

EXPLORER

> OPEN EDITORS

LAB ASSESSMENT

ansible

docker

elastic-stack

grafana and Promet...

jenkins

kubernetes

terraform

terraform.tfstate

main.tf

elastic-stack > main.tf > ...

```
134 }
135
136 // EC2 Instance for General Web Server
137 resource "aws_instance" "ec2_server" {
138   ami           = "ami-0e8d228ad90af673b" // Ubuntu AMI
139   instance_type = "t2.micro"
140   vpc_security_group_ids = [aws_security_group.nginx_sg.id]
141   key_name       = aws_key_pair.keypair.key_name
142   associate_public_ip_address = true
143
144   tags = {
145     Name = "nginx_server"
146   }
147 }
148
149 // Outputs
150 output "elk_ip" {
151   value = aws_instance.prom_graf.public_ip
152 }
153
154 output "nginx_ip" {
155   value = aws_instance.ec2_server.public_ip
156 }
157
```

PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL

PORTS

- Installing hashicorp/tls v4.0.6...

- Installed hashicorp/tls v4.0.6 (signed by HashiCorp)

- Installing hashicorp/local v2.5.2...

- Installed hashicorp/local v2.5.2 (signed by HashiCorp)

Terraform has created a lock file .terraform.lock.hcl to record the provider selections it made above. Include this file in your version control repository so that Terraform can guarantee to make the same selections by default when you run "terraform init" in the future.

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see any changes that are required for your infrastructure. All Terraform commands should now work.

If you ever set or change modules or backend configuration for Terraform, rerun this command to reinitialize your working directory. If you forget, other commands will detect it and remind you to do so if necessary.

mac@SirNicks-MBP elastic-stack % terraform validate

Success! The configuration is valid.

mac@SirNicks-MBP elastic-stack % terraform plan

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EXPLORER

main.tf

elastic-stack > main.tf > ...

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terraform.tfstate

134 }

135 }

136 // EC2 Instance for General Web Server

137 resource "aws_instance" "ec2_server" {

138 ami = "ami-0e8d228ad90af673b" // Ubuntu AMI

139 instance_type = "t2.micro"

140 vpc_security_group_ids = [aws_security_group.nginx_sg.id]

141 key_name = aws_key_pair.keypair.key_name

142 associate_public_ip_address = true

143 }

144 tags = {

145 Name = "nginx_server"

146 }

147 }

148 }

149 // Outputs

150 output "elk_ip" {

151 value = aws_instance.prom_graf.public_ip

152 }

153 }

154 output "nginx_ip" {

155 value = aws_instance.ec2_server.public_ip

156 }

157 }

PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL

PORTS

+ ecdsa_curve = "P224"

+ id = (known after apply)

+ private_key_openssh = (sensitive value)

+ private_key_pem = (sensitive value)

+ private_key_pem_pkcs8 = (sensitive value)

+ public_key_fingerprint_md5 = (known after apply)

+ public_key_fingerprint_sha256 = (known after apply)

+ public_key_openssh = (known after apply)

+ public_key_pem = (known after apply)

+ rsa_bits = 4096

}

Plan: 7 to add, 0 to change, 0 to destroy.

Changes to Outputs:

+ elk_ip = (known after apply)

+ nginx_ip = (known after apply)

Note: You didn't use the -out option to save this plan, so Terraform can't guarantee to take exactly these actions if you run "terraform apply" now.

mac@SirNicks-MBP elastic-stack % terraform apply -auto-approve

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Spaces: 2

UTF-8

LF

Terraform

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```
134 }
135
136 // EC2 Instance for General Web Server
137 resource "aws_instance" "ec2_server" {
138   ami           = "ami-0e8d228ad90af673b" // Ubuntu AMI
139   instance_type = "t2.micro"
140   vpc_security_group_ids = [aws_security_group.nginx_sg.id]
141   key_name       = aws_key_pair.keypair.key_name
142   associate_public_ip_address = true
143
144   tags = {
145     Name = "nginx_server"
146   }
147 }
148
149 // Outputs
150 output "elk_ip" {
151   value = aws_instance.prom_graf.public_ip
152 }
153
```

PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL

PORTS

```
+ private_key.pem           = (sensitive value)
+ private_key.pem_pkcs8     = (sensitive value)
+ public_key.fingerprint_md5 = (known after apply)
+ public_key.fingerprint_sha256 = (known after apply)
+ public_key.openssh        = (known after apply)
+ public_key.pem            = (known after apply)
+ rsa_bits                  = 4096
}
```

Plan: 7 to add, 0 to change, 0 to destroy.

Changes to Outputs:

```
+ elk_ip = (known after apply)
+ nginx_ip = (known after apply)
```

tls_private_key.keypair: Creating...

aws_security_group.nginx_sg: Creating...

aws_security_group.ec2_sg: Creating...

tls_private_key.keypair: Creation complete after 3s [id=9222be2fe17be1820e16117f4888e2acda0e2733]

aws_key_pair.keypair: Creating...

local_file.private_key: Creating...

aws_key_pair.private_key: Creation complete after 0s [id=373a5b22dc282441b3349b2e675df2c0141539b7]

aws_key_pair.keypair: Creation complete after 1s [id=elastic-keypair]

aws_security_group.nginx_sg: Creation complete after 5s [id=sg-4966486da484ed113]

aws_security_group.ec2_sg: Creation complete after 5s [id=sg-8bbe7982fe6341abd]

aws_instance.ec2_server: Creating...

aws_instance.prom_graf: Creating...

aws_instance.ec2_server: Still creating... [10s elapsed]

aws_instance.prom_graf: Still creating... [10s elapsed]

aws_instance.prom_graf: Creation complete after 16s [id=i-0ef78c3de141906e7]

aws_instance.ec2_server: Creation complete after 16s [id=i-04828bd8b2a5fff19]

Apply complete! Resources: 7 added, 0 changed, 0 destroyed.

Outputs:

