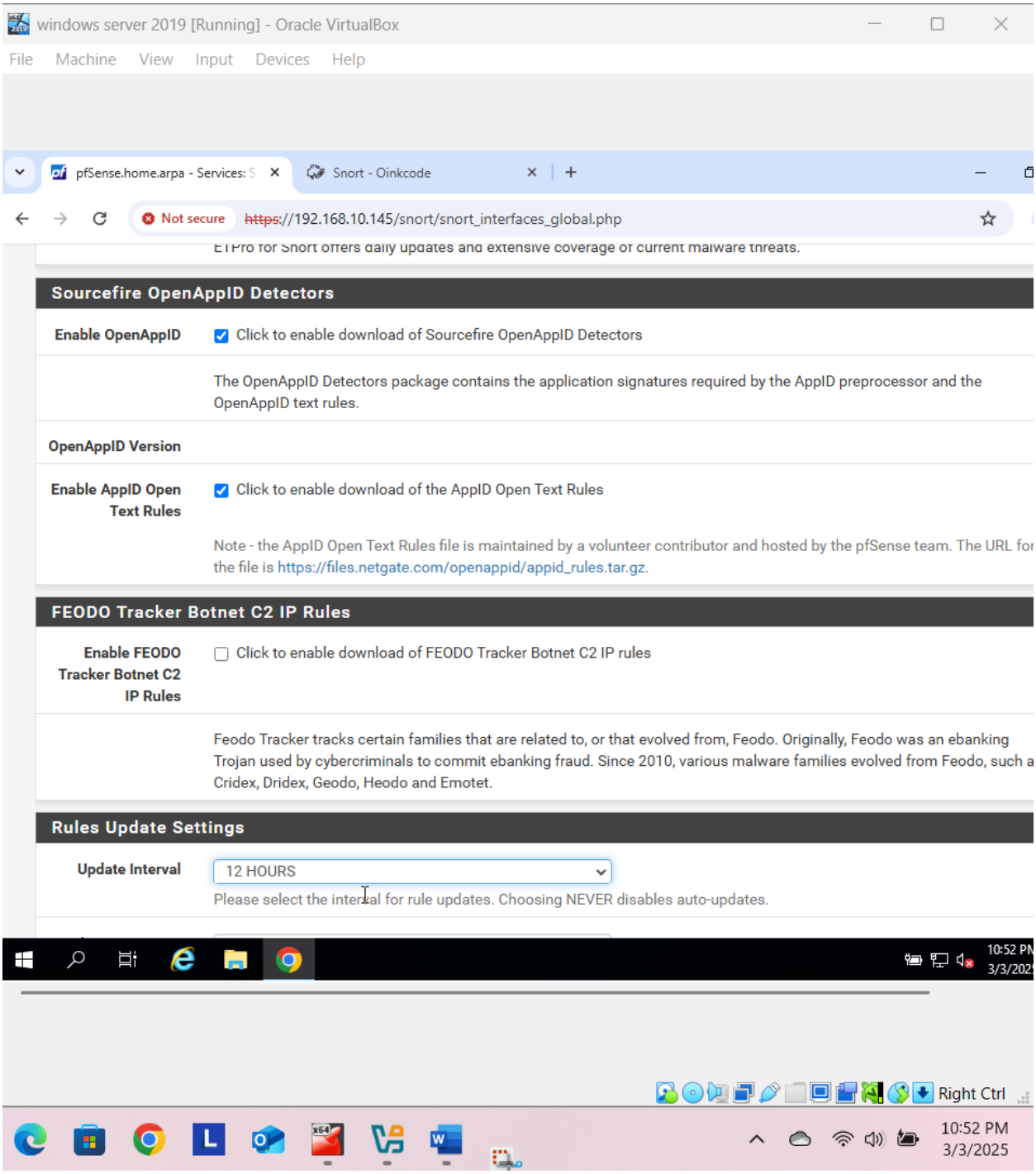


- I have logedin to Oinkmaster code and Generated code.

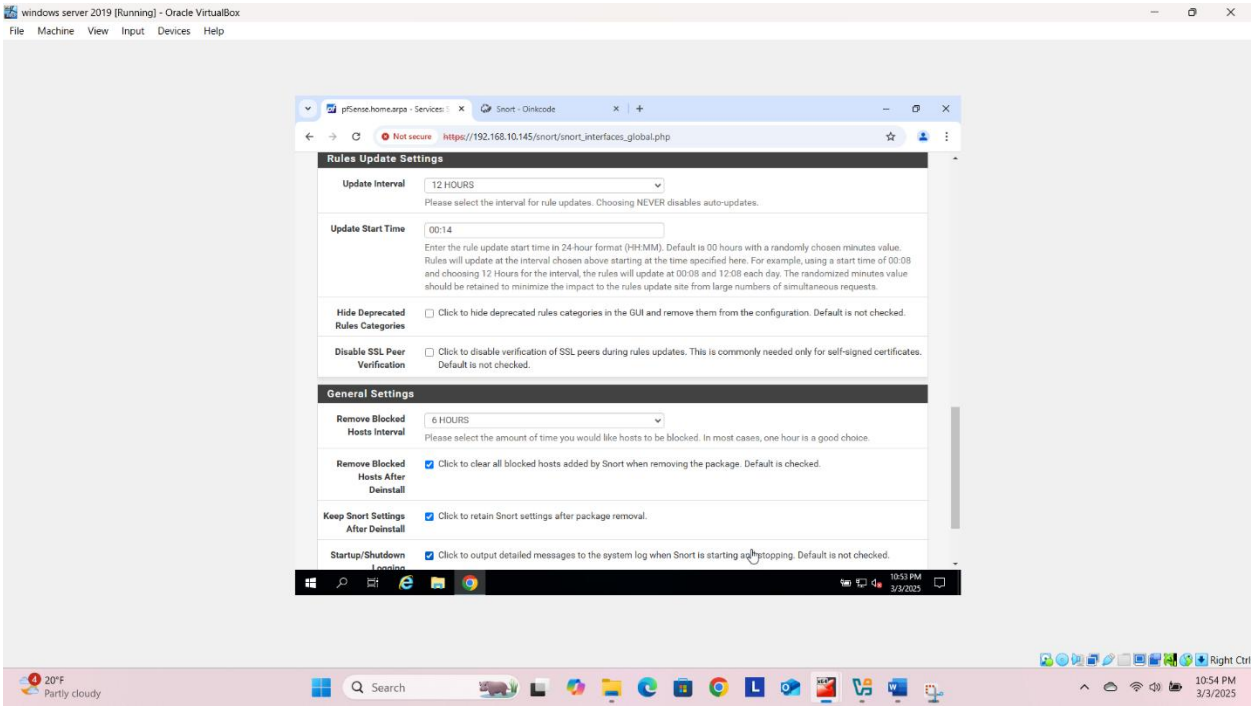


- Once the installation was complete, I went to **Services > Snort** to begin configuration.
- In the **Global Settings** tab, I enabled the following options:

  - **Snort VRT** (entered my Oinkmaster code)
  - **Snort GPLv2**
  - **ET Open**
  - **OpenAppID**
  - **AppID Open Text Rules**

