Towards a Flexible Smart Firewall Ruler

Nambirajan M, Rajdev R, Santhosh R, Sharon Raja D, Hemalakshmi G R, Kanthimathi M
National Engineering College
K. R. Nagar, Kovilpatti
Tamil Nadu
India

ABSTRACT: *The current work aims in easy usage of firewall wizard. Default wizard requires number of parameters to set a rule but in case of smart firewall ruler the parameter will be automated by itself. The rules play a vital role in firewall. We can add or remove rules using smart firewall ruler.*

1. Introduction

The proposed model will be another interface between firewall and the user. Where firewall is the first stage of defense every connection to a computer and from a computer system will pass through the firewall. In the past fire few years cyber threat is most dangerous threat to the word. Hence the Security companies has increased their service charge. They are all also using the firewall that is built in to a system. With some modification. In computing, a firewall is a network security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules. A firewall typically establishes a barrier between a trusted internal network and untrusted external network, such as the Internet.

Firewalls are often categorized as either network firewalls or host-based firewalls. Network firewalls filter traffic between two or more networks and run on network hardware. Host-based firewalls run on host computers and control network traffic in and out of those machines. Each and every must know to configure the firewall but the task is so complicated when using the default wizard. The main objective of our project is to develop a wizard that let anyone to configure it without have much knowledge in the firewall configuration. By automating the most difficult task and provide easy understanding. By using visual studio 2017 with c-sharp. we can build an Application file by that app we can add or remove the rule in default windows firewall. Smart firewall ruler will all you to find the ip address of the remote machine when it connected the domain name system server. Using that ip any one can block that site in that machine by doing so the system will be protected for the dangerous sites.

2. Existing System

As per our survey, there exist systems that let you to add rule to the firewall but it is very much complex. It is not a single step process by passing through a series of 7 stage wizard in order to add a single rule in firewall. This too much time-consuming process. and the seven-stage wizard will confuse the user by asking so much technical data such as port, protocol type, ip, name, in bond / out bond, allow/block and so many details. But these details are unnecessary for a normal system. And are not known by the user. Even accessing the wizard is also difficult. it can be access by going to control panel and then click windows defender firewall and then click advance setting in the left pane. It will show you the firewall window. This lengthy process will scare the user from adding the rule in firewall.

When you log in to an enterprise domain, you are authenticating your credentials with the overall system, including whatever firewall is in place. This basic principle also applies to individuals logging into a home network—you are granting yourself permission to use the network and pass data through a firewall. Under normal circumstances, if an application does not have access credentials, it is blocked from the rest of the network by firewall security protocols. A firewall is a network security system designed to prevent unauthorized access to or from a private network. Firewalls can be implemented as both hardware and software, or a combination of both. Network firewalls are frequently used to prevent unauthorized Internet users from accessing private networks connected to the Internet, especially intranets. All messages entering or leaving the intranet pass through the firewall, which examines each message and blocks those that do not meet the specified security criteria. A firewall typically establishes a barrier between a trusted, secure internal network and another outside network, such as the Internet, that is assumed not to be secure or trusted. A firewall is simply a program or hardware device that filters the information coming through the Internet connection into your private network or computer system. If an incoming packet of information is flagged by the filters, it is not allowed through.

3. Proposed System

Create a Single stage wizard that let you add rule in fire. It will ask only few details to from the user. That also very easily understandable by the user. When a new rule added with this wizard that rule will be added in the remove drop down list box. By clicking list in the dropdown list box the user can remove the rule. With just a single click. It will allow you to find the ip address of a remote machine by type the url in url box. It will fetch the ip from the DNS server. By using that address we can block the system. So, we will have Semi control over the firewall.

3.1 Firewall Status
This will display the status of the firewall whether it is no or off in the system. If it is on the color will be green or else it will be in red.

