SQUID

Experiment: 4

Aim: To create and configure Squid -proxy server

Description:

SQUID – PROXY SERVER

Squid is a full-featured web proxy cache server application which provides proxy and cache services for HyperText Transport Protocol (HTTP), File Transfer Protocol (FTP),and other popular network protocols. Squid can implement caching and proxying of Secure Sockets Layer (SSL) requests and caching of Domain Name Server (DNS) lookups, and perform transparent caching. Squid also supports a wide variety of caching protocols, such as Internet Cache Protocol (ICP), the HyperText Caching Protocol (HTCP), the Cache Array Routing Protocol (CARP), and the Web Cache Coordination Protocol (WCCP).
The Squid proxy cache server is an excellent solution to various proxy and caching server needs, and scales from the branch office to enterprise-level networks while providing extensive, granular access control mechanisms, and monitoring of critical parameters via the Simple Network Management Protocol (SNMP). When selecting a computer system for use as a dedicated Squid caching proxy server for many users ensure it is configured with a large amount of physical memory as Squid maintains an in-memory cache for increased performance.

Port No: 3128
Package name: squid
Configuration file: /etc/squid/squid.conf

Procedure:

1. At a terminal prompt, enter the following command to install the Squid server:

   $sudo apt install squid

2. Squid is configured by editing the directives contained within the /etc/squid/squid.conf configuration file.
3. Change the access as shown below:

acl localnet src 192.168.234.139(your ip address)

acl blocksite dstdomain "/etc/squid/blocksite"

http_access deny blocksite

http_access allow localnet

#http_access deny all

http_access allow all

4. To block access to the website we must configure using "/etc/squid/blocksite”

   we edit the file by running:

   $cd /etc/squid

   $sudo gedit blocksite

5. Add the websites to block:

   in this case, I am blocking youtube, facebook, google

6. To check the actual functioning of the proxy server go to the browser and click settings, search proxy in connection settings.