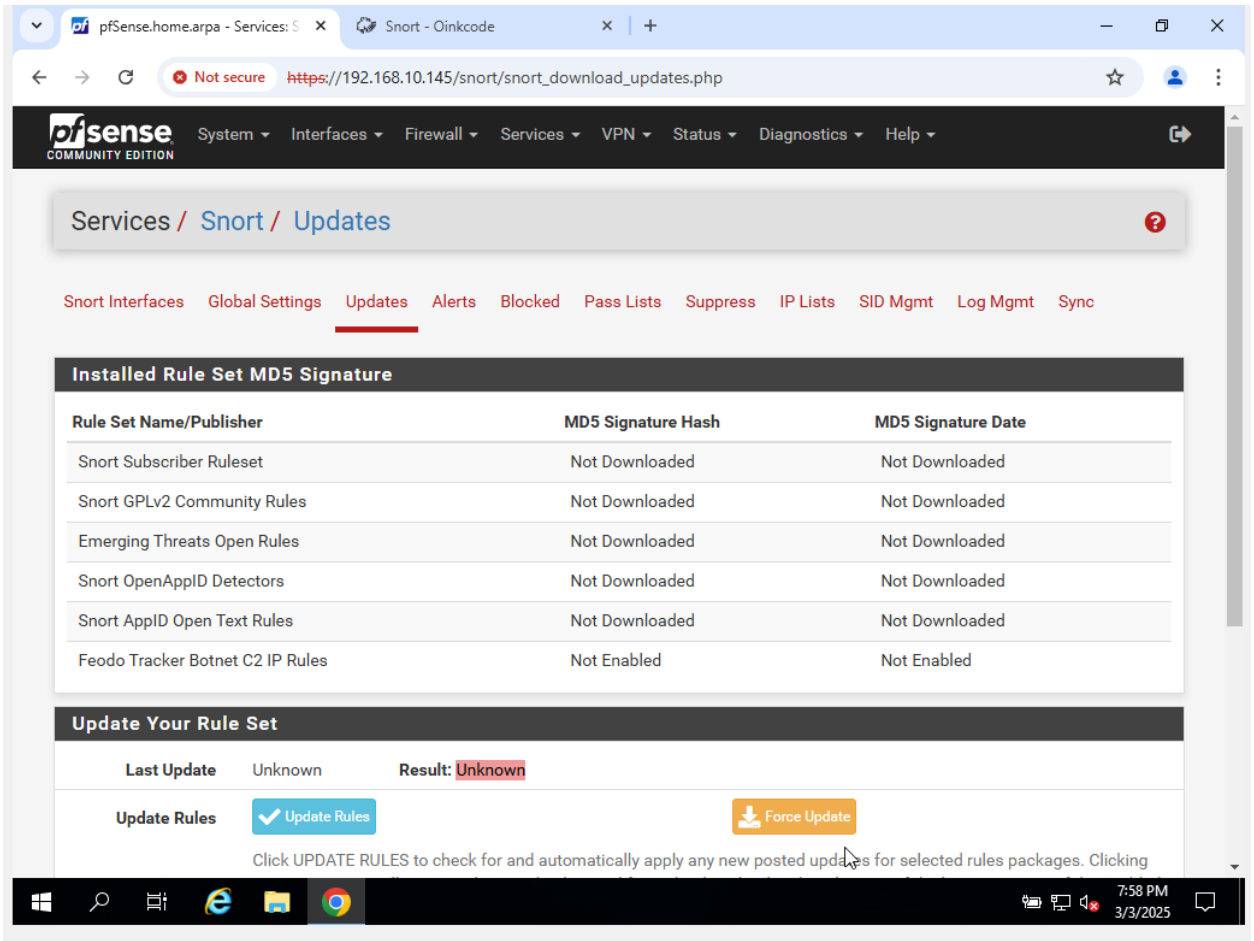


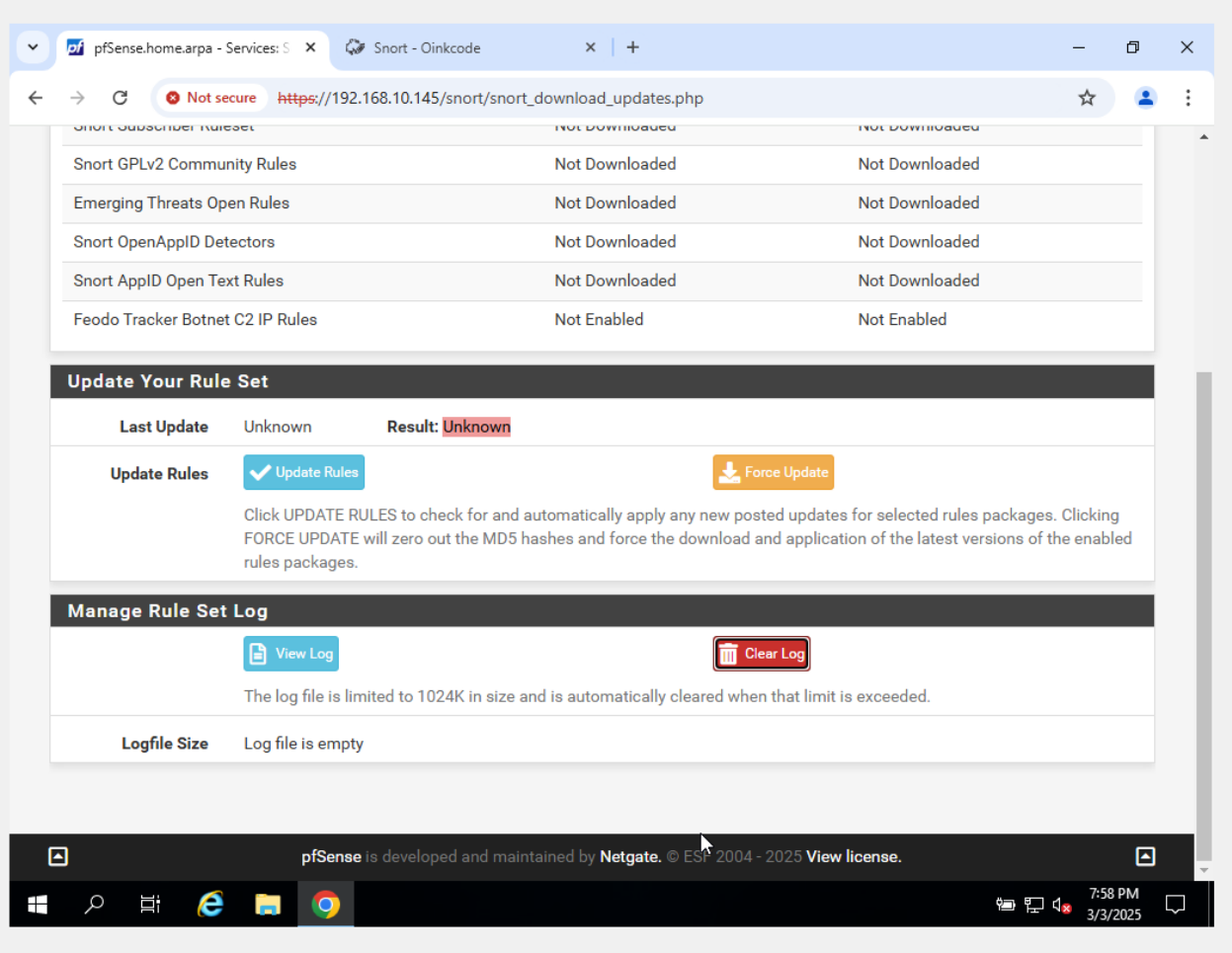
- I set the update interval to **12 hours**, the removal of blocked hosts to **6 hours**, and configured a random start time.