3.2 Add Rules in Firewall
User in must select Action and set the name to rule after that user set the target ip. In Direction In bond means income connection out bond means out going connection and select which type of packets want to affect by this rule and then click Add Filter Button it will add the rule in the firewall. And the history will be saved to the firewall.txt file.
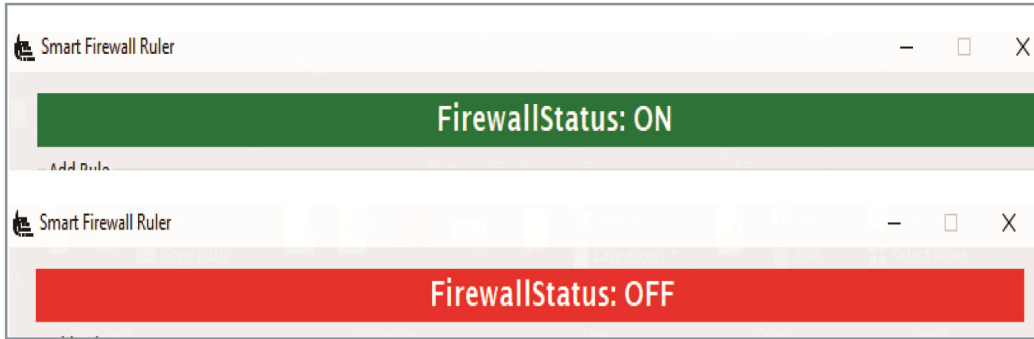
3.3 Remove Rule in Firewall
The rule added by our software product will display in the Remove drop down list bock user need to select the rule which want to be removed from the firewall and then click Remove button it will show the status in the message box.

3.4 Find ip of a Domain
The rule added by our software product will display in the Remove drop down list bock user need to select the rule which want to be removed from the firewall and then click Remove button it will show the status in the message box.

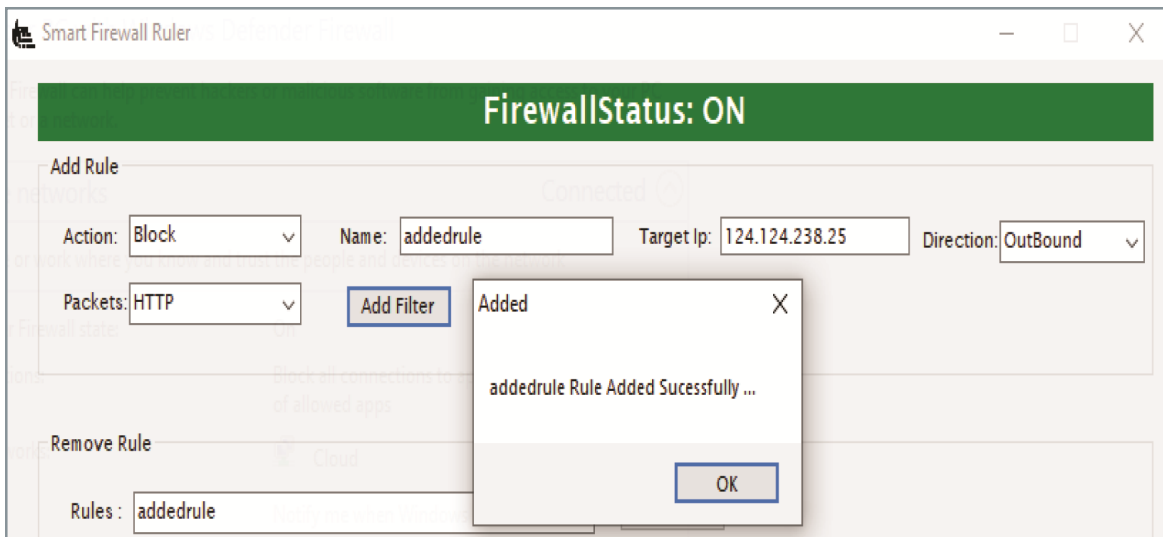### 3.5 Run the Application as a Administrator by Default
The must run as administrator in order to add rule in firewall because adding rule to firewall requires administrator privileges.
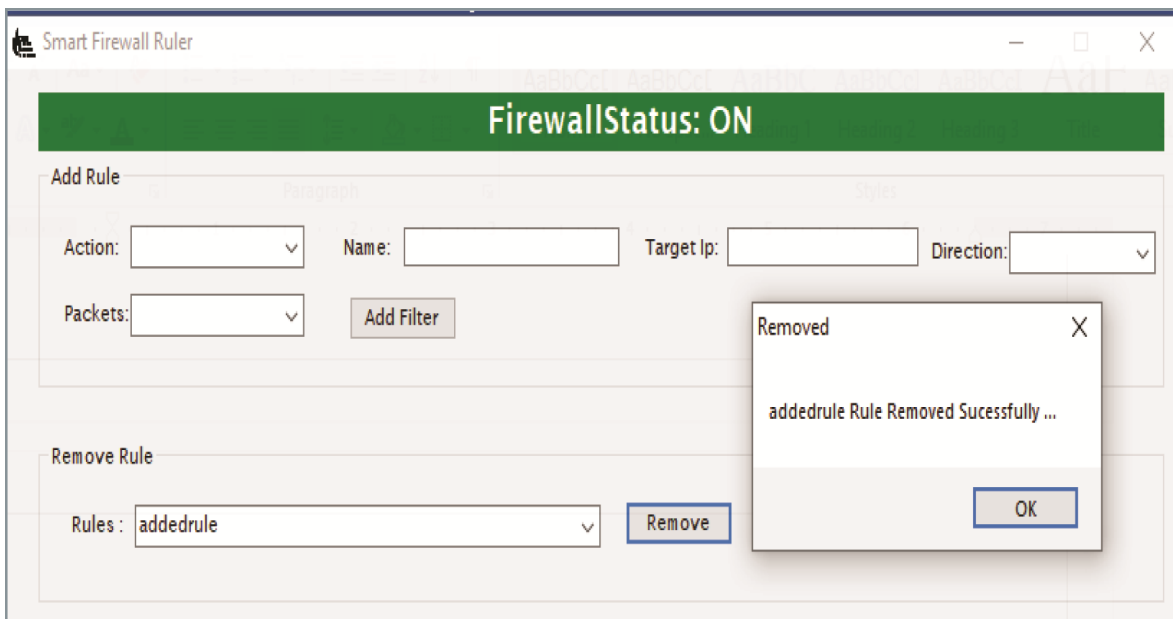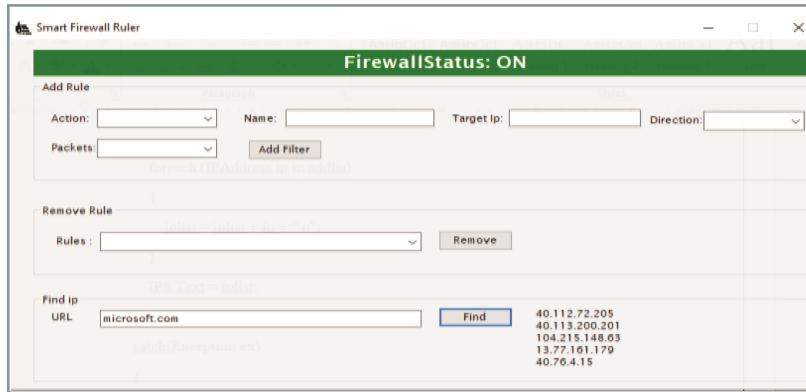
4. Output