7. To configure Proxy access to the internet
8. Select Manual Proxy configuration

9. Type your HTTP Proxy(IP Address) and Port number as 3128.

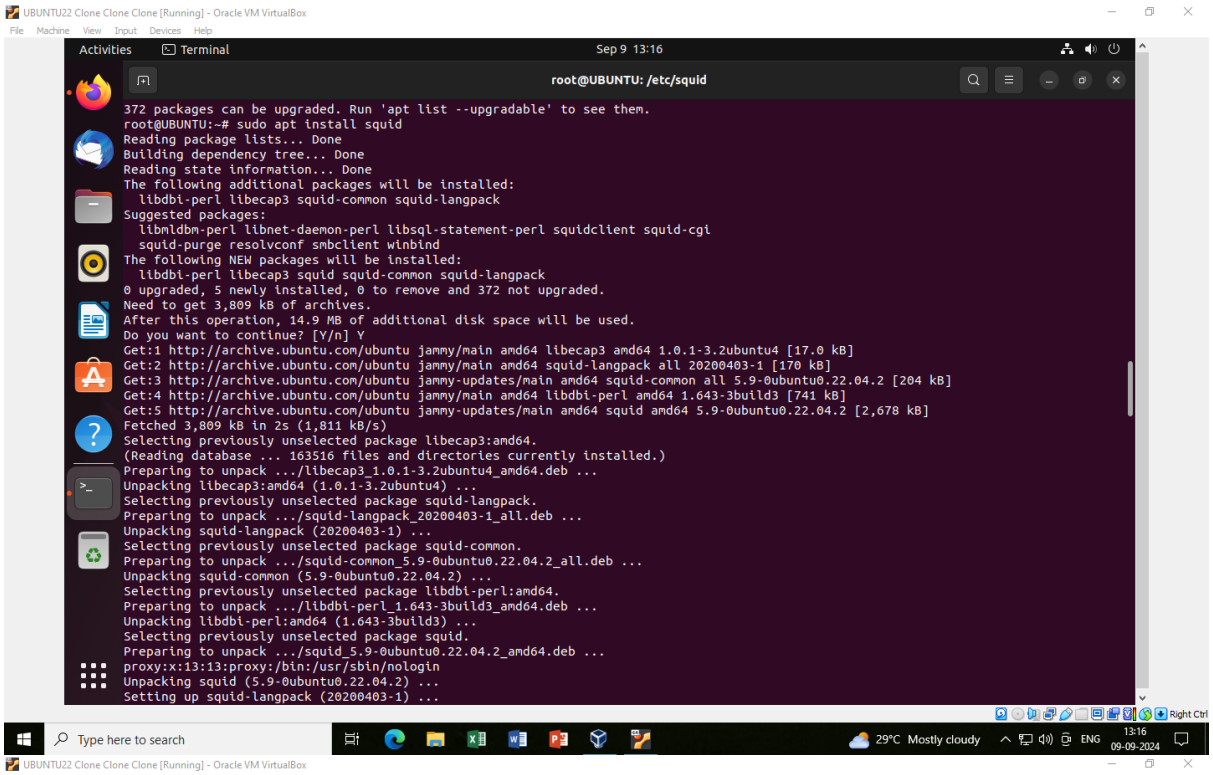
10. Select SOCKS v5