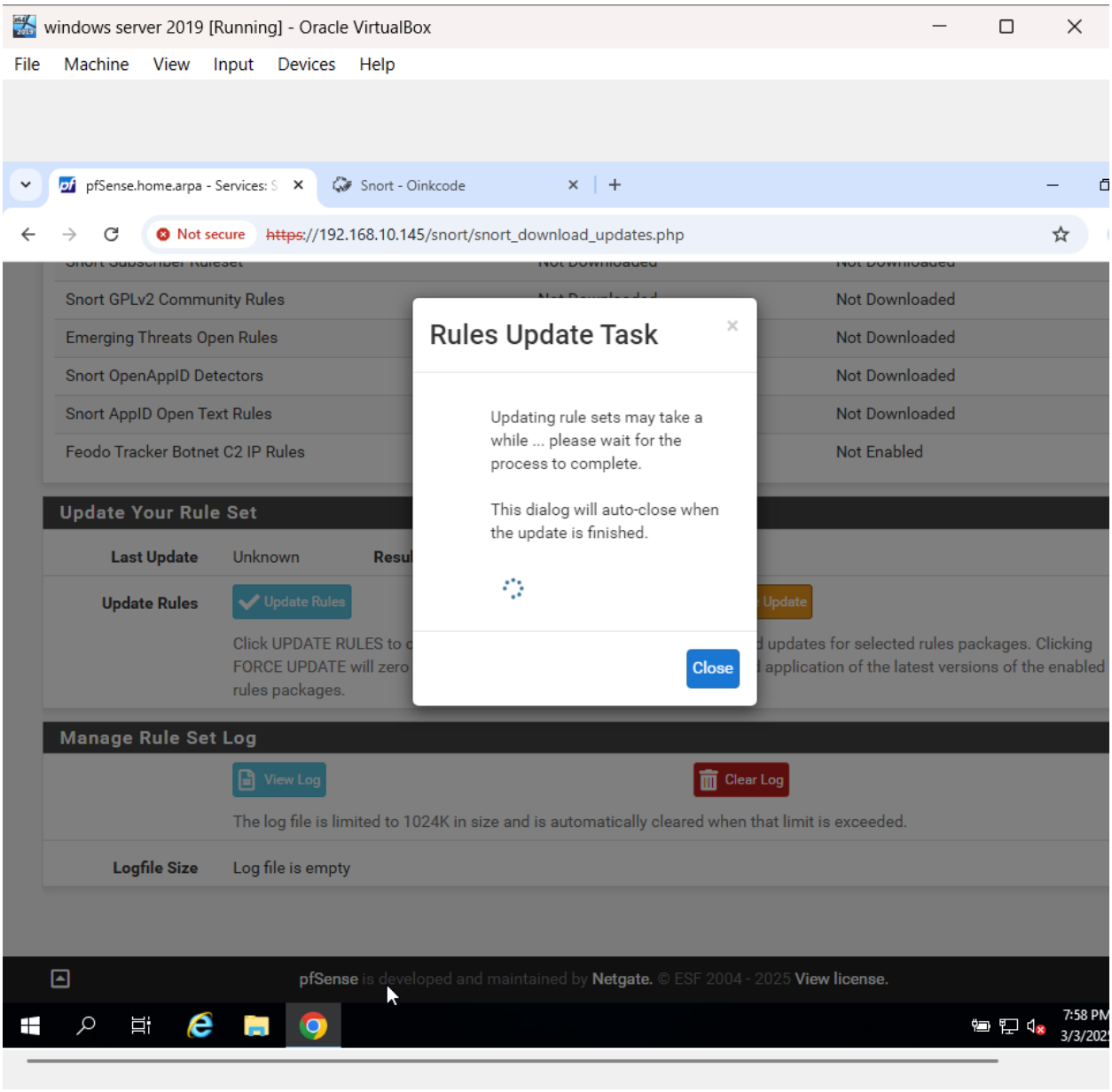


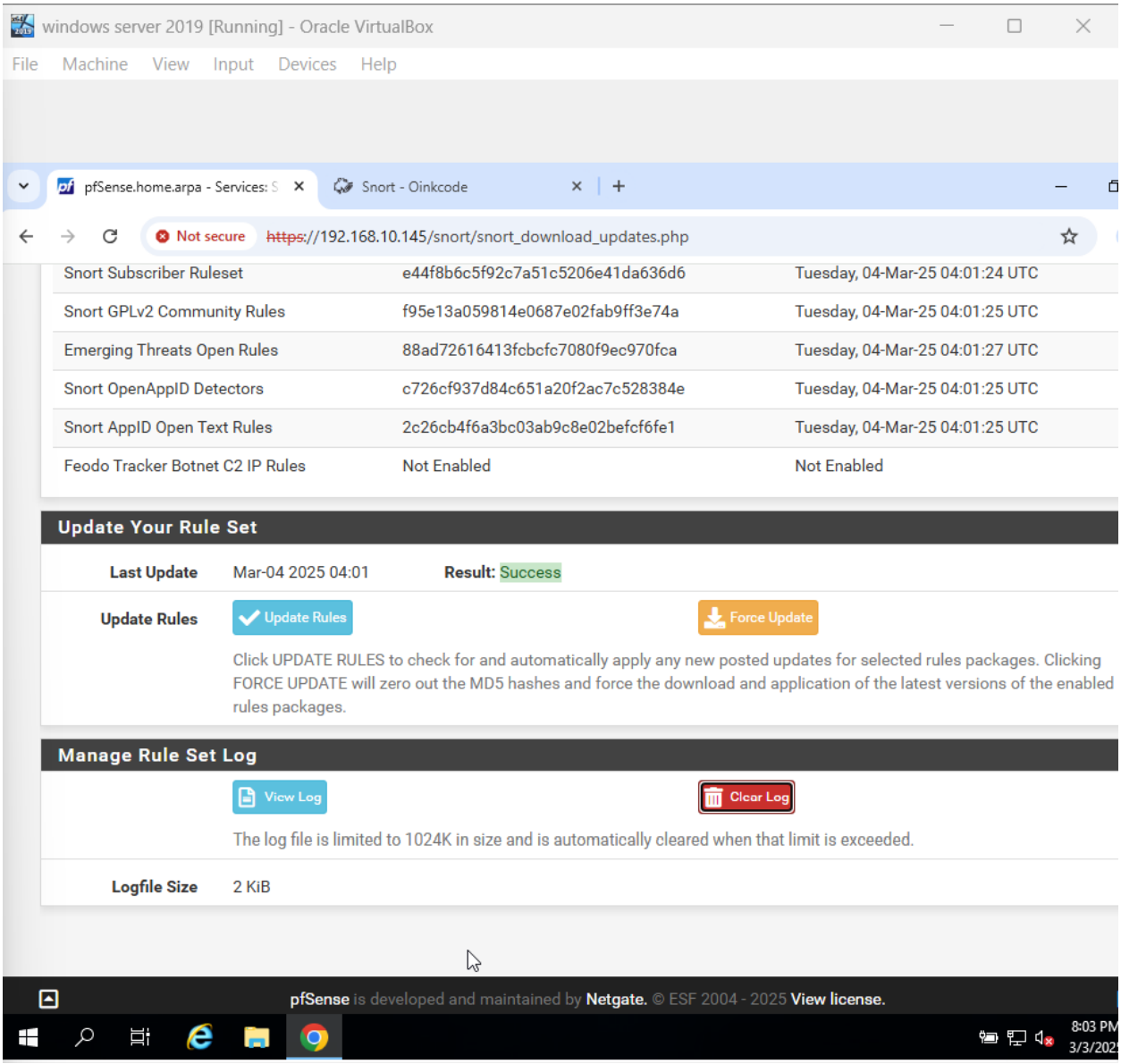
- I clicked **Save** to apply the settings.

- Next, I navigated to the **Updates** tab and clicked **Force Update** to fetch the latest Snort rules.
- I verified the update by checking for the **MD5 signature** with the current time and date.


pfSense.home.arpa - Services: S
Snort - Oinkcode
Not secure
https://192.168.10.145/snort/snort_download_updates.php
pfsense COMMUNITY EDITION
System
Interfaces
Firewall
Services
VPN
Status
Diagnostics
Help
Services / Snort / Updates
Snort Interfaces
Global Settings
Updates
Alerts
Blocked
Pass Lists
Suppress
IP Lists
SID Mgmt
Log Mgmt
Sync
Installed Rule Set MD5 Signature
Rule Set Name/Publisher
MD5 Signature Hash
MD5 Signature Date
Snort Subscriber Ruleset
Not Downloaded
Not Downloaded
Snort GPLv2 Community Rules
Not Downloaded
Not Downloaded
Emerging Threats Open Rules
Not Downloaded
Not Downloaded
Snort OpenAppID Detectors
Not Downloaded
Not Downloaded
Snort AppID Open Text Rules
Not Downloaded
Not Downloaded
Feodo Tracker Botnet C2 IP Rules
Not Enabled
Not Enabled
Update Your Rule Set
Last Update
Unknown
Result: Unknown
Update Rules
Update Rules
Force Update
Click UPDATE RULES to check for and automatically apply any new posted updates for selected rules packages. Clicking
7:58 PM
3/3/2025

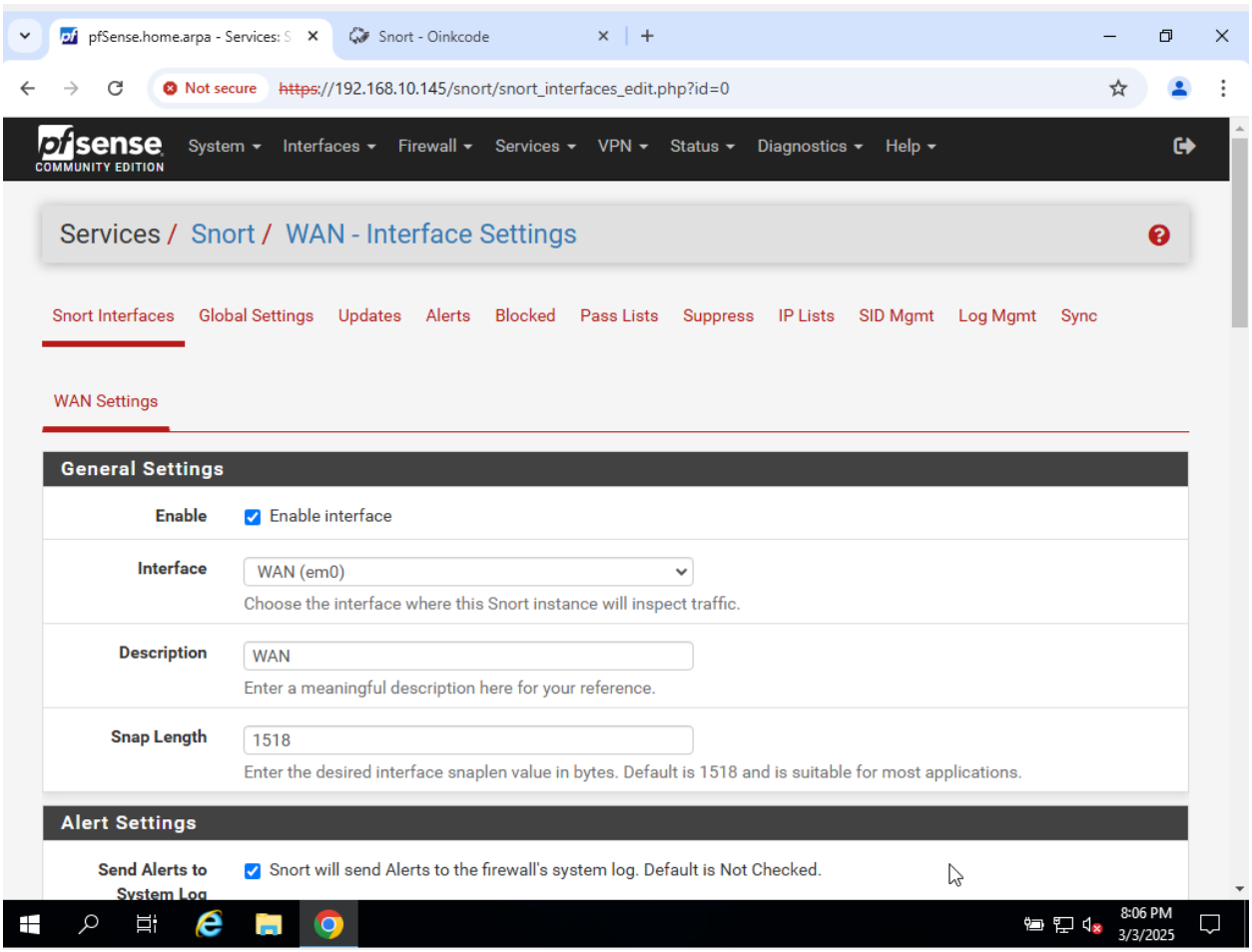

pfSense.home.arpa - Services: S
Snort - Oinkcode
Not secure
https://192.168.10.145/snort/snort_download_updates.php
Snort GPLv2 Community Rules
Not Downloaded
Not Downloaded
Emerging Threats Open Rules
Not Downloaded
Not Downloaded
Snort OpenAppID Detectors
Not Downloaded
Not Downloaded
Snort AppID Open Text Rules
Not Downloaded
Not Downloaded
Feodo Tracker Botnet C2 IP Rules
Not Enabled
Not Enabled
Update Your Rule Set
Last Update
Unknown
Result: Unknown
Update Rules
Update Rules
Force Update
Click UPDATE RULES to check for and automatically apply any new posted updates for selected rules packages. Clicking FORCE UPDATE will zero out the MD5 hashes and force the download and application of the latest versions of the enabled rules packages.
Manage Rule Set Log
View Log
Clear Log
The log file is limited to 1024K in size and is automatically cleared when that limit is exceeded.
Logfile Size
Log file is empty
pfSense is developed and maintained by Netgate. © ESF 2004 - 2025 View license.
7:58 PM
3/3/2025