```
elk_ip = "3.8.238.97"
nginx_ip = "18.134.248.126"
```

mac@SirNicks-MBP elastic-stack %

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> docker

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> .terraform

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75 resource "aws_security_group" "nginx_sg" {

79 dynamic "ingress" {

81 content {

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89 }

90 egress {

91 description = "Allow outbound traffic"

92 from_port = 0

93 to_port = 0

94 protocol = "-1"

95 cidr_blocks = ["0.0.0.0/0"]

96 }

97 }

98 }

99 locals {

100 ingress_config_nginx = {

101 {

102 description = "SSH port"

103 from_port = 22

PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL

PORTS

mac@SirNicks-MBP elastic-stack % ssh -i elastic.pem ubuntu@3.8.238.97

Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-1016-aws x86_64)

* Documentation: <https://help.ubuntu.com>

* Management: <https://landscape.canonical.com>

* Support: <https://ubuntu.com/pro>

System information as of Fri Nov 29 06:28:56 UTC 2024

System load: 0.0 Processes: 112

Usage of /: 22.9% of 6.71GB Users logged in: 0

Memory usage: 3% IPv4 address for enx0: 172.31.20.2

Swap usage: 0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.

See <https://ubuntu.com/esm> or run: sudo pro status

The list of available updates is more than a week old.

To check for new updates run: sudo apt update

Last login: Fri Nov 29 06:28:57 2024 from 182.91.4.49

To run a command as administrator (user "root"), use "sudo <command>".

See "man sudo_root" for details.

ubuntu@ip-172-31-20-2:~\$

OUTLINE

TIMELINE

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79 dynamic "ingress" {
81 content {
87 }
88 }
89 }
90 egress {
91 description = "Allow outbound traffic"
92 from_port = 0
93 to_port = 0
94 protocol = "-1"
95 cidr_blocks = ["0.0.0.0/0"]
96 }
97 }
98 }
99 locals {
100 ingress_config_nginx = {
101 {
102 description = "SSH port"
103 from_port = 22

PROBLEMS

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0 updates can be applied immediately.
Enable ESM Apps to receive additional future security updates.
See <https://ubuntu.com/esm> or run: `sudo pro status`

The list of available updates is more than a week old.
To check for new updates run: `sudo apt update`

Last login: Fri Nov 29 06:28:57 2024 from 102.91.4.49
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-20-2:~\$ sudo apt-get update
Hit:1 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:4 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:5 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:6 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:7 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Components [3071 kB]
Get:8 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]
Get:9 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]
Get:10 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble/multiverse Translation-en [118 kB]
Get:11 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]
Get:12 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [8328 B]
Get:13 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [673 kB]
Get:14 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main Translation-en [158 kB]
Get:15 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [131 kB]
Get:16 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [10.4 kB]
Get:17 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [719 kB]
Get:18 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [214 kB]
Get:19 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [498 kB]
Get:20 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [310 kB]
Get:21 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata [19.9 kB]
Get:22 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [480 kB]
Get:23 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [92.5 kB]

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81 content {

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90 egress {

91 description = "Allow outbound traffic"

92 from_port = 0

93 to_port = 0

94 protocol = "-1"

95 cidr_blocks = ["0.0.0.0/0"]

96 }

97 }

98 }

99 locals {

100 ingress_config_nginx = {

101 {

102 description = "SSH port"

103 from_port = 22

PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL

PORTS

Get:23 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [92.5 kB]

Get:24 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]

Get:25 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 c-n-f Metadata [424 B]

Get:26 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [15.0 kB]

Get:27 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse Translation-en [3820 B]

Get:28 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 B]

Get:29 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 c-n-f Metadata [552 B]

Get:30 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [208 B]

Get:31 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 c-n-f Metadata [112 B]

Get:32 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Packages [10.7 kB]

Get:33 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-backports/universe Translation-en [10.8 kB]

Get:34 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [11.7 kB]

Get:35 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 c-n-f Metadata [1104 B]

Get:36 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]

Get:37 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 c-n-f Metadata [116 B]

Get:38 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]

Get:39 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 c-n-f Metadata [116 B]

Get:40 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [192 kB]

Get:41 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [7232 B]

Get:42 http://security.ubuntu.com/ubuntu noble-security/main amd64 c-n-f Metadata [5892 B]

Get:43 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [562 kB]

Get:44 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [150 kB]

Get:45 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [51.8 kB]

Get:46 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [13.5 kB]

Get:47 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [480 kB]

Get:48 http://security.ubuntu.com/ubuntu noble-security/restricted Translation-en [92.5 kB]

Get:49 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]

Get:50 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 c-n-f Metadata [424 B]

Get:51 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [12.2 kB]

Get:52 http://security.ubuntu.com/ubuntu noble-security/multiverse Translation-en [2940 B]

Get:53 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B]

Get:54 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 c-n-f Metadata [356 B]

Fetched 30.8 MB in 5s (6084 kB/s)

Reading package lists... Done

ubuntu@ip-172-31-28-2:~\$ wget -qO - https://artifacts.elastic.co/GPG-KEY-elasticsearch | sudo apt-key add -

Warning: apt-key is deprecated. Manage keyring files in trusted.gpg.d instead (see apt-key(8)).

OK

ubuntu@ip-172-31-28-2:~\$

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Spaces: 2

UTF-8

LF

Terraform

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LAB ASSESSMENT

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75 resource "aws_security_group" "nginx_sg" {