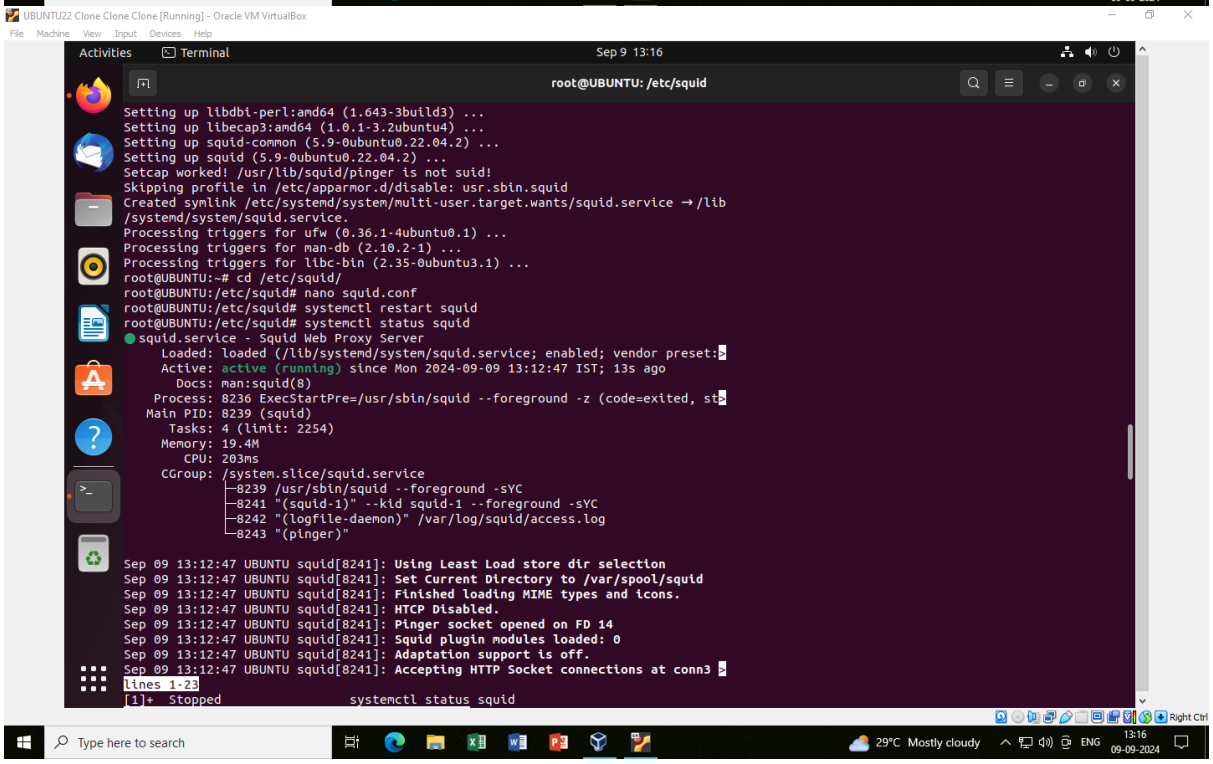
CONNECTING TO WEBSITE

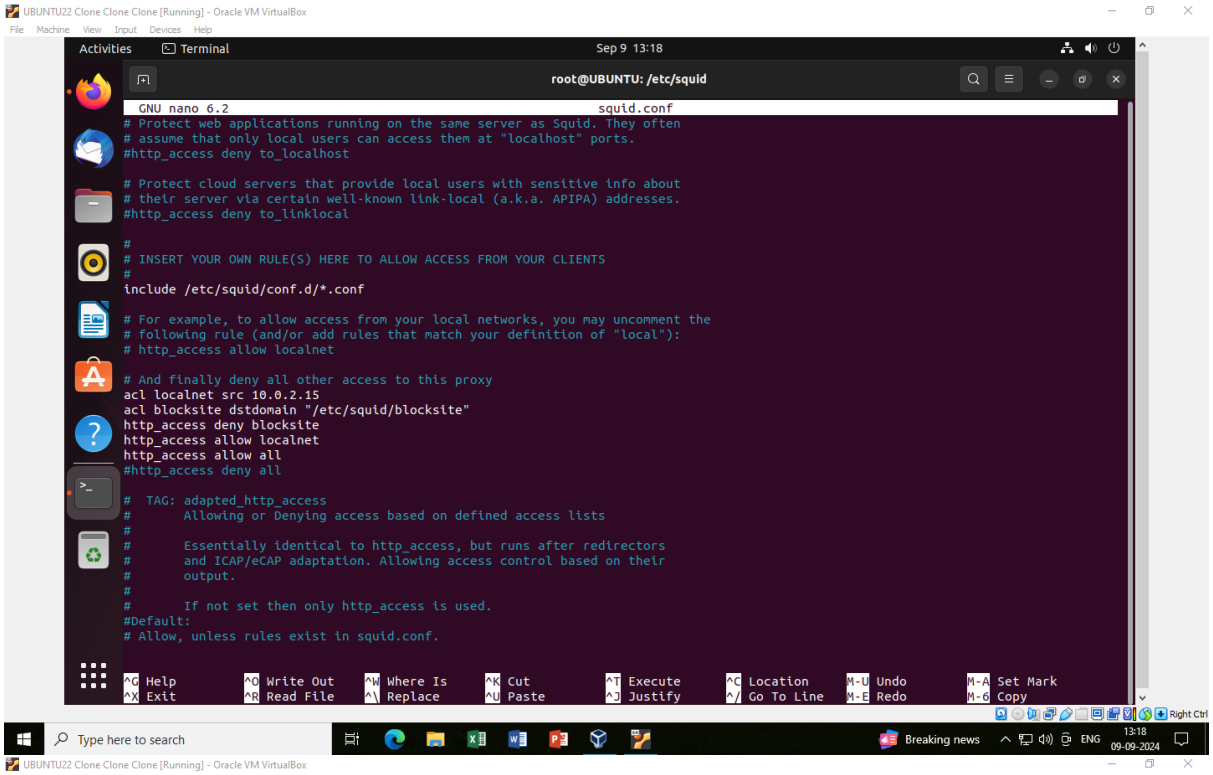
11. Search for the blocked websites

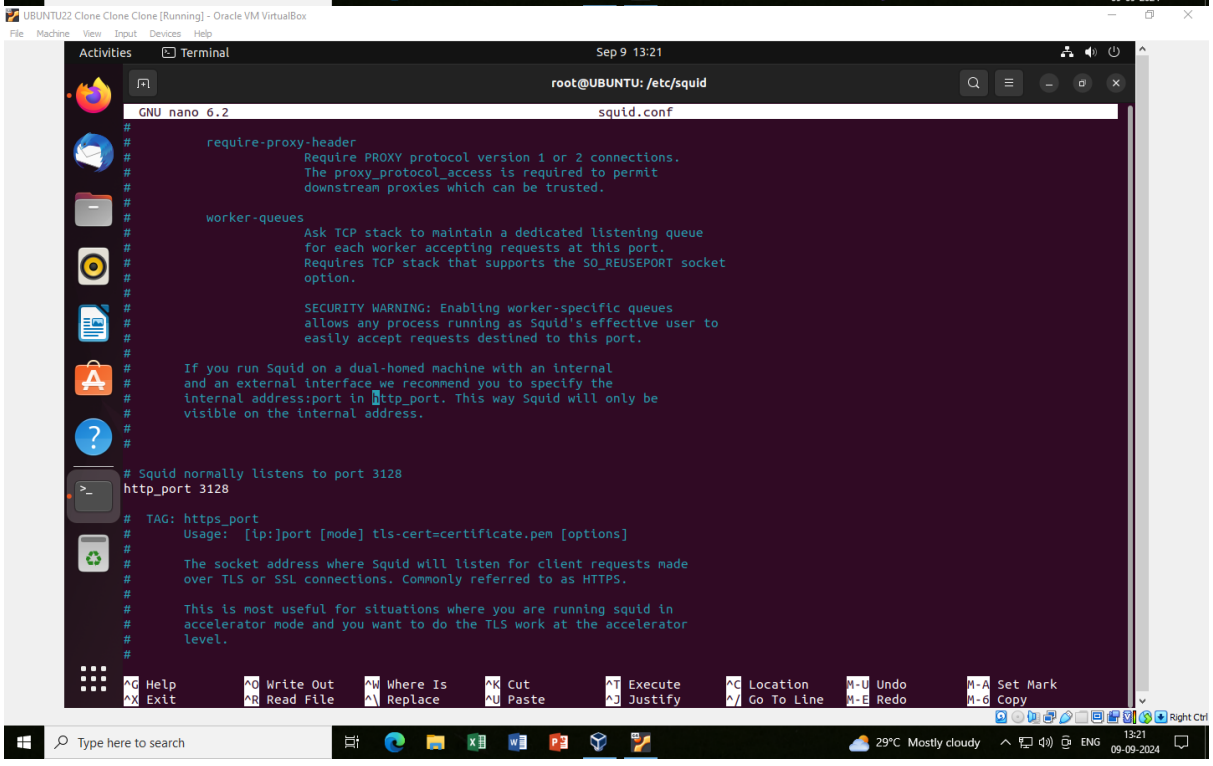
12. Access is denied to the above websites