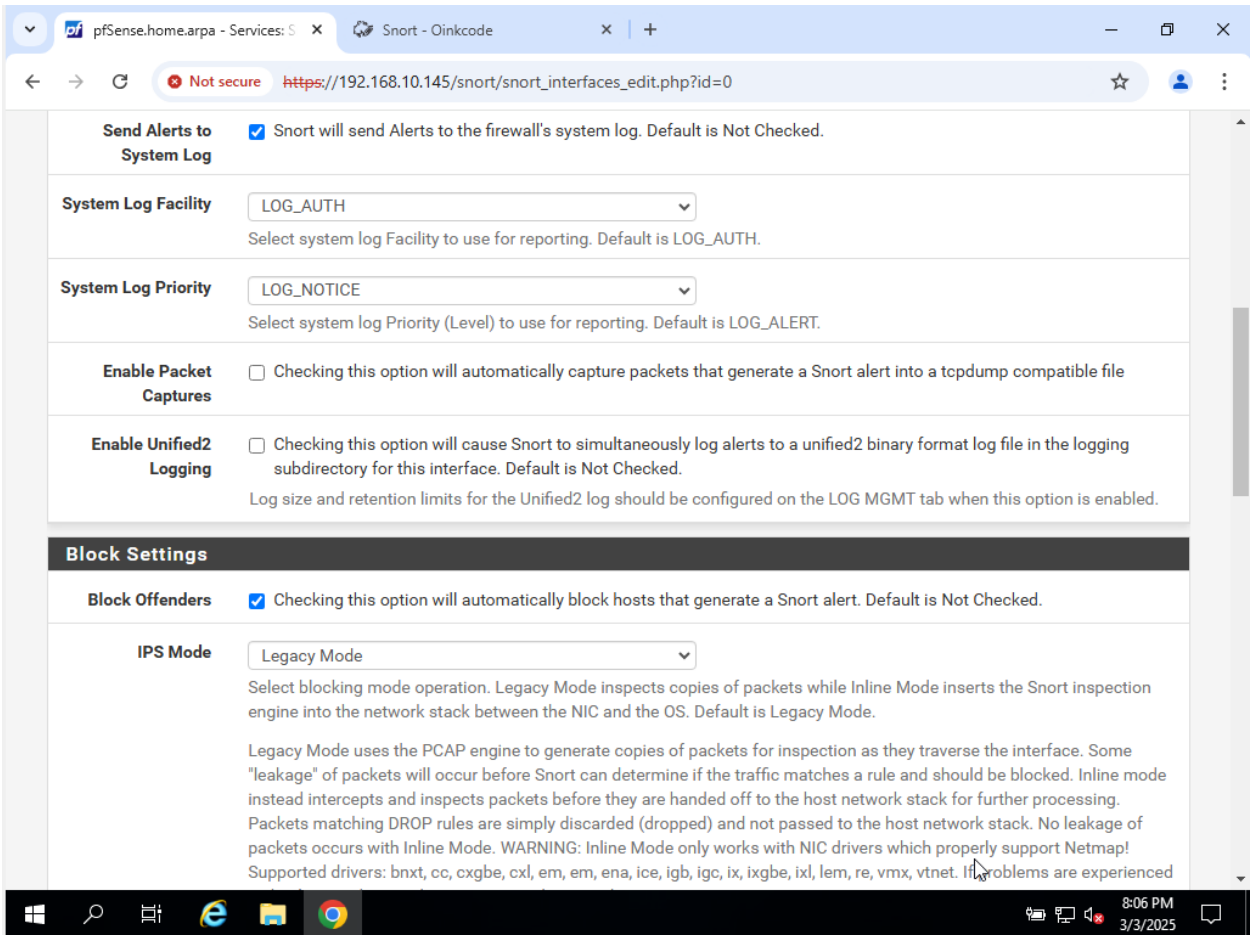

windows server 2019 [Running] - Oracle VirtualBox
File Machine View Input Devices Help
pfSense.home.arpa - Services: S
Snort - Oinkcode
Not secure https://192.168.10.145/snort/snort_download_updates.php
Snort GPLv2 Community Rules Not Downloaded
Emerging Threats Open Rules Not Downloaded
Snort OpenAppID Detectors Not Downloaded
Snort AppID Open Text Rules Not Downloaded
Feodo Tracker Botnet C2 IP Rules Not Enabled
Rules Update Task
Updating rule sets may take a while ... please wait for the process to complete.
This dialog will auto-close when the update is finished.
Close
Update Your Rule Set
Last Update Unknown
Update Rules
Manage Rule Set Log
View Log
Clear Log
The log file is limited to 1024K in size and is automatically cleared when that limit is exceeded.
Logfile Size Log file is empty
pfSense is developed and maintained by Netgate. © ESF 2004 - 2025 View license.
7:58 PM

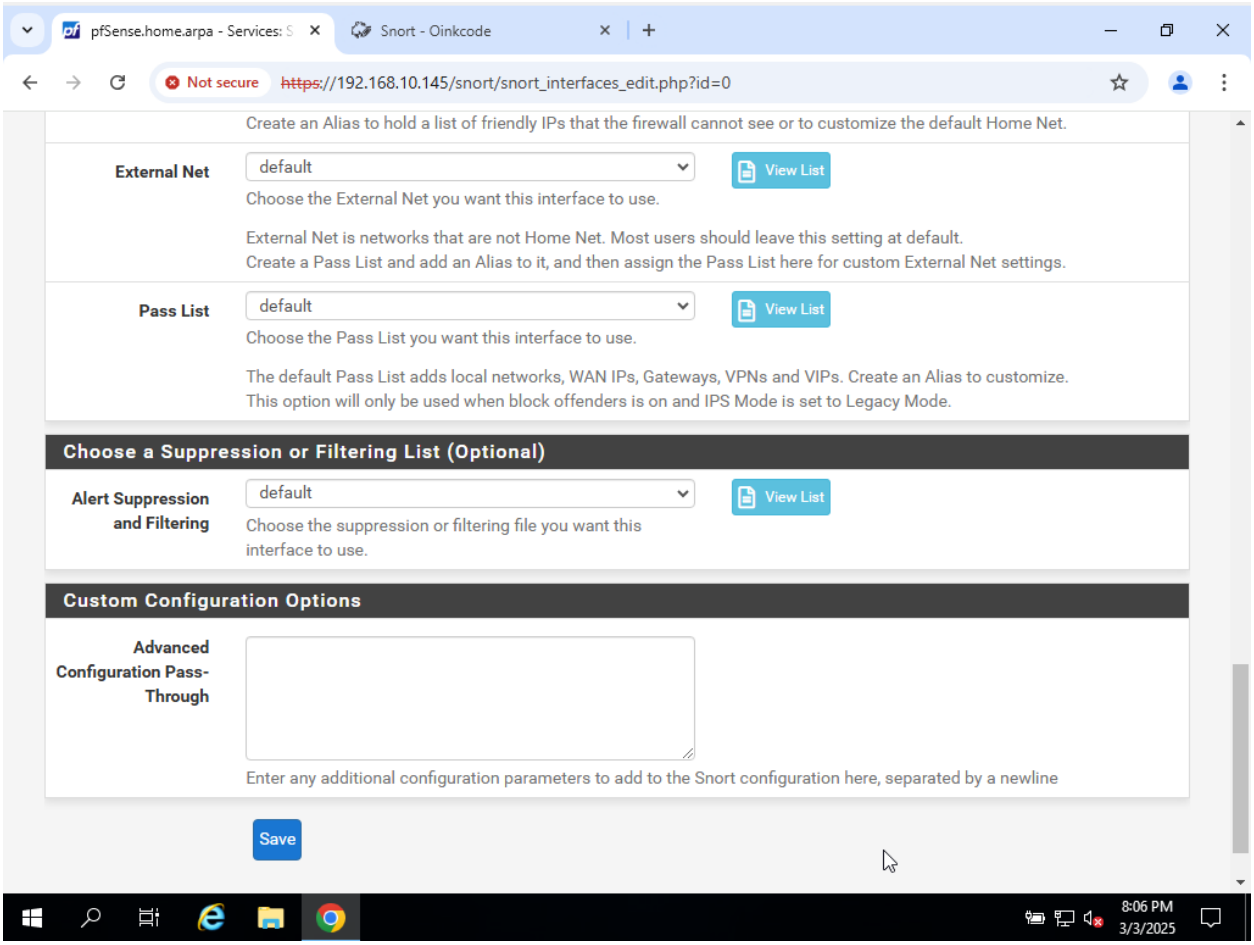

windows server 2019 [Running] - Oracle VirtualBox
File Machine View Input Devices Help
pfSense.home.arpa - Services: S
Snort - Oinkcode
Not secure https://192.168.10.145/snort/snort_download_updates.php
Snort Subscriber Ruleset e44f8b6c5f92c7a51c5206e41da636d6 Tuesday, 04-Mar-25 04:01:24 UTC
Snort GPLv2 Community Rules f95e13a059814e0687e02fab9ff3e74a Tuesday, 04-Mar-25 04:01:25 UTC
Emerging Threats Open Rules 88ad72616413fcbcfc7080f9ec970fca Tuesday, 04-Mar-25 04:01:27 UTC
Snort OpenAppID Detectors c726cf937d84c651a20f2ac7c528384e Tuesday, 04-Mar-25 04:01:25 UTC
Snort AppID Open Text Rules 2c26cb4f6a3bc03ab9c8e02befcf6fe1 Tuesday, 04-Mar-25 04:01:25 UTC
Feodo Tracker Botnet C2 IP Rules Not Enabled Not Enabled
Update Your Rule Set
Last Update Mar-04 2025 04:01 Result: Success
Update Rules
Update Rules
Force Update
Click UPDATE RULES to check for and automatically apply any new posted updates for selected rules packages. Clicking FORCE UPDATE will zero out the MD5 hashes and force the download and application of the latest versions of the enabled rules packages.
Manage Rule Set Log
View Log
Clear Log
The log file is limited to 1024K in size and is automatically cleared when that limit is exceeded.
Logfile Size 2 KiB
pfSense is developed and maintained by Netgate. © ESF 2004 - 2025 View license.
8:03 PM