79 dynamic "ingress" {
81 content {
87 }
88 }
89 }
90 egress {
91 description = "Allow outbound traffic"
92 from_port = 0
93 to_port = 0
94 protocol = "-1"
95 cidr_blocks = ["0.0.0.0/0"]
96 }
97 }
98 }
99 locals {
100 ingress_config_nginx = {
101 {
102 description = "SSH port"
103 from_port = 22

PROBLEMS

OUTPUT

DEBUG CONSOLE

TERMINAL

PORTS

Get:51 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Packages [12.2 kB]
Get:52 http://security.ubuntu.com/ubuntu noble-security/multiverse Translation-en [2940 B]
Get:53 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B]
Get:54 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 c-n-f Metadata [356 B]
Fetched 38.8 MB in 5s (6884 kB/s)
Reading package lists... Done
ubuntu@ip-172-31-28-2:~\$ wget -qO - https://artifacts.elastic.co/GPG-KEY-elasticsearch | sudo apt-key add -
Warning: apt-key is deprecated. Manage keyring files in trusted.gpg.d instead (see apt-key(8)).
OK
ubuntu@ip-172-31-28-2:~\$ sudo apt-get install apt-transport-https
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
apt-transport-https
0 upgraded, 1 newly installed, 0 to remove and 58 not upgraded.
Need to get 3974 B of archives.
After this operation, 35.8 kB of additional disk space will be used.
Get:1 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 apt-transport-https all 2.7.14build2 [3974 B]
Fetched 3974 B in 0s (269 kB/s)
Selecting previously unselected package apt-transport-https.
(Reading database ... 67836 files and directories currently installed.)
Preparing to unpack .../apt-transport-https-2.7.14build2_all.deb ...
Unpacking apt-transport-https (2.7.14build2) ...
Setting up apt-transport-https (2.7.14build2) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-28-2:~\$

OUTLINE

TIMELINE

Ln 157, Col 1 Spaces: 2 UTF-8 LF Terraform

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75 resource "aws_security_group" "nginx_sg" {

79 dynamic "ingress" {

81 content {

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90 egress {

91 description = "Allow outbound traffic"

92 from_port = 0

93 to_port = 0

94 protocol = "-1"

95 cidr_blocks = ["0.0.0.0/0"]

96 }

97 }

98 }

99 locals {

100 ingress_config_nginx = {

101 {

102 description = "SSH port"

103 from_port = 22

PROBLEMS

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Get:52 http://security.ubuntu.com/ubuntu noble-security/multiverse Translation-en [2940 B]

Get:53 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B]

Get:54 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 c-n-f Metadata [356 B]

Fetch: 30.8 MB in 5s (6084 KB/s)

Reading package lists... Done

ubuntu@ip-172-31-28-2:~\$ wget -qO - https://artifacts.elastic.co/GPG-KEY-elasticsearch | sudo apt-key add -

Warning: apt-key is deprecated. Manage keyring files in trusted.gpg.d instead (see apt-key(8)).

OK

ubuntu@ip-172-31-28-2:~\$ sudo apt-get install apt-transport-https

Reading package lists... Done

Building dependency tree... Done

Reading state information... Done

The following NEW packages will be installed:

apt-transport-https

0 upgraded, 1 newly installed, 0 to remove and 58 not upgraded.

Need to get 3974 B of archives.

After this operation, 35.8 kB of additional disk space will be used.

Get:1 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 apt-transport-https all 2.7.14build2 [3974 B]

Fetch: 3974 B in 0s (269 kB/s)

Selecting previously unselected package apt-transport-https.

(Reading database ... 67836 files and directories currently installed.)

Preparing to unpack .../apt-transport-https_2.7.14build2_all.deb ...

Unpacking apt-transport-https (2.7.14build2) ...

Setting up apt-transport-https (2.7.14build2) ...

Scanning processes...

Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.

ubuntu@ip-172-31-28-2:~\$ echo "deb https://artifacts.elastic.co/packages/7.x/apt stable main" | sudo tee /etc/apt/sources.list.d/elastic-7.x.list

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EXPLORER

main.tf

elastic-stack > main.tf > ...

75 resource "aws_security_group" "nginx_sg" {

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No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.

ubuntu@ip-172-31-20-2:~\$ echo "deb https://artifacts.elastic.co/packages/7.x/apt stable main" | sudo tee /etc/apt/sources.list.d/elastic-7.x.list

deb https://artifacts.elastic.co/packages/7.x/apt stable main

ubuntu@ip-172-31-20-2:~\$ sudo apt update

Hit:1 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble InRelease

Get:2 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]

Get:3 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]

Hit:4 http://security.ubuntu.com/ubuntu noble-security InRelease

Get:5 https://artifacts.elastic.co/packages/7.x/apt stable InRelease [13.7 kB]

Get:6 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [131 kB]

Get:7 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [310 kB]

Get:8 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]

Get:9 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 B]

Get:10 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [208 B]

Get:11 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [11.7 kB]

Get:12 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]

Get:13 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]

Get:14 https://artifacts.elastic.co/packages/7.x/apt stable/main amd64 Packages [138 kB]

Fetch: 858 kB in 1s (1423 kB/s)

Reading package lists... Done

Building dependency tree... Done

Reading state information... Done

58 packages can be upgraded. Run 'apt list --upgradable' to see them.

W: https://artifacts.elastic.co/packages/7.x/apt/dists/stable/InRelease: Key is stored in legacy trusted.gpg keyring (/etc/apt/trusted.gpg), see the DEPRECATION section in apt-key(8) for details.

ubuntu@ip-172-31-20-2:~\$ sudo apt-get update

Hit:1 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble InRelease

Hit:2 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease

Hit:3 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease

Hit:4 http://security.ubuntu.com/ubuntu noble-security InRelease

Hit:5 https://artifacts.elastic.co/packages/7.x/apt stable InRelease

Reading package lists... Done

W: https://artifacts.elastic.co/packages/7.x/apt/dists/stable/InRelease: Key is stored in legacy trusted.gpg keyring (/etc/apt/trusted.gpg), see the DEPRECATION section in apt-key(8) for details.

ubuntu@ip-172-31-20-2:~\$

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Terraform

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jenkins

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elastic-stack > main.tf > ...

75 resource "aws_security_group" "nginx_sg" {

79 dynamic "ingress" {

81 content {

87 }

88 }

89 }

90 egress {

91 description = "Allow outbound traffic"

92 from_port = 0

93 to_port = 0

94 protocol = "-1"

95 cidr_blocks = ["0.0.0.0/0"]

96 }

97 }

98 }

99 locals {

100 ingress_config_nginx = {

101 {

102 description = "SSH port"

103 from_port = 22

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details.

ubuntu@ip-172-31-20-2:~\$ sudo apt-get install elasticsearch

Reading package lists... Done

Building dependency tree... Done

Reading state information... Done

The following NEW packages will be installed:

elasticsearch