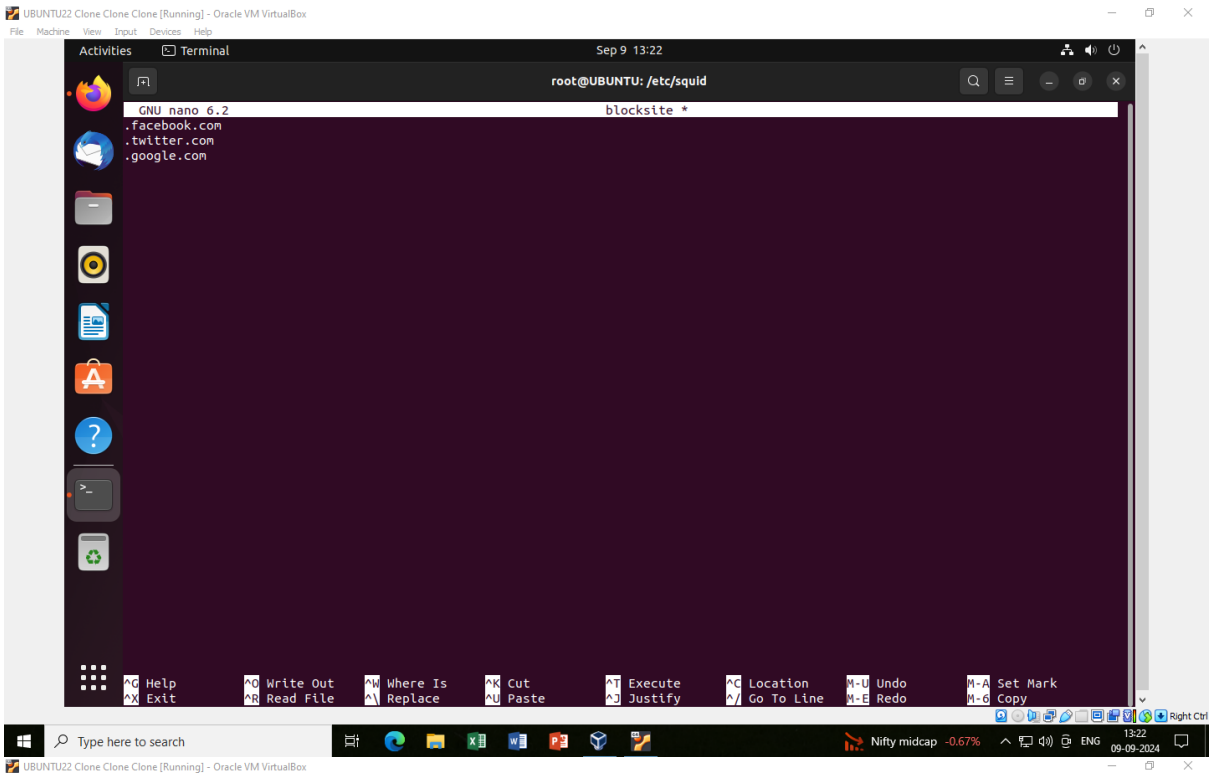
Result:

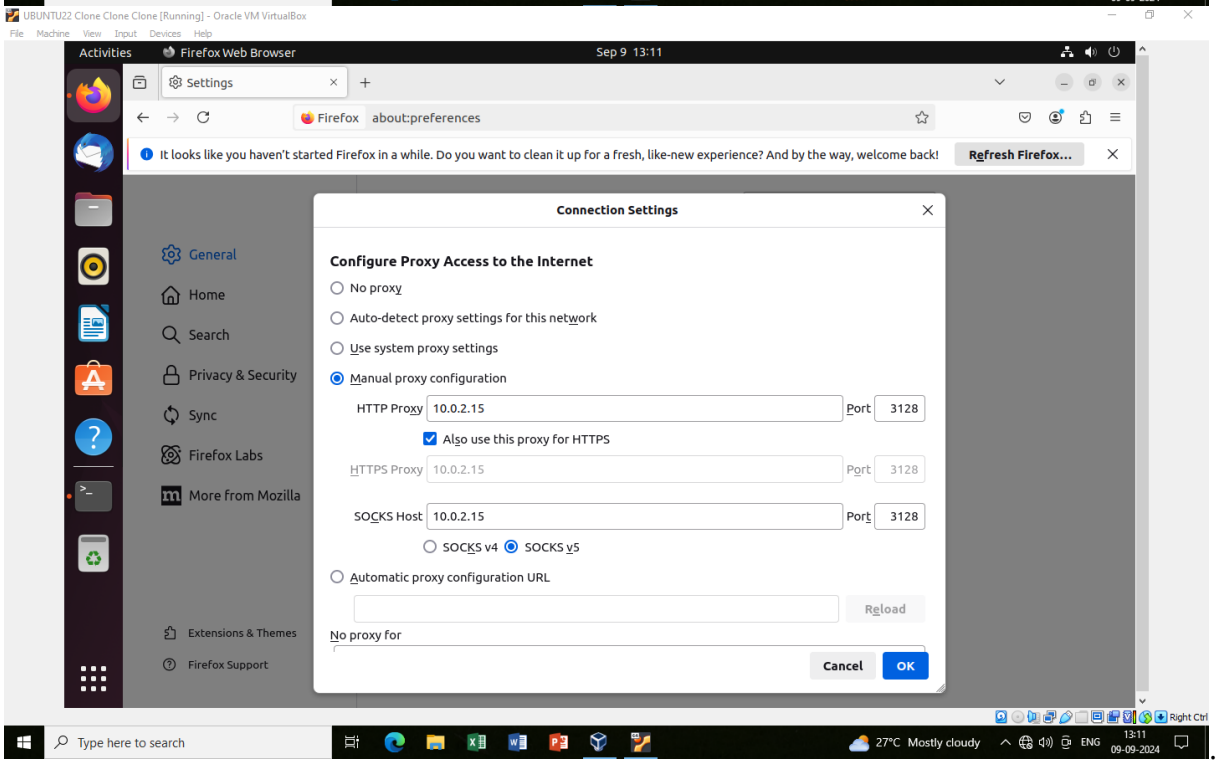

UBUNTU22 Clone Clone Clone [Running] - Oracle VM VirtualBox
Activities
Terminal
Sep 9 13:16
root@UBUNTU: /etc/squid
372 packages can be upgraded. Run 'apt list --upgradable' to see them.
root@UBUNTU:~# sudo apt install squid
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
libdbi-perl libecap3 squid-common squid-langpack
Suggested packages:
libmldbm-perl libnet-daemon-perl libsql-statement-perl squidclient squid-cgi
squid-purge resolvconf smbclient winbind
The following NEW packages will be installed:
libdbi-perl libecap3 squid squid-common squid-langpack
0 upgraded, 5 newly installed, 0 to remove and 372 not upgraded.
Need to get 3,809 kB of archives.
After this operation, 14.9 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://archive.ubuntu.com/ubuntu jammy/main amd64 libecap3 amd64 1.0.1-3.2ubuntu4 [17.0 kB]
Get:2 http://archive.ubuntu.com/ubuntu jammy/main amd64 squid-langpack all 20200403-1 [170 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 squid-common all 5.9-0ubuntu0.22.04.2 [204 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy/main amd64 libdbi-perl amd64 1.643-3build3 [741 kB]
Get:5 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 squid amd64 5.9-0ubuntu0.22.04.2 [2,678 kB]
Fetched 3,809 kB in 2s (1,811 kB/s)
Selecting previously unselected package libecap3:amd64.
(Reading database ... 163516 files and directories currently installed.)
Preparing to unpack .../libecap3_1.0.1-3.2ubuntu4_amd64.deb ...
Unpacking libecap3:amd64 (1.0.1-3.2ubuntu4) ...
Selecting previously unselected package squid-langpack.
Preparing to unpack .../squid-langpack_20200403-1_all.deb ...
Unpacking squid-langpack (20200403-1) ...
Selecting previously unselected package squid-common.
Preparing to unpack .../squid-common_5.9-0ubuntu0.22.04.2_all.deb ...
Unpacking squid-common (5.9-0ubuntu0.22.04.2) ...
Selecting previously unselected package libdbi-perl:amd64.
Preparing to unpack .../libdbi-perl_1.643-3build3_amd64.deb ...
Unpacking libdbi-perl:amd64 (1.643-3build3) ...
Selecting previously unselected package squid.
Preparing to unpack .../squid_5.9-0ubuntu0.22.04.2_amd64.deb ...
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
Unpacking squid (5.9-0ubuntu0.22.04.2) ...
Setting up squid-langpack (20200403-1) ...
Type here to search
29°C Mostly cloudy
ENG
13:16
09-09-2024