4.1 Firewall Status

4.2 Added Rule

4.3 Remove Rule in Firewall

4.4 Finding the IP Address

5. Conclusion

The proposed smart firewall ruler can be used for personal security as well as enterprise security. This feature assist with ip identification also. It constructed with very simple user interface and hence allows the user to set the firewall rule easily. The automation system is inexpensive.

References

[1] https://social.msdn.microsoft.com/forums/vstudio/en-US/a3e390d1-4383-4f23-bad9-b725bef33499/add-firewall-rule-programatically

[2] https://docs.microsoft.com/en-us/dotnet/api/system.net?view=netframework-4.7.2

[3] https://docs.microsoft.com/en-us/dotnet/api/system.net.dns.gethostaddresses?redirectedfrom=MSDN&view=netframework-4.7.2#System_Net_Dns_GetHostAddresses_System_String_

[4] https://stackoverflow.com/questions/29890644/c-sharp-firewall-delete-specific-entry

[5] https://docs.microsoft.com/en-us/windows/desktop/api/netfw/nn-netfw-inetfwpolicy2

[6] https://docs.microsoft.com/en-us/windows/desktop/api/netfw/nn-netfw-inetfwrule

[7] https://docs.microsoft.com/en-us/dotnet/api/system.windows.forms.messagebox.show?redirectedfrom=net framework-4.7.2#System_Windows_Forms_MessageBox_Show_System_String_System_String_System_Windows_Forms_ MessageBoxButtons_System_Windows_Forms_MessageBoxIcon_System_Windows_Forms_MessageBoxDefaultButton _System_Windows_Forms_MessageBoxOptions_System_String_

[8] https://docs.microsoft.com/en-us/windows/desktop/api/netfw/nn-netfw-inetfwmgr

[9] https://docs.microsoft.com/en-us/dotnet/api/system.io.filestream?view=netframework-4.7.2

[10] https://docs.microsoft.com/en-us/dotnet/api/system.io.filenotfoundexception?view=netframework-4.7.2