0 upgraded, 1 newly installed, 0 to remove and 58 not upgraded.

Need to get 326 MB of archives.

After this operation, 542 MB of additional disk space will be used.

Get:1 https://artifacts.elastic.co/packages/7.x/opt/stable/main amd64 elasticsearch amd64 7.17.25 [326 MB]

Fetched 326 MB in 46s (7138 kB/s)

Selecting previously unselected package elasticsearch.

(Reading database ... 67840 files and directories currently installed.)

Preparing to unpack .../elasticsearch_7.17.25_amd64.deb ...

Unpacking elasticsearch (7.17.25) ...

Setting up elasticsearch (7.17.25) ...

NOT starting on installation, please execute the following statements to configure elasticsearch service to start automatically using systemd

sudo systemctl daemon-reload

sudo systemctl enable elasticsearch.service

You can start elasticsearch service by executing

sudo systemctl start elasticsearch.service

Created elasticsearch keystore in /etc/elasticsearch/elasticsearch.keystore

Scanning processes...

Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.

ubuntu@ip-172-31-20-2:~\$

OUTLINE

TIMELINE

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elastic-stack > main.tf > ...

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99 locals {

100 ingress_config_nginx = {

101 {

102 description = "SSH port"

103 from_port = 22

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Reading state information... Done

The following NEW packages will be installed:

elasticsearch

0 upgraded, 1 newly installed, 0 to remove and 58 not upgraded.

Need to get 326 MB of archives.

After this operation, 542 MB of additional disk space will be used.

Get:1 https://artifacts.elastic.co/packages/7.x/apt/stable/main amd64 elasticsearch amd64 7.17.25 [326 MB]

Fetch: 326 MB in 46s (7138 kB/s)

Selecting previously unselected package elasticsearch.

(Reading database ... 67840 files and directories currently installed.)

Preparing to unpack ../elasticsearch_7.17.25_amd64.deb ...

Creating elasticsearch group... OK

Creating elasticsearch user... OK

Unpacking elasticsearch (7.17.25) ...

Setting up elasticsearch (7.17.25) ...

NOT starting on installation, please execute the following statements to configure elasticsearch service to start automatically using systemd

sudo systemctl daemon-reload

sudo systemctl enable elasticsearch.service

You can start elasticsearch service by executing

sudo systemctl start elasticsearch.service

Created elasticsearch keystore in /etc/elasticsearch/elasticsearch.keystore

Scanning processes...

Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.

ubuntuip-172-31-28-2:~\$ echo "deb https://artifacts.elastic.co/packages/7.x/apt/stable/main" | sudo tee /etc/apt/sources.list.d/elastic-7.x.list deb https://artifacts.elastic.co/package

s/7.x/apt/stable/main

tee: 'https://artifacts.elastic.co/packages/7.x/apt': No such file or directory

deb https://artifacts.elastic.co/packages/7.x/apt/stable/main

ubuntuip-172-31-28-2:~\$

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() Terraform

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97 }
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100 ingress_config_nginx = [
101 {
102 description = "SSH port"
103 from_port = 22

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W: https://artifacts.elastic.co/packages/7.x/apt/dists/stable/InRelease: Key is stored in legacy trusted.gpg keyring (/etc/apt/trusted.gpg), see the DEPRECATION section in apt-key(8) for details.
ubuntu@ip-172-31-28-2:~\$ sudo apt-get install elasticsearch
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
elasticsearch is already the newest version (7.17.25).
0 upgraded, 0 newly installed, 0 to remove and 58 not upgraded.
ubuntu@ip-172-31-28-2:~\$ sudo cp /etc/elasticsearch/jvm.options /etc/elasticsearch/jvm.options.bak
ubuntu@ip-172-31-28-2:~\$ sudo ls /etc/elasticsearch/
elasticsearch-plugins.example.yml elasticsearch.yml jvm.options.bak log4j2.properties roles.yml users_roles
elasticsearch.keystore jvm.options jvm.options.d role_mapping.yml users
ubuntu@ip-172-31-28-2:~\$ sudo cat /etc/elasticsearch/
cat: /etc/elasticsearch/: Is a directory
ubuntu@ip-172-31-28-2:~\$ sudo cat /etc/elasticsearch/jvm.options

JVM configuration

WARNING: DO NOT EDIT THIS FILE. If you want to override the
JVM options in this file, or set any additional options, you
should create one or more files in the jvm.options.d
directory containing your adjustments.

See https://www.elastic.co/guide/en/elasticsearch/reference/7.17/jvm-options.html
for more information.

IMPORTANT: JVM heap size

The heap size is automatically configured by Elasticsearch

zsh kubem...

zsh kubem...

zsh grafan...

zsh elastic...

ssh elastic...

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-Djava.io.tmpdir=\${ES_TMPDIR}

heap dumps

generate a heap dump when an allocation from the Java heap fails; heap dumps

are created in the working directory of the JVM unless an alternative path is

specified

-XX:+HeapDumpOnOutOfMemoryError

exit right after heap dump on out of memory error. Recommended to also use

on java 8 for supported versions (8u92+).

9--XX:-ExitOnOutOfMemoryError

specify an alternative path for heap dumps; ensure the directory exists and

has sufficient space

-XX:HeapDumpPath=/var/lib/elasticsearch

specify an alternative path for JVM fatal error logs

-XX:ErrorFile=/var/log/elasticsearch/hs_err_pid%p.log

JDK 8 GC logging

8:-XX:+PrintGCDetails

8:-XX:+PrintGCDateStamps

8:-XX:+PrintTenuringDistribution

8:-XX:+PrintGCApplicationStoppedTime

8:-Xloggc:/var/log/elasticsearch/gc.log

8:-XX:+UseGCLogFileRotation

8:-XX:NumberOfGCLogFiles=32

8:-XX:GCLogFileSize=64m

JDK 9+ GC logging

9:-Xlog:gc*,gc+age=trace,safepoint:file=/var/log/elasticsearch/gc.log:utctime,pid,tags:filecount=32,filesize=64m

workaround G1 bug, see <https://bugs.openjdk.org/browse/JDK-8329528>

22:-XX:+UnlockDiagnosticVMOptions

22:-XX:G1NumCollectionsKeepPinned=10000000

ubuntu@ip-172-31-28-2:~\$ sudo sed -i 's/^## -Xmx4g/-Xmx1g/' /etc/elasticsearch/jvm.options

ubuntu@ip-172-31-28-2:~\$ sudo cat /etc/elasticsearch/

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99 locals {
100 ingress_config_nginx = {
101 {
102 description = "SSH port"
103 from_port = 22

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for more information.

IMPORTANT: JVM heap size

The heap size is automatically configured by Elasticsearch
based on the available memory in your system and the roles
each node is configured to fulfill. If specifying heap is
required, it should be done through a file in jvm.options.d,
and the min and max should be set to the same value. For
example, to set the heap to 4 GB, create a new file in the
jvm.options.d directory containing these lines:

-Xms4g
-Xmx4g

See https://www.elastic.co/guide/en/elasticsearch/reference/7.17/heap-size.html
for more information

Expert settings

All settings below here are considered expert settings. Do
not adjust them unless you understand what you are doing. Do
not edit them in this file; instead, create a new file in the
jvm.options.d directory containing your adjustments.

#####

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Terraform

EXPLORER

> OPEN EDITORS

LAB ASSESSMENT

> ansible

> docker

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93 to_port = 0