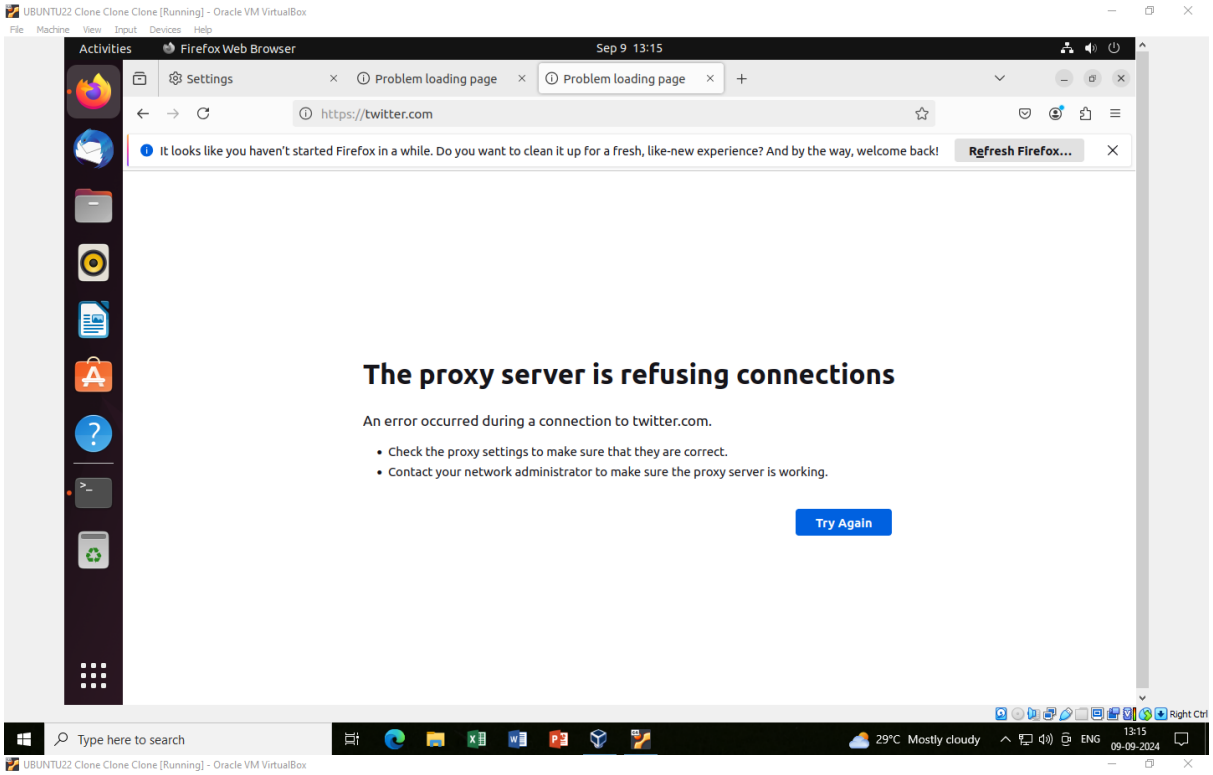

UBUNTU22 Clone Clone Clone [Running] - Oracle VM VirtualBox
Activities
Terminal
Sep 9 13:16
root@UBUNTU: /etc/squid
Setting up libdbi-perl:amd64 (1.643-3build3) ...
Setting up libecap3:amd64 (1.0.1-3.2ubuntu4) ...
Setting up squid-common (5.9-0ubuntu0.22.04.2) ...
Setting up squid (5.9-0ubuntu0.22.04.2) ...
Setcap worked! /usr/lib/squid/pinger is not suid!
Skipping profile in /etc/apparmor.d/disable: usr.sbin.squid
Created symlink /etc/systemd/system/multi-user.target.wants/squid.service → /lib
/systemd/system/squid.service.
Processing triggers for ufw (0.36.1-4ubuntu0.1) ...
Processing triggers for man-db (2.10.2-1) ...
Processing triggers for libc-bin (2.35-0ubuntu3.1) ...
root@UBUNTU:~# cd /etc/squid/
root@UBUNTU:/etc/squid# nano squid.conf
root@UBUNTU:/etc/squid# systemctl restart squid
root@UBUNTU:/etc/squid# systemctl status squid
squid.service - Squid Web Proxy Server
Loaded: loaded (/lib/systemd/system/squid.service; enabled; vendor preset:
Active: active (running) since Mon 2024-09-09 13:12:47 IST; 13s ago
Docs: man:squid(8)
Process: 8236 ExecStartPre=/usr/sbin/squid --foreground -z (code=exited, st
Main PID: 8239 (squid)
Tasks: 4 (limit: 2254)
Memory: 19.4M
CPU: 203ms
CGroup: /system.slice/squid.service
├─8239 /usr/sbin/squid --foreground -sYC
├─8241 "(squid-1)" --kid squid-1 --foreground -sYC
├─8242 "(logfile-daemon)" /var/log/squid/access.log
└─8243 "(pinger)"
Sep 09 13:12:47 UBUNTU squid[8241]: Using Least Load store dir selection
Sep 09 13:12:47 UBUNTU squid[8241]: Set Current Directory to /var/spool/squid
Sep 09 13:12:47 UBUNTU squid[8241]: Finished loading MIME types and icons.
Sep 09 13:12:47 UBUNTU squid[8241]: HTCP Disabled.
Sep 09 13:12:47 UBUNTU squid[8241]: Pinger socket opened on FD 14
Sep 09 13:12:47 UBUNTU squid[8241]: Squid plugin modules loaded: 0
Sep 09 13:12:47 UBUNTU squid[8241]: Adaptation support is off.
Sep 09 13:12:47 UBUNTU squid[8241]: Accepting HTTP Socket connections at conn3
lines 1-23
[1]+ Stopped systemctl status squid
Type here to search
29°C Mostly cloudy
ENG
13:16
09-09-2024