Objective 2: Configuring Snort Interfaces

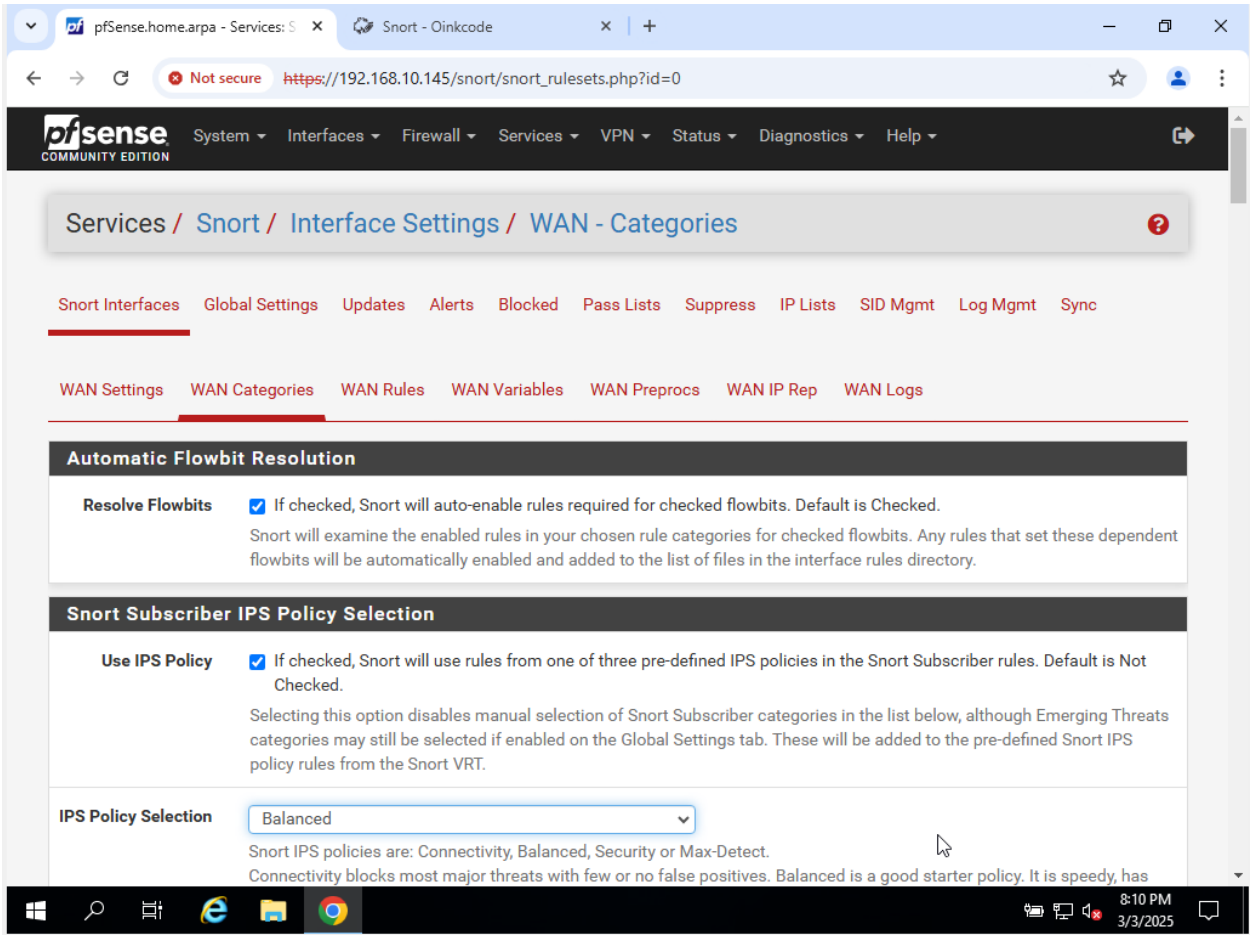
- I navigated to the **Snort Interfaces** tab and clicked **Add** to create a new Snort interface.
- In the interface configuration, I set:
  - **Interface:** WAN
  - **Send Alerts to System Log:** Enabled
  - **System Log Priority:** LOG_NOTICE
  - **Block Offenders:** Enabled (Legacy Mode, blocking both source and destination IPs)



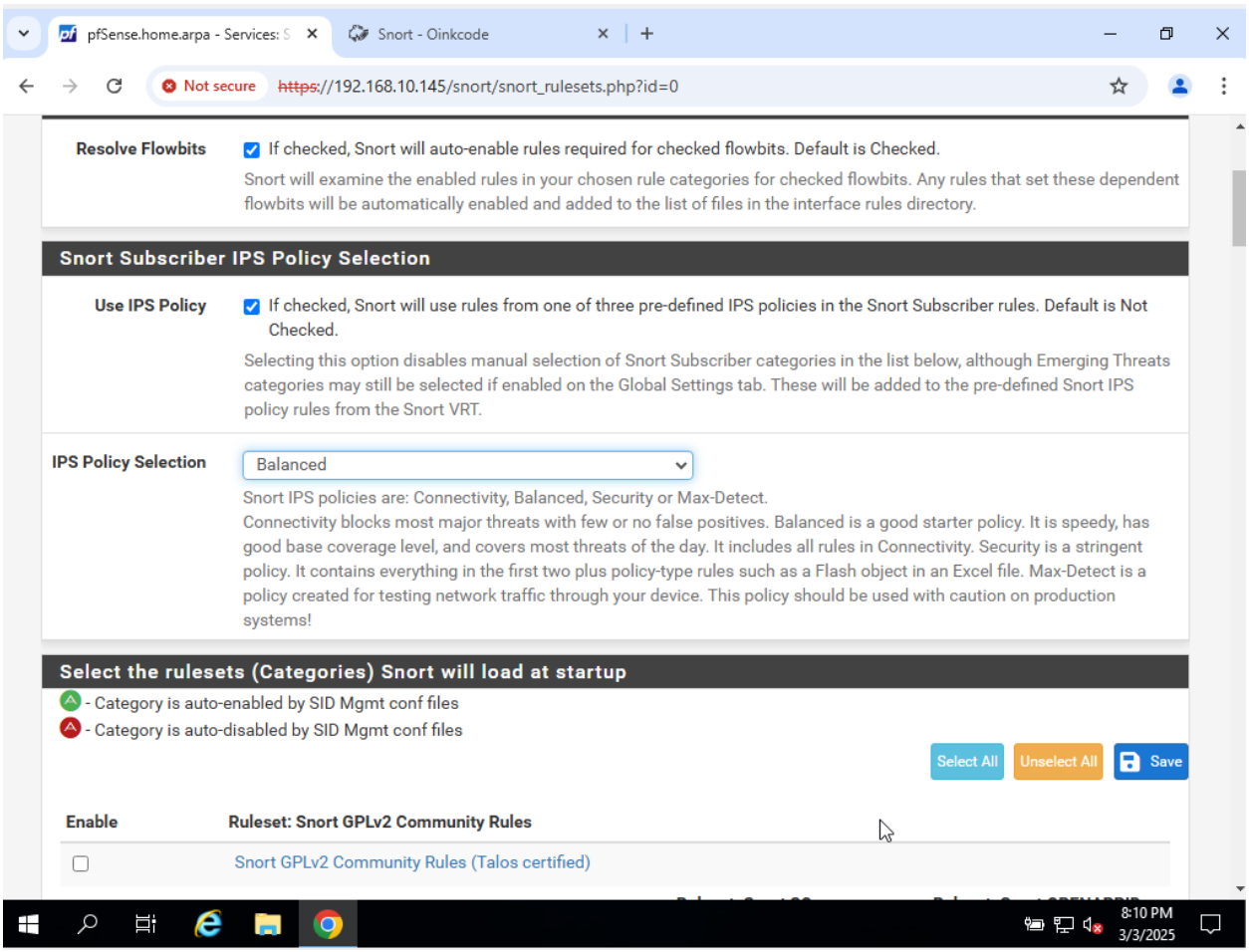

pfSense.home.arpa - Services: S
Snort - Oinkcode
Not secure
https://192.168.10.145/snort/snort_interfaces_edit.php?id=0
Send Alerts to System Log
Snort will send Alerts to the firewall's system log. Default is Not Checked.
System Log Facility
LOG_AUTH
Select system log Facility to use for reporting. Default is LOG_AUTH.
System Log Priority
LOG_NOTICE
Select system log Priority (Level) to use for reporting. Default is LOG_ALERT.
Enable Packet Captures
Checking this option will automatically capture packets that generate a Snort alert into a tcpdump compatible file
Enable Unified2 Logging
Checking this option will cause Snort to simultaneously log alerts to a unified2 binary format log file in the logging subdirectory for this interface. Default is Not Checked.
Log size and retention limits for the Unified2 log should be configured on the LOG MGMT tab when this option is enabled.
Block Settings
Block Offenders
Checking this option will automatically block hosts that generate a Snort alert. Default is Not Checked.
IPS Mode
Legacy Mode
Select blocking mode operation. Legacy Mode inspects copies of packets while Inline Mode inserts the Snort inspection engine into the network stack between the NIC and the OS. Default is Legacy Mode.
Legacy Mode uses the PCAP engine to generate copies of packets for inspection as they traverse the interface. Some "leakage" of packets will occur before Snort can determine if the traffic matches a rule and should be blocked. Inline mode instead intercepts and inspects packets before they are handed off to the host network stack for further processing. Packets matching DROP rules are simply discarded (dropped) and not passed to the host network stack. No leakage of packets occurs with Inline Mode. WARNING: Inline Mode only works with NIC drivers which properly support Netmap! Supported drivers: bnxt, cc, cxgbe, cxl, em, em, ena, ice, igb, igc, ix, ixgbe, ixl, lem, re, vmx, vtnet. If problems are experienced
8:06 PM
3/3/2025