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99 locals {
100 ingress_config_nginx = [
101 {
102 description = "SSH port"
103 from_port = 22

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JVM temporary directory
-Djava.io.tmpdir=\${ES_TMPDIR}

heap dumps

generate a heap dump when an allocation from the Java heap fails; heap dumps
are created in the working directory of the JVM unless an alternative path is
specified
-XX:+HeapDumpOnOutOfMemoryError

exit right after heap dump on out of memory error. Recommended to also use
on java 8 for supported versions (8u92+).
9-:-XX:+ExitOnOutOfMemoryError

specify an alternative path for heap dumps; ensure the directory exists and
has sufficient space
-XX:HeapDumpPath=/var/lib/elasticsearch

specify an alternative path for JVM fatal error logs
-XX:ErrorFile=/var/log/elasticsearch/hs_err_pid%p.log

JDK 8 GC logging
8:-XX:+PrintGCDetails
8:-XX:+PrintGCDateStamps
8:-XX:+PrintTenuringDistribution
8:-XX:+PrintGCApplicationStoppedTime
8:-Xloggc:/var/log/elasticsearch/gc.log
8:-XX:+UseGCLogFileRotation
8:-XX:NumberOfGCLogFiles=32
8:-XX:GCLogFileSize=64m

JDK 9+ GC logging
9-:-Xlog:gc*,gc+age=trace,safepoint:file=/var/log/elasticsearch/gc.log:utctime,pid,tags:filecount=32,filesize=64m

workaround G1 bug, see https://bugs.openjdk.org/browse/JDK-8329528
22:-XX:G1NumCollectionsKeepPinned=1000000
ubuntu@ip-172-31-28-2:~\$ sudo systemctl start elasticsearch.service

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specify an alternative path for JVM fatal error logs
-XX:ErrorFile=/var/log/elasticsearch/hs_err_pid%p.log

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8:-XX:GCLogFileSize=64m

JDK 9+ GC logging
9:-Xlog:gc*,gc+age=trace,safepoint:file=/var/log/elasticsearch/gc.log:utctime,pid,tags:filecount=32,filesize=64m

workaround G1 bug, see https://bugs.openjdk.org/browse/JDK-8329528
22:-XX:+UnlockDiagnosticVMOptions
22:-XX:G1NumCollectionsKeepPinned=10000000
ubuntu@ip-172-31-28-2:~\$ sudo sed -i 's/## -Xms4g/-Xms1g/' /etc/elasticsearch/jvm.options
ubuntu@ip-172-31-28-2:~\$ sudo cat /etc/elasticsearch/jvm.options

JVM configuration

WARNING: DO NOT EDIT THIS FILE. If you want to override the
JVM options in this file, or set any additional options, you
should create one or more files in the jvm.options.d
directory containing your adjustments.

See https://www.elastic.co/guide/en/elasticsearch/reference/7.17/jvm-options.html
for more information.

#####

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WARNING: DO NOT EDIT THIS FILE. If you want to override the
JVM options in this file, or set any additional options, you
should create one or more files in the jvm.options.d
directory containing your adjustments.

See https://www.elastic.co/guide/en/elasticsearch/reference/7.17/jvm-options.html
for more information.

IMPORTANT: JVM heap size

The heap size is automatically configured by Elasticsearch
based on the available memory in your system and the roles
each node is configured to fulfill. If specifying heap is
required, it should be done through a file in jvm.options.d,
and the min and max should be set to the same value. For
example, to set the heap to 4 GB, create a new file in the
jvm.options.d directory containing these lines:

-Xms4g
-Xmx4g

See https://www.elastic.co/guide/en/elasticsearch/reference/7.17/heap-size.html
for more information

Expert settings

All settings below here are considered expert settings. Do

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IMPORTANT: JVM heap size

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##

The heap size is automatically configured by Elasticsearch

based on the available memory in your system and the roles

each node is configured to fulfill. If specifying heap is

required, it should be done through a file in jvm.options.d,

and the min and max should be set to the same value. For

example, to set the heap to 4 GB, create a new file in the

jvm.options.d directory containing these lines:

##

-Xms1g

-Xmx1g

##

See <https://www.elastic.co/guide/en/elasticsearch/reference/7.17/heap-size.html>

for more information

##

#####

#####

Expert settings

#####

##

All settings below here are considered expert settings. Do

not adjust them unless you understand what you are doing. Do

not edit them in this file; instead, create a new file in the

jvm.options.d directory containing your adjustments.

##

#####

GC configuration

8-13:--XX:+UseConcMarkSweepGC

8-13:--XX:CMSInitiatingOccupancyFraction=75

8-13:--XX:+UseCMSInitiatingOccupancyOnly

G1GC Configuration

NOTE: G1 GC is only supported on JDK version 10 or later

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exit right after heap dump on out of memory error. Recommended to also use

on java 8 for supported versions (0u92+).

9--XX:+ExitOnOutOfMemoryError

specify an alternative path for heap dumps; ensure the directory exists and

has sufficient space

-XX:HeapDumpPath=/var/lib/elasticsearch

specify an alternative path for JVM fatal error logs

-XX:ErrorFile=/var/log/elasticsearch/hs_err_pid%p.log

JDK 8 GC logging

8--XX:+PrintGCDetails

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8--Xloggc:/var/log/elasticsearch/gc.log

8--XX:+UseGCLogFileRotation

8--XX:NumberOfGCLogFiles=32

8--XX:GCLogFileSize=64m

JDK 9+ GC logging

9--Xlog:gc*,gc+age=trace,safepoint:file=/var/log/elasticsearch/gc.log:utctime,pid,tags:filecount=32,filesize=64m

workaround G1 bug, see <https://bugs.openjdk.org/browse/JDK-8329528>

22--XX:+UnlockDiagnosticVMOptions

22--XX:G1NumCollectionsKeepPinned=10000000

ubuntu@ip-172-31-28-2:~\$ sudo systemctl start elasticsearch.service

ubuntu@ip-172-31-28-2:~\$ sudo systemctl enable elasticsearch.service

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Terraform

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```
# workaround G1 bug, see https://bugs.openjdk.org/browse/JDK-8329528
22:-XX:UnlockDiagnosticVMOptions
22:-XX:G1NumCollectionsKeepPinned=10000000
ubuntu@ip-172-31-28-2:~$ sudo systemctl start elasticsearch.service
ubuntu@ip-172-31-28-2:~$ sudo systemctl enable elasticsearch.service
Synchronizing state of elasticsearch.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable elasticsearch
Created symlink /etc/systemd/system/multi-user.target.wants/elasticsearch.service → /usr/lib/systemd/system/elasticsearch.service.
ubuntu@ip-172-31-28-2:~$ curl 127.0.0.1:9200
{
  "name" : "ip-172-31-28-2",
  "cluster_name" : "elasticsearch",
  "cluster_uuid" : "LvJgCG5JSfWpYp45uUvAA",
  "version" : {
    "number" : "7.17.25",
    "build_flavor" : "default",
    "build_type" : "deb",
    "build_hash" : "f9b6b57d1d0f76e2d14291c04fb50abeb642cfbf",
    "build_date" : "2024-10-16T22:06:36.904732810Z",
    "build_snapshot" : false,
    "luccm_version" : "8.11.3",
    "minimum_wire_compatibility_version" : "6.8.0",
    "minimum_index_compatibility_version" : "6.0.0-beta1"
  },
  "tagline" : "You Know, for Search"
}
ubuntu@ip-172-31-28-2:~$ sudo apt-get install kibana
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  kibana
0 upgraded, 1 newly installed, 0 to remove and 58 not upgraded.
Need to get 293 MB of archives.
After this operation, 748 MB of additional disk space will be used.
Get:1 https://artifacts.elastic.co/packages/7.x/apt/stable/main amd64 kibana amd64 7.17.25 [293 MB]
4% [1 kibana 16.4 MB/293 MB 6%]
```