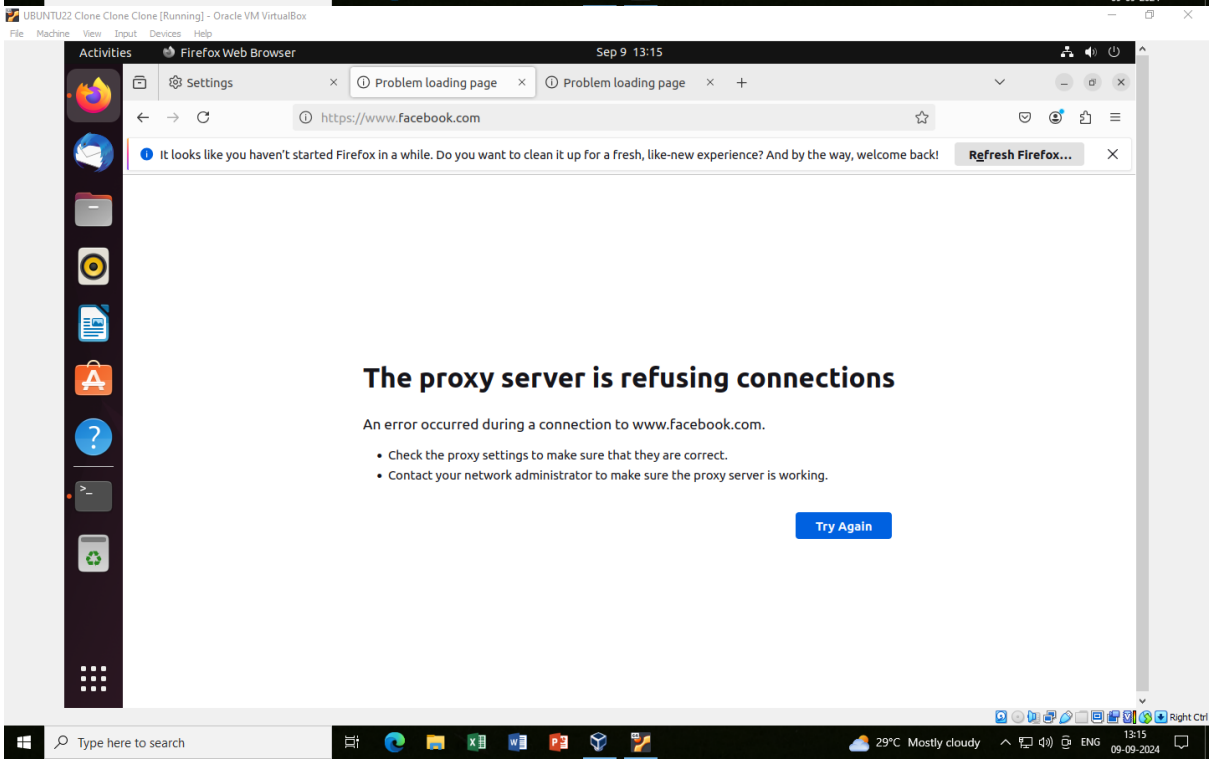

UBUNTU22 Clone Clone Clone [Running] - Oracle VM VirtualBox
Activities
Terminal
Sep 9 13:18
root@UBUNTU: /etc/squid
GNU nano 6.2
squid.conf
Protect web applications running on the same server as Squid. They often
assume that only local users can access them at "localhost" ports.
#http_access deny to_localhost
Protect cloud servers that provide local users with sensitive info about
their server via certain well-known link-local (a.k.a. APIPA) addresses.
#http_access deny to_linklocal
#
INSERT YOUR OWN RULE(S) HERE TO ALLOW ACCESS FROM YOUR CLIENTS
#
include /etc/squid/conf.d/*.conf
For example, to allow access from your local networks, you may uncomment the
following rule (and/or add rules that match your definition of "local"):
http_access allow localnet
And finally deny all other access to this proxy
acl localnet src 10.0.2.15
acl blocksite dstdomain "/etc/squid/blocksite"
http_access deny blocksite
http_access allow localnet
http_access allow all
#http_access deny all
TAG: adapted_http_access
Allowing or Denying access based on defined access lists
#
Essentially identical to http_access, but runs after redirectors
and ICAP/eCAP adaptation. Allowing access control based on their
output.
#
If not set then only http_access is used.
#Default:
Allow, unless rules exist in squid.conf.
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo M-A Set Mark
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line M-E Redo M-6 Copy
Type here to search
Breaking news
ENG
13:18
09-09-2024