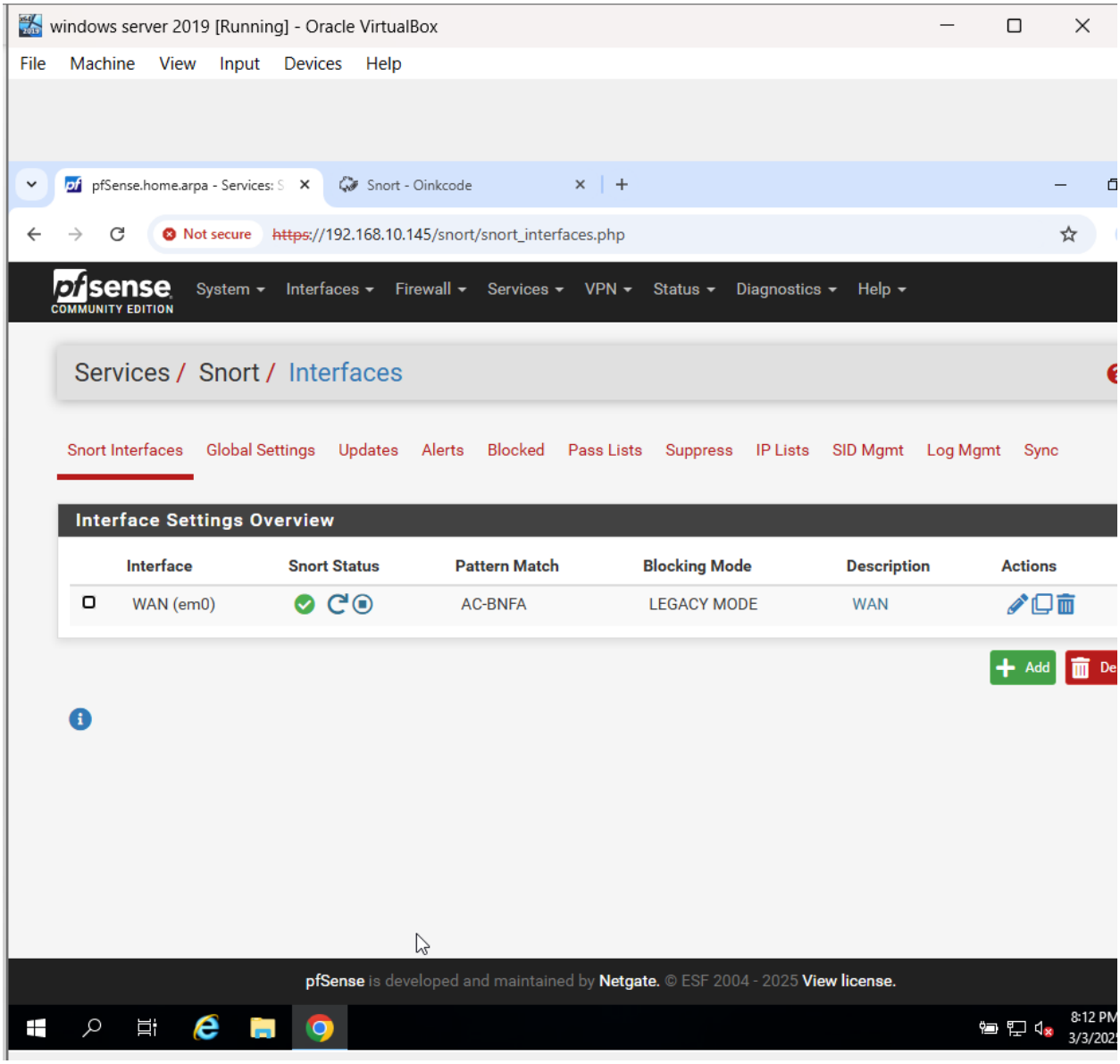
- I left the other settings as default and clicked **Save**.



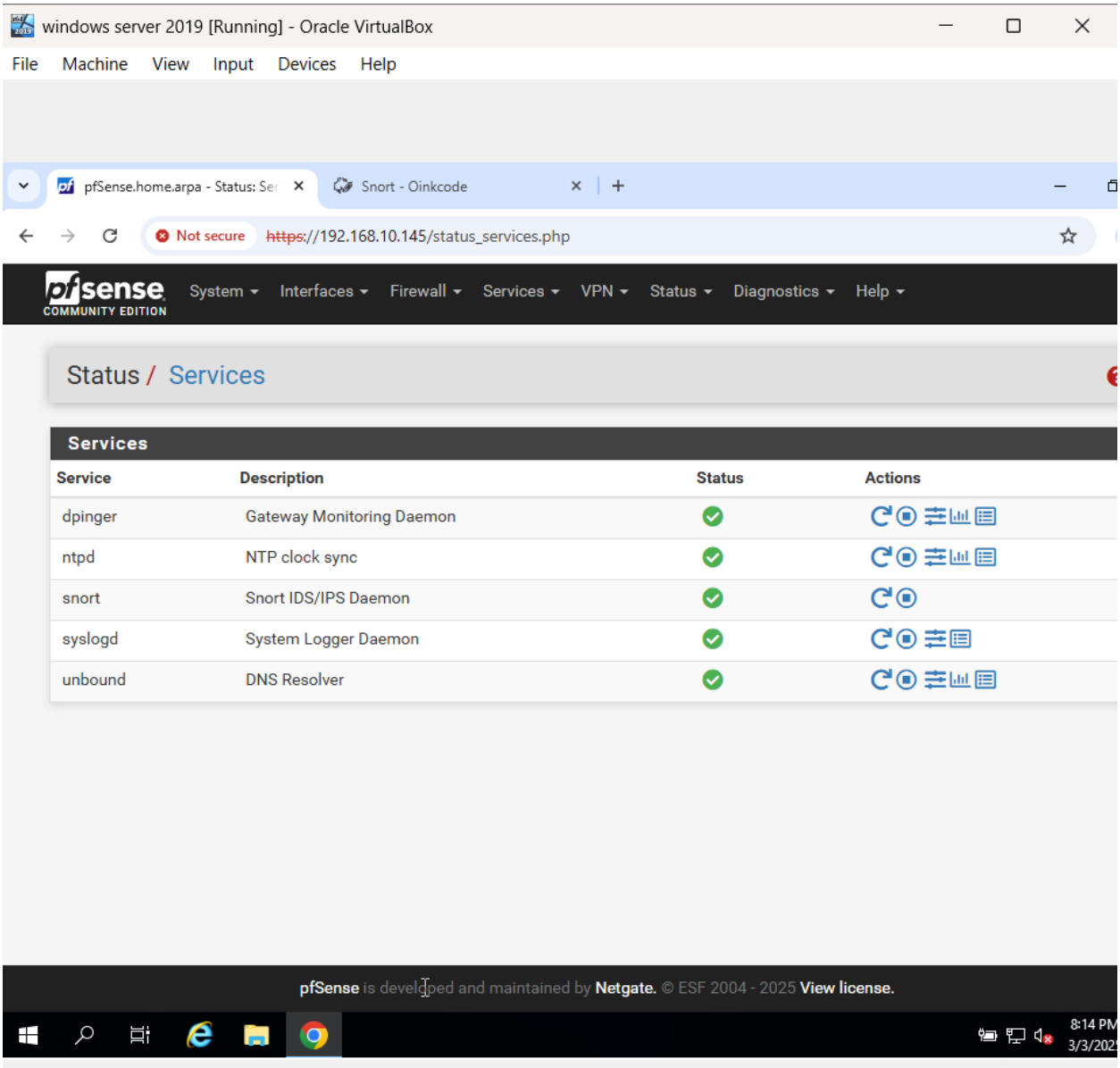
- In the **WAN Categories** tab, I enabled **Use IPS Policy** and set the **IPS Policy Mode** to **Balanced**.



- I clicked **Save** to finalize the configuration.

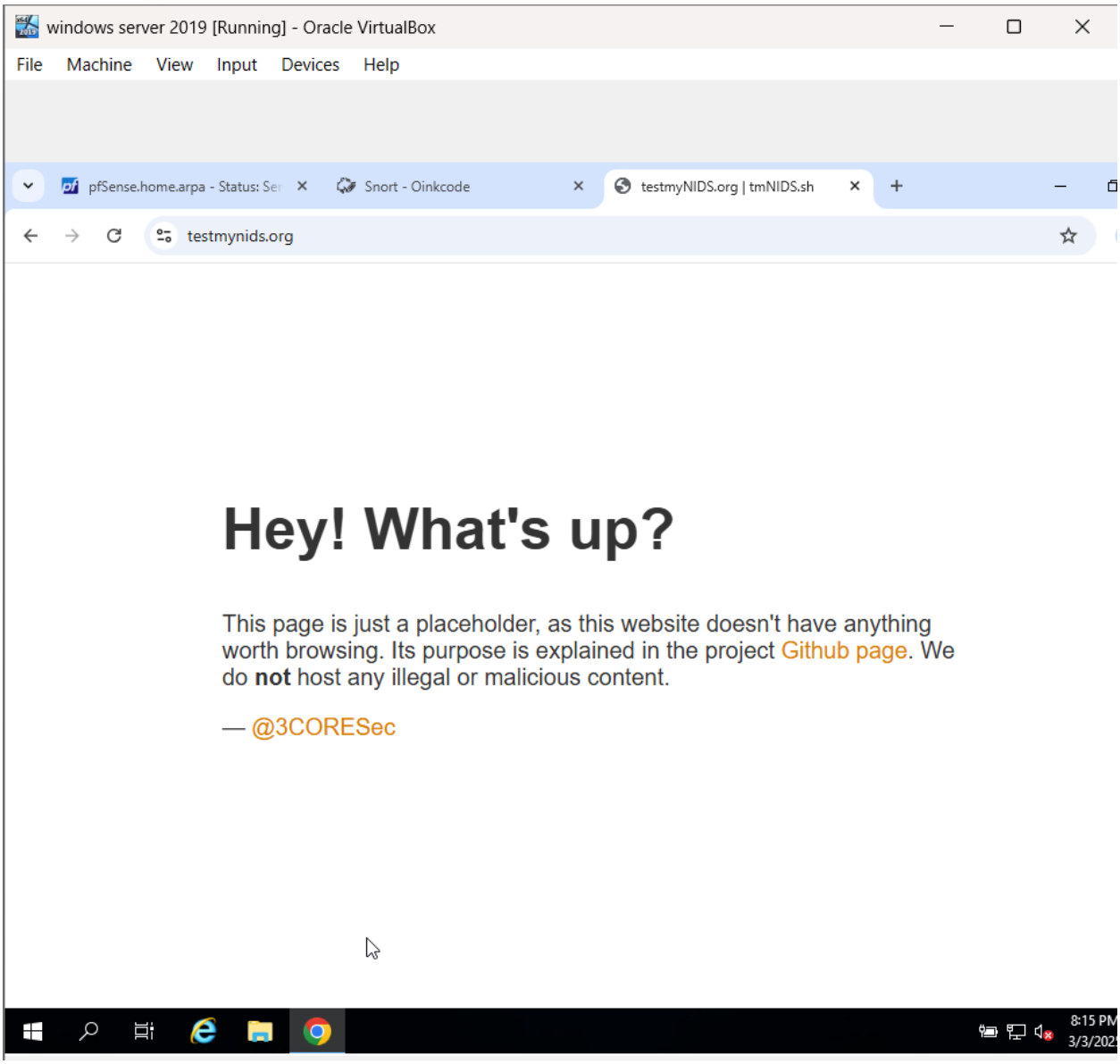


- I navigated to **Services > Snort > Interfaces** and clicked **Start Snort** to activate monitoring on the WAN interface.