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EXPLORER

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LAB ASSESSMENT

> ansible

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102 description = "SSH port"
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```
"minimum_index_compatibility_version" : "6.0.0-beta1"  
},  
"tagline" : "You Know, for Search"  
}  
ubuntu@ip-172-31-28-2:~$ sudo apt-get install kibana  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following NEW packages will be installed:  
  kibana  
0 upgraded, 1 newly installed, 0 to remove and 58 not upgraded.  
Need to get 293 MB of archives.  
After this operation, 748 MB of additional disk space will be used.  
Get:1 https://artifacts.elastic.co/packages/7.x/apt/stable/main amd64 kibana amd64 7.17.25 [293 MB]  
Fetched 293 MB in 38s (7885 kB/s)  
Selecting previously unselected package kibana.  
(Reading database ... 68937 files and directories currently installed.)  
Preparing to unpack .../kibana_7.17.25_amd64.deb ...  
Unpacking kibana (7.17.25) ...  
Setting up kibana (7.17.25) ...  
Creating kibana group... OK  
Creating kibana user... OK  
Kibana is currently running with legacy OpenSSL providers enabled! For details and instructions on how to disable see https://www.elastic.co/guide/en/kibana/7.17/production.html#openssl-legacy-provider  
Created Kibana keystore in /etc/kibana/kibana.keystore  
Scanning processes...  
Scanning linux images...  
  
Running kernel seems to be up-to-date.  
  
No services need to be restarted.  
  
No containers need to be restarted.  
  
No user sessions are running outdated binaries.  
  