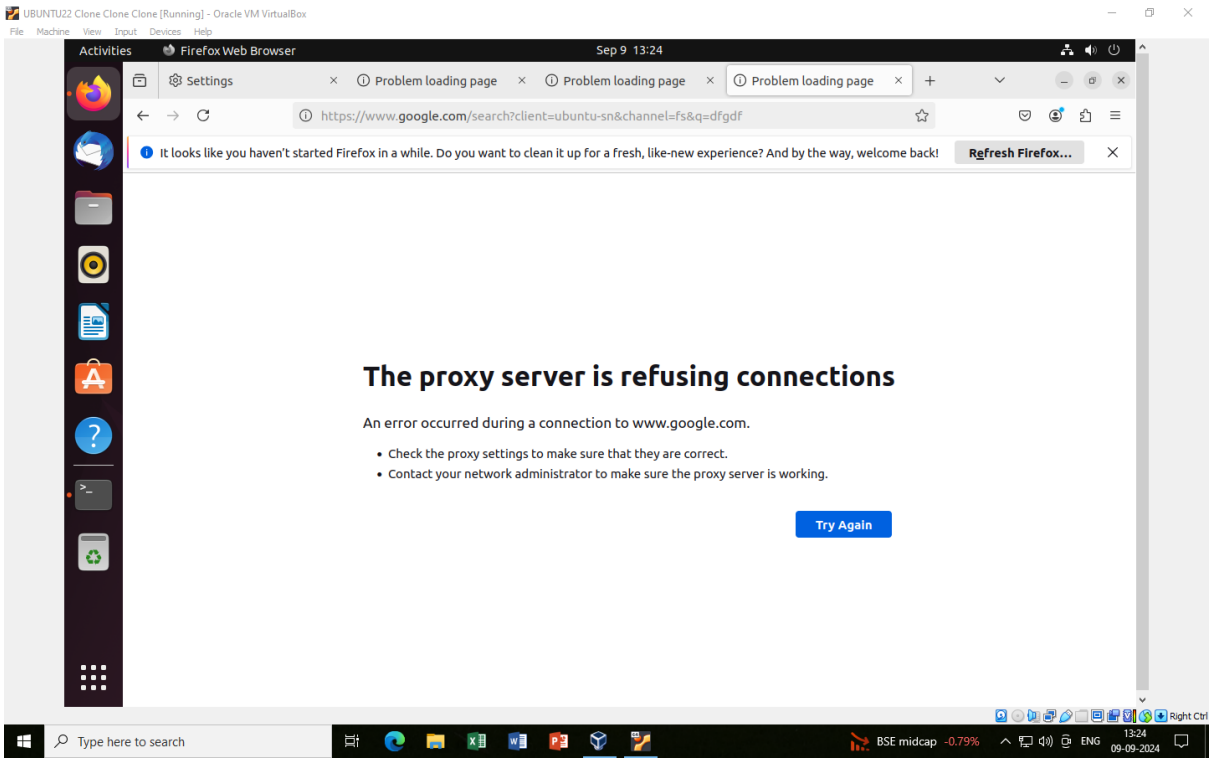

UBUNTU22 Clone Clone Clone [Running] - Oracle VM VirtualBox
Activities
Terminal
Sep 9 13:21
root@UBUNTU: /etc/squid
GNU nano 6.2
squid.conf
#
require-proxy-header
Require PROXY protocol version 1 or 2 connections.
The proxy_protocol_access is required to permit
downstream proxies which can be trusted.
#
worker-queues
Ask TCP stack to maintain a dedicated listening queue
for each worker accepting requests at this port.
Requires TCP stack that supports the SO_REUSEPORT socket
option.
#
SECURITY WARNING: Enabling worker-specific queues
allows any process running as Squid's effective user to
easily accept requests destined to this port.
#
If you run Squid on a dual-homed machine with an internal
and an external interface we recommend you to specify the
internal address:port in http_port. This way Squid will only be
visible on the internal address.
#
#
Squid normally listens to port 3128
http_port 3128
TAG: https_port
Usage: [ip:]port [mode] tls-cert=certificate.pem [options]
#
The socket address where Squid will listen for client requests made
over TLS or SSL connections. Commonly referred to as HTTPS.
#
This is most useful for situations where you are running squid in
accelerator mode and you want to do the TLS work at the accelerator
level.
#
^G Help ^O Write Out ^W Where Is ^K Cut ^T Execute ^C Location M-U Undo M-A Set Mark
^X Exit ^R Read File ^\ Replace ^U Paste ^J Justify ^/ Go To Line M-E Redo M-6 Copy
Type here to search
29°C Mostly cloudy
ENG
13:21
09-09-2024


UBUNTU22 Clone Clone Clone [Running] - Oracle VM VirtualBox
Activities
Terminal
Sep 9 13:22
root@UBUNTU: /etc/squid
GNU nano 6.2
blocksite *
.facebook.com
.twitter.com
.google.com
^G Help
^X Exit
^O Write Out
^R Read File
^W Where Is
^\ Replace
^K Cut
^U Paste
^T Execute
^J Justify
^C Location
^/ Go To Line
M-U Undo
M-E Redo
M-A Set Mark
M-6 Copy
Type here to search
Nifty midcap -0.67%
ENG
13:22
09-09-2024


UBUNTU22 Clone Clone Clone [Running] - Oracle VM VirtualBox
Activities
Firefox Web Browser
Sep 9 13:11
Settings
Firefox about:preferences
It looks like you haven't started Firefox in a while. Do you want to clean it up for a fresh, like-new experience? And by the way, welcome back!
Refresh Firefox...
General
Home
Search
Privacy & Security
Sync
Firefox Labs
More from Mozilla
Extensions & Themes
Firefox Support
Connection Settings
Configure Proxy Access to the Internet
No proxy
Auto-detect proxy settings for this network
Use system proxy settings
Manual proxy configuration
HTTP Proxy 10.0.2.15 Port 3128
Also use this proxy for HTTPS
HTTPS Proxy 10.0.2.15 Port 3128
SOCKS Host 10.0.2.15 Port 3128
SOCKS v4
SOCKS v5
Automatic proxy configuration URL
Reload
No proxy for
Cancel
OK
Type here to search
27°C Mostly cloudy
ENG
13:11
09-09-2024


UBUNTU22 Clone Clone Clone [Running] - Oracle VM VirtualBox
Activities
Firefox Web Browser
Sep 9 13:15
Settings
Problem loading page
Problem loading page
https://twitter.com
It looks like you haven't started Firefox in a while. Do you want to clean it up for a fresh, like-new experience? And by the way, welcome back!
Refresh Firefox...
The proxy server is refusing connections
An error occurred during a connection to twitter.com.
Check the proxy settings to make sure that they are correct.
Contact your network administrator to make sure the proxy server is working.
Try Again
Type here to search
29°C Mostly cloudy
ENG
13:15
09-09-2024


UBUNTU22 Clone Clone Clone [Running] - Oracle VM VirtualBox
Activities
Firefox Web Browser
Sep 9 13:15
Settings
Problem loading page
Problem loading page
https://www.facebook.com
It looks like you haven't started Firefox in a while. Do you want to clean it up for a fresh, like-new experience? And by the way, welcome back!
Refresh Firefox...
The proxy server is refusing connections
An error occurred during a connection to www.facebook.com.
Check the proxy settings to make sure that they are correct.
Contact your network administrator to make sure the proxy server is working.
Try Again
Type here to search
29°C Mostly cloudy
ENG
13:15
09-09-2024



All the commands have been executed and the output has been obtained successfully.