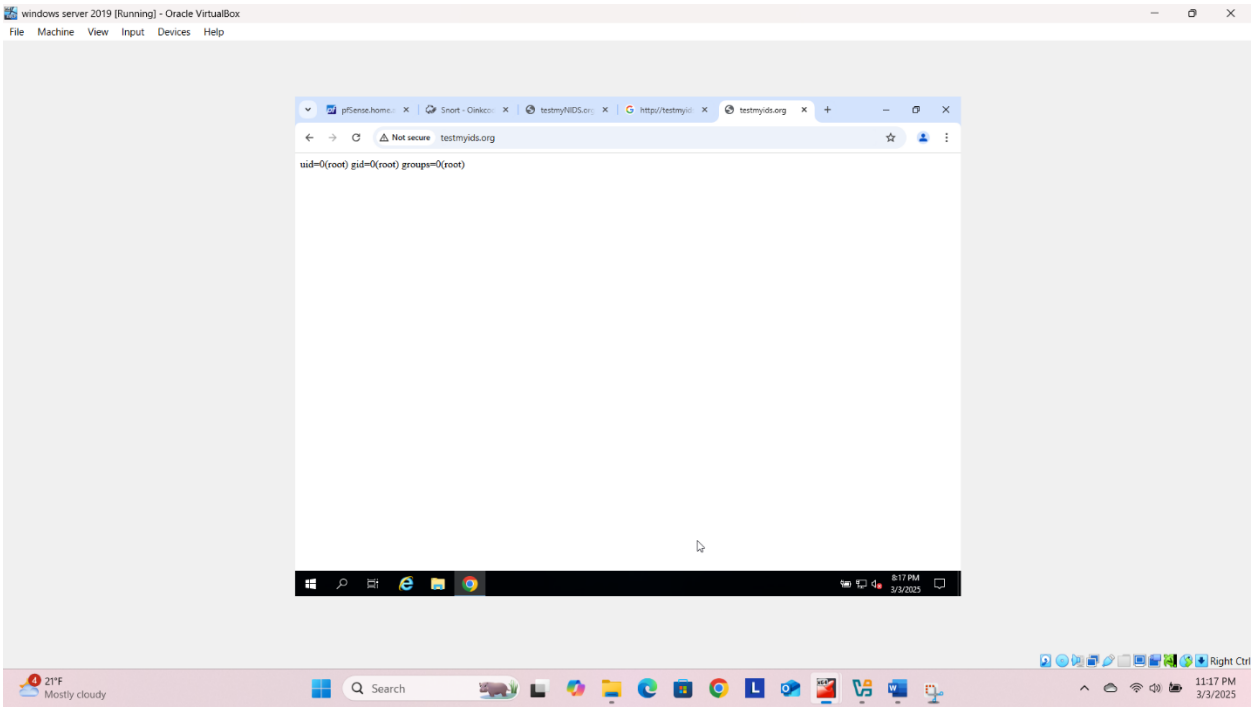


- I confirmed that Snort was running by checking the **Service Status** widget on the main pfSense dashboard.

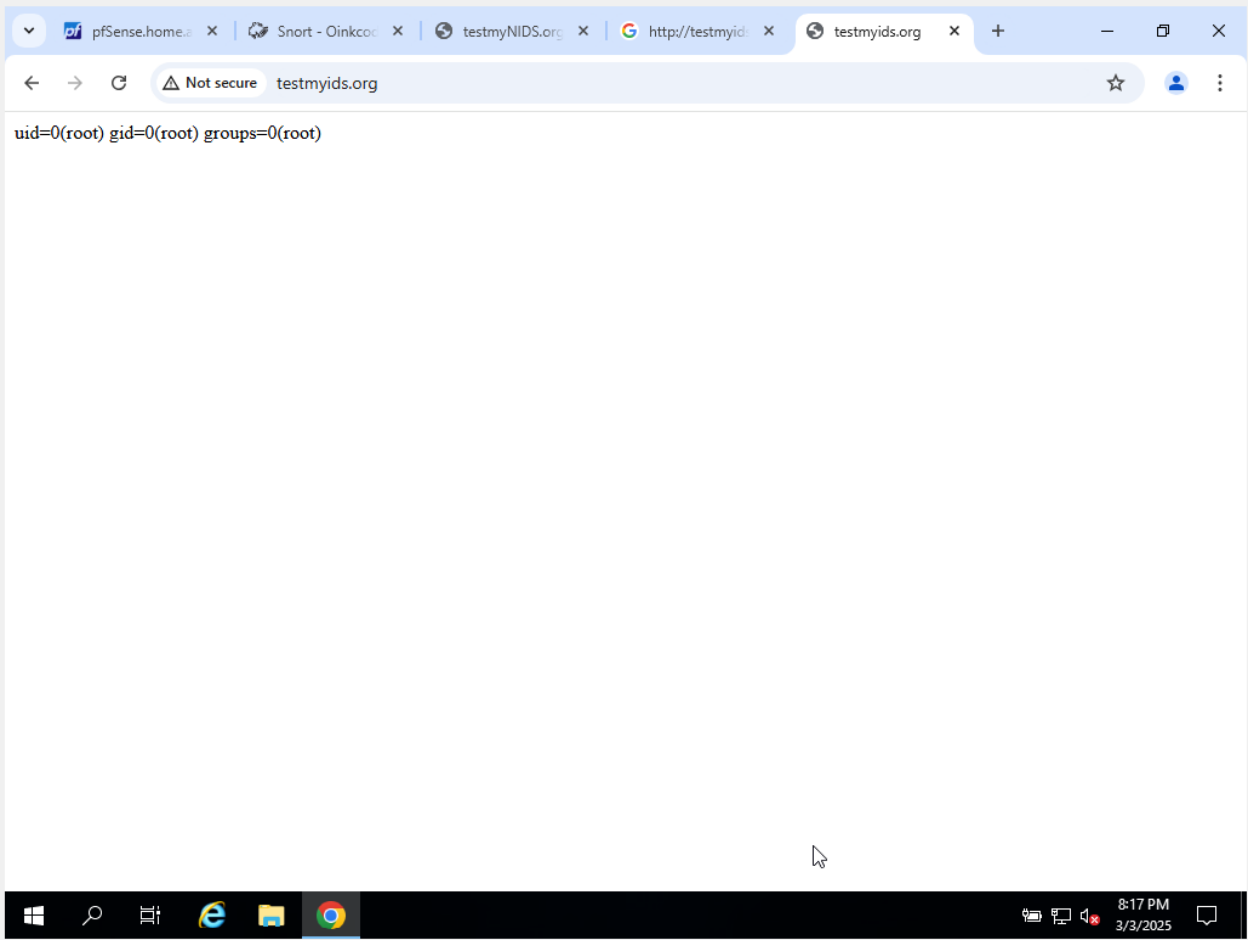
Objective 3: Testing Snort Configuration



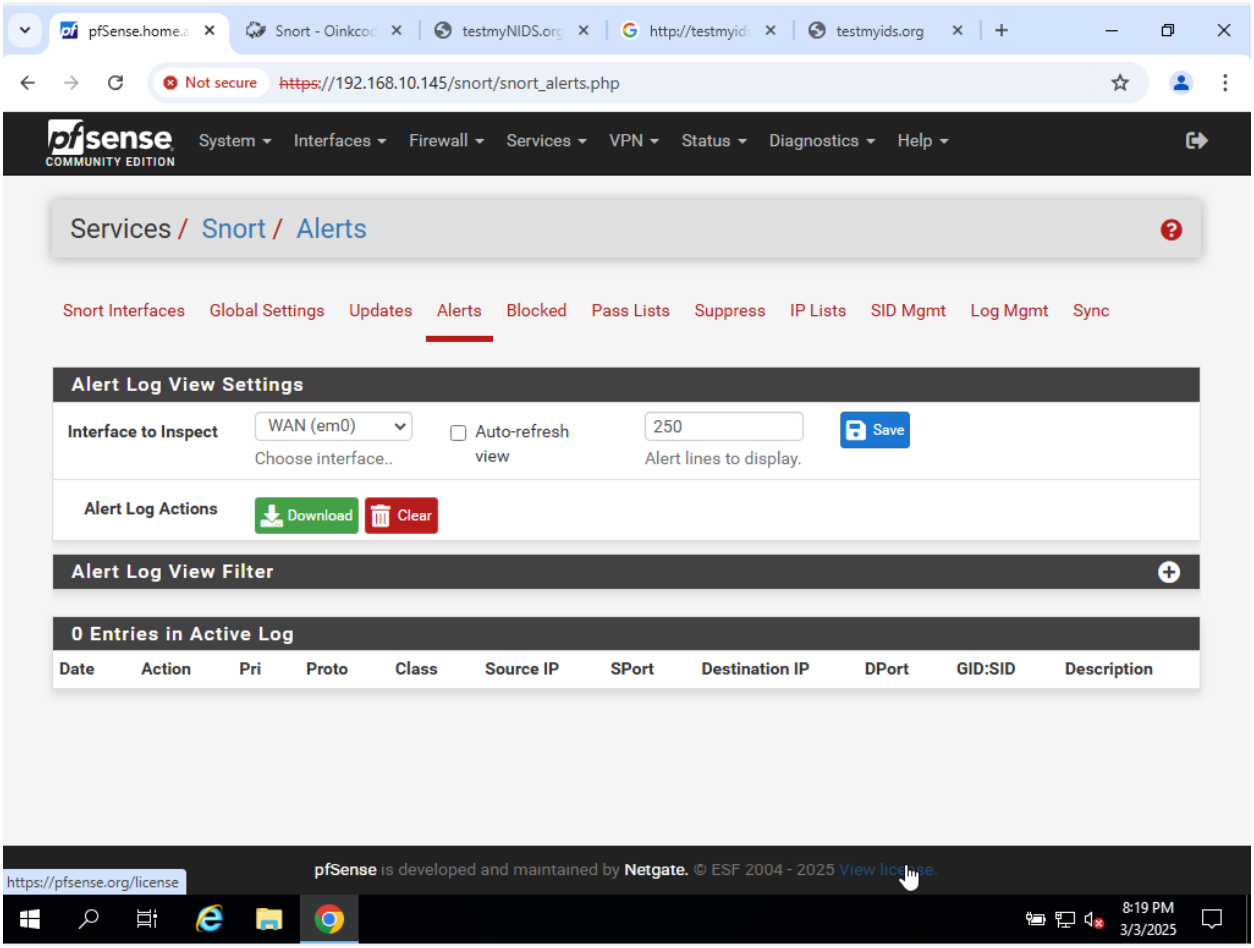
- To test Snort, I opened a browser on a machine protected by pfSense and visited https://testmynids.org.