No VM guests are running outdated hypervisor (qemu) binaries on this host.  
ubuntu@ip-172-31-28-2:~$ sudo cp /etc/kibana/kibana.yml /etc/kibana/kibana.yml.bak
```

> OUTLINE

> TIMELINE

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101 {
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ubuntu@ip-172-31-20-2:~\$ sudo sed -i 's/"server.host: .*/server.host: "0.0.0.0"/' /etc/kibana/kibana.yml
ubuntu@ip-172-31-20-2:~\$ sudo cat /etc/kibana/kibana.yml
Kibana is served by a back end server. This setting specifies the port to use.
#server.port: 5601

Specifies the address to which the Kibana server will bind. IP addresses and host names are both valid values.
The default is 'localhost', which usually means remote machines will not be able to connect.
To allow connections from remote users, set this parameter to a non-loopback address.
server.host: "0.0.0.0"

Enables you to specify a path to mount Kibana at if you are running behind a proxy.
Use the 'server.rewriteBasePath' setting to tell Kibana if it should remove the basePath
from requests it receives, and to prevent a deprecation warning at startup.
This setting cannot end in a slash.
#server.basePath: ""

Specifies whether Kibana should rewrite requests that are prefixed with
'server.basePath' or require that they are rewritten by your reverse proxy.
This setting was effectively always 'false' before Kibana 6.3 and will
default to 'true' starting in Kibana 7.0.
#server.rewriteBasePath: false

Specifies the public URL at which Kibana is available for end users. If
'server.basePath' is configured this URL should end with the same basePath.
#server.publicBaseUrl: ""

The maximum payload size in bytes for incoming server requests.
#server.maxPayload: 1048576

The Kibana server's name. This is used for display purposes.
#server.name: "your-hostname"

The URLs of the Elasticsearch instances to use for all your queries.
#elasticsearch.hosts: ["http://localhost:9200"]

Kibana uses an index in Elasticsearch to store saved searches, visualizations and
dashboards. Kibana creates a new index if the index doesn't already exist.
#kibana.index: ".kibana"

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Terraform

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#elasticsearch.customHeaders: {}

Time in milliseconds for Elasticsearch to wait for responses from shards. Set to 0 to disable.

#elasticsearch.shardTimeout: 30000

Logs queries sent to Elasticsearch. Requires logging.verbose set to true.

#elasticsearch.logQueries: false

Specifies the path where Kibana creates the process ID file.

#pid.file: /run/kibana/kibana.pid

Enables you to specify a file where Kibana stores log output.

#logging.dest: stdout

Set the value of this setting to true to suppress all logging output.

#logging.silent: false

Set the value of this setting to true to suppress all logging output other than error messages.

#logging.quiet: false

Set the value of this setting to true to log all events, including system usage information

and all requests.

#logging.verbose: false

Set the interval in milliseconds to sample system and process performance

metrics. Minimum is 100ms. Defaults to 5000.

#ops.interval: 5000

Specifies locale to be used for all localizable strings, dates and number formats.

Supported languages are the following: English - en , by default , Chinese - zh-CN .

#i18n.locale: "en"

ubuntu@ip-172-31-28-2:~\$ sudo systemctl daemon-reload

ubuntu@ip-172-31-28-2:~\$ sudo systemctl start kibana.service

ubuntu@ip-172-31-28-2:~\$ sudo systemctl enable kibana.service

Synchronizing state of kibana.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.

Executing: /usr/lib/systemd/systemd-sysv-install enable kibana

Created symlink /etc/systemd/system/multi-user.target.wants/kibana.service → /etc/systemd/system/kibana.service.

ubuntu@ip-172-31-28-2:~\$

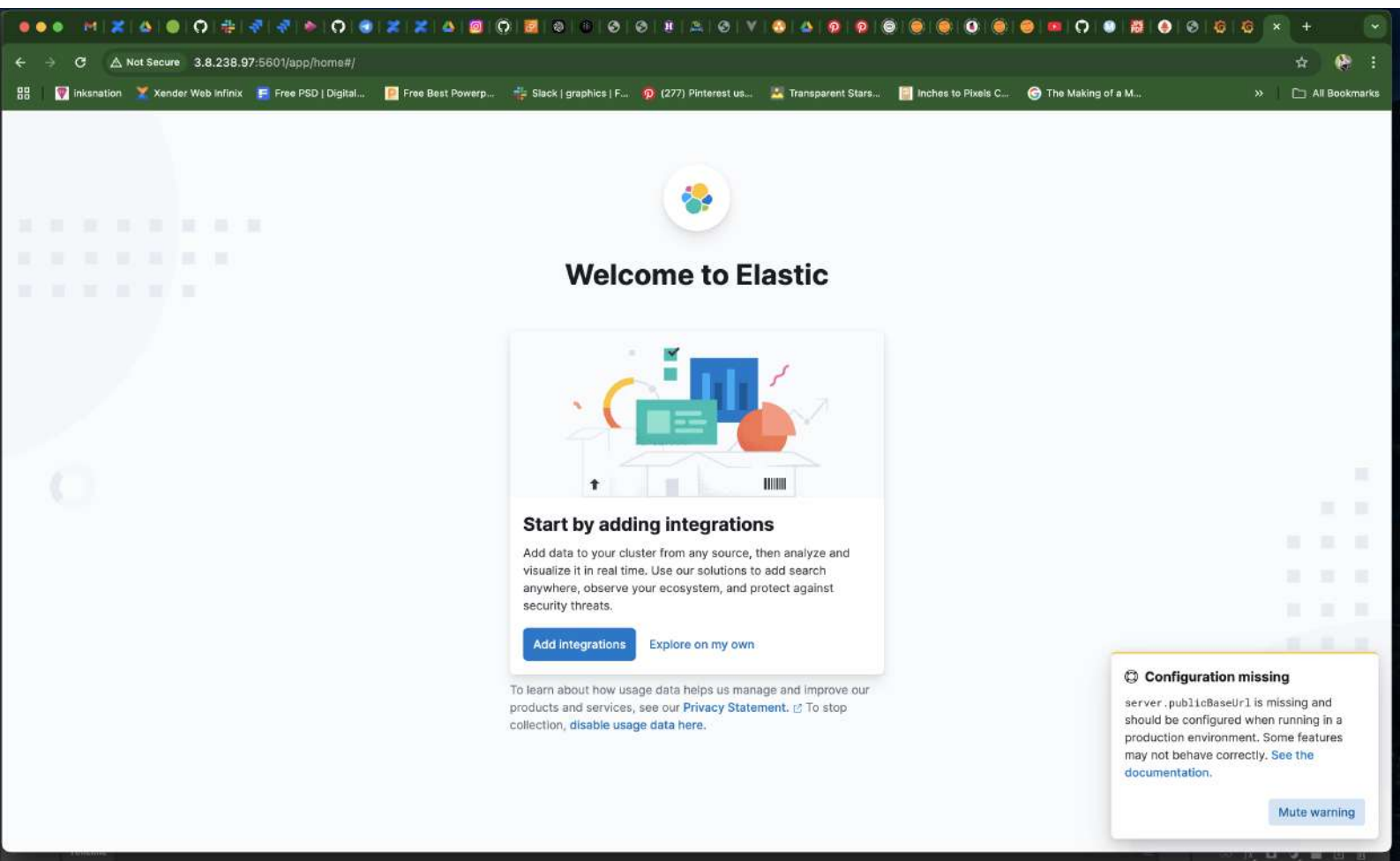
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Terraform



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ubuntu@ip-172-31-28-2:~\$ sudo systemctl enable kibana.service
Synchronizing state of kibana.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable kibana
Created symlink /etc/systemd/system/multi-user.target.wants/kibana.service → /etc/systemd/system/kibana.service.
ubuntu@ip-172-31-28-2:~\$ sudo apt-get install logstash
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
logstash
0 upgraded, 1 newly installed, 0 to remove and 58 not upgraded.
Need to get 371 MB of archives.
After this operation, 629 MB of additional disk space will be used.
Get:1 https://artifacts.elastic.co/packages/7.x/apt/stable/main amd64 logstash amd64 1:7.17.25-1 [371 MB]
Fetched 371 MB in 11s (33.6 MB/s)
Selecting previously unselected package logstash.
(Reading database ... 118720 files and directories currently installed.)
Preparing to unpack .../logstash_1k3a7.17.25-1_amd64.deb ...
Unpacking logstash (1:7.17.25-1) ...
Setting up logstash (1:7.17.25-1) ...
Using bundled JDK: /usr/share/logstash/jdk
Using provided startup.options files: /etc/logstash/startup.options
OpenJDK 64-Bit Server VM warning: Option UseConcMarkSweepGC was deprecated in version 9.0 and will likely be removed in a future release.
/usr/share/logstash/vendor/bundle/jruby/2.5.0/gems/pleaserun-0.0.32/lib/pleaserun/platform/base.rb:112: warning: constant ::Fixnum is deprecated
Successfully created system startup script for Logstash
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-28-2:~\$

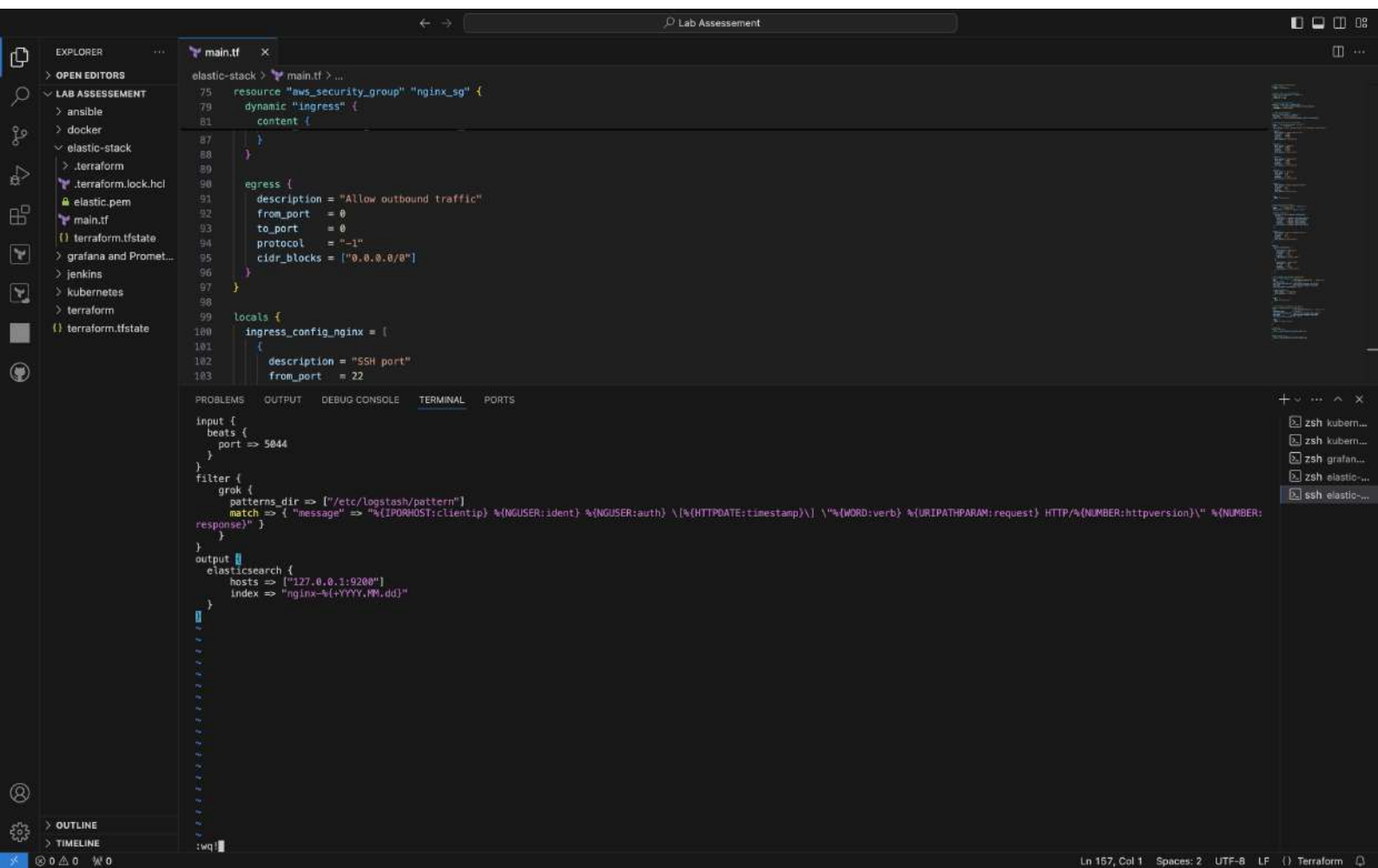
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Terraform



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main.tf

terraform.tfstate

grafana and Promet...

jenkins

kubernetes

terraform

terraform.tfstate

elastic-stack > main.tf > ...