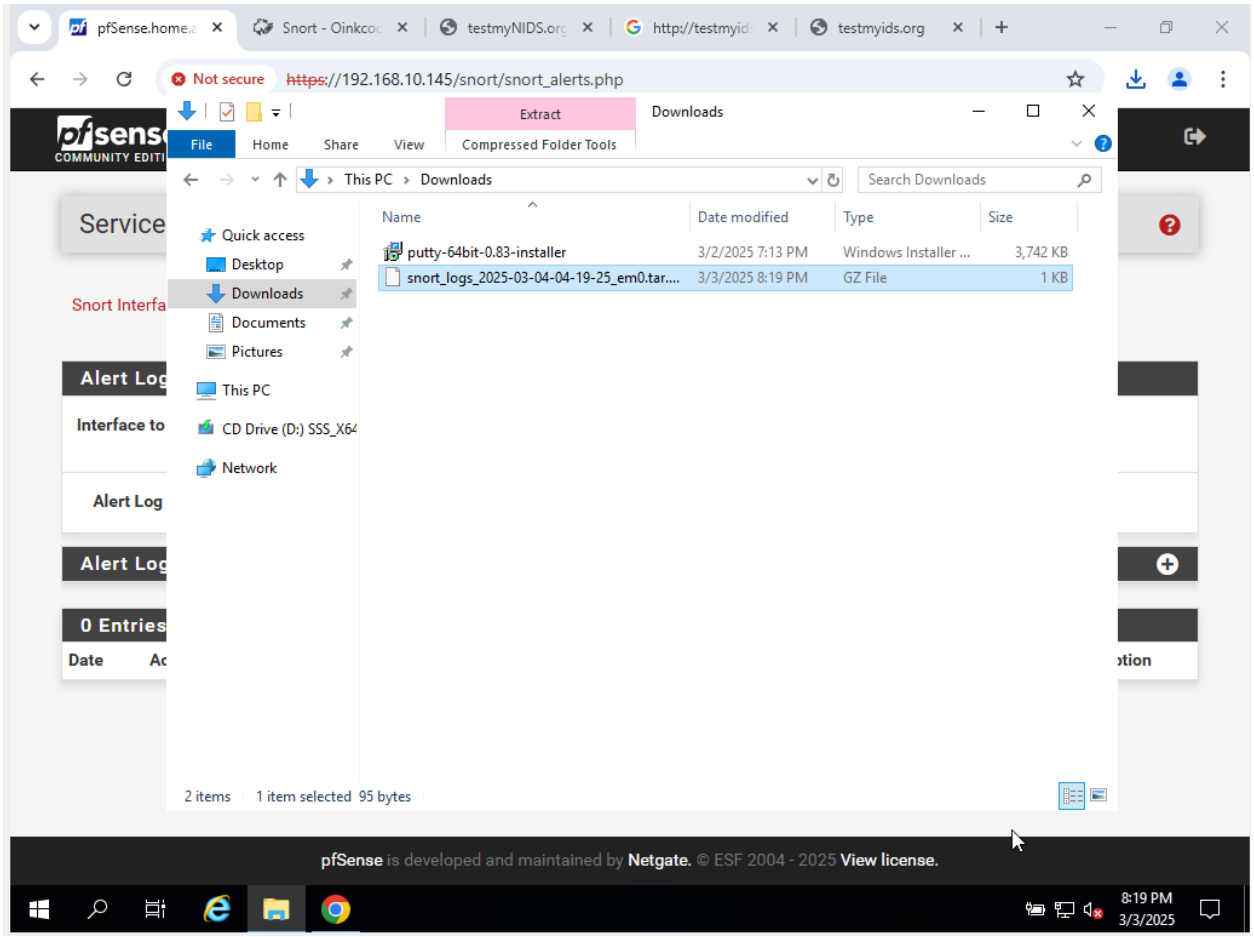
- Initially, the page loaded, but after refreshing, the site was blocked by pfSense.
- I confirmed that Snort was detecting and blocking threats in **Legacy Mode**.

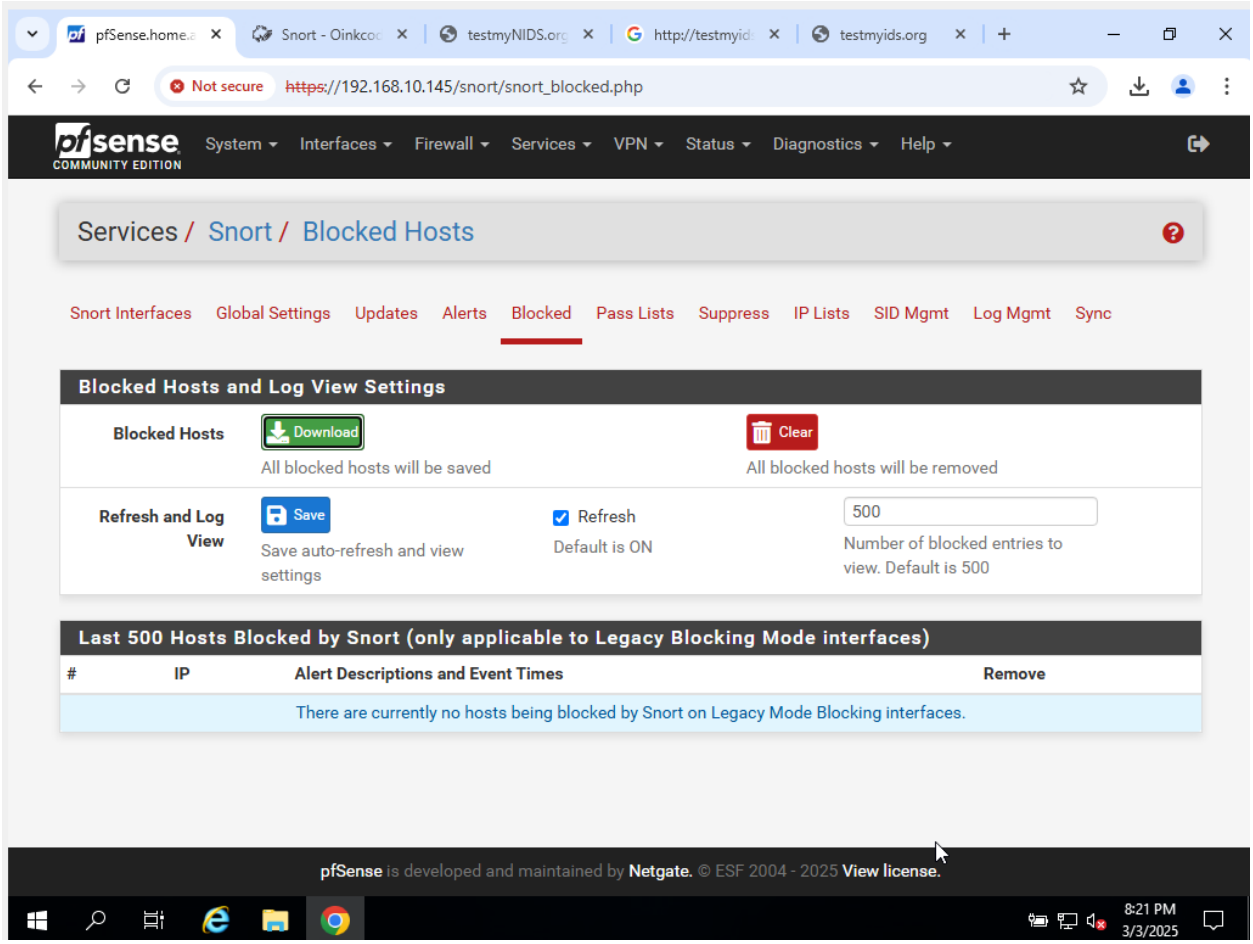


- After that I have opened the website http://testmyids.org
- After that I viewed the code.



- To view alerts, I navigated to **Services > Snort > Alerts** and verified the logs.
- I can’t find alerts and I asked my student assistants so they told it is fine.


pfSense.home.a
Snort - Oinkcoc
testmyNIDS.org
http://testmyids
testmyids.org
Not secure
https://192.168.10.145/snort/snort_alerts.php
Extract
Downloads
File
Home
Share
View
Compressed Folder Tools
This PC › Downloads
Search Downloads
Quick access
Desktop
Downloads
Documents
Pictures
This PC
CD Drive (D:) SSS_X64
Network
Name
Date modified
Type
Size
putty-64bit-0.83-installer
3/2/2025 7:13 PM
Windows Installer ...
3,742 KB
snort_logs_2025-03-04-04-19-25_em0.tar....
3/3/2025 8:19 PM
GZ File
1 KB
2 items
1 item selected 95 bytes
Service
Snort Interfa
Alert Log
Interface to
Alert Log
Alert Log
0 Entries
Date
pfSense is developed and maintained by Netgate. © ESF 2004 - 2025 View license.
8:19 PM
3/3/2025



- In the **Blocked** tab, I checked the list of blocked IP addresses.

  (To ensure that alerts were being recorded in the **ELK stack**, I searched for a **MALWARE-OTHER** message in **Kibana's Discovery page**.)
  it doesn't worked for us.

Conclusion

Through this lab, I successfully installed and configured **Snort IDS on pfSense**, enabling **Intrusion Prevention System (IPS) functionality**. The setup effectively blocked threats and logged security events, improving the firewall's ability to detect malicious activity. By integrating Snort with pfSense, I added an additional layer of protection to the network.