```
75 resource "aws_security_group" "nginx_sg" {
76   dynamic "ingress" {
77     content {
78
79     }
80   }
81   egress {
82     description = "Allow outbound traffic"
83     from_port   = 0
84     to_port     = 0
85     protocol    = "-1"
86     cidr_blocks = ["0.0.0.0/0"]
87   }
88   locals {
89     ingress_config_nginx = {
90       description = "SSH port"
91       from_port   = 22
92     }
93   }
94 }
```

PROBLEMS

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DEBUG CONSOLE

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```
ubuntu@ip-172-31-28-2:~$ sudo systemctl enable kibana.service
Synchronizing state of kibana.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable kibana
Created symlink /etc/systemd/system/multi-user.target.wants/kibana.service → /etc/systemd/system/kibana.service.
ubuntu@ip-172-31-28-2:~$ sudo apt-get install logstash
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  logstash
0 upgraded, 1 newly installed, 0 to remove and 58 not upgraded.
Need to get 371 MB of archives.
After this operation, 629 MB of additional disk space will be used.
Get:1 https://artifacts.elastic.co/packages/7.x/apt/stable/main amd64 logstash amd64 1:7.17.25-1 [371 MB]
Fetched 371 MB in 11s (33.6 MB/s)
Selecting previously unselected package logstash.
(Reading database ... 118720 files and directories currently installed.)
Preparing to unpack .../logstash_1k3a7.17.25-1_amd64.deb ...
Unpacking logstash (1:7.17.25-1) ...
Setting up logstash (1:7.17.25-1) ...
Using bundled JDK: /usr/share/logstash/jdk
Using provided startup.options files: /etc/logstash/startup.options
OpenJDK 64-Bit Server VM warning: Option UseConcMarkSweepGC was deprecated in version 9.0 and will likely be removed in a future release.
/usr/share/logstash/vendor/bundle/ruby/2.5.0/gems/pleaserun-0.0.32/lib/pleaserun/platform/base.rb:112: warning: constant ::Fixnum is deprecated
Successfully created system startup script for Logstash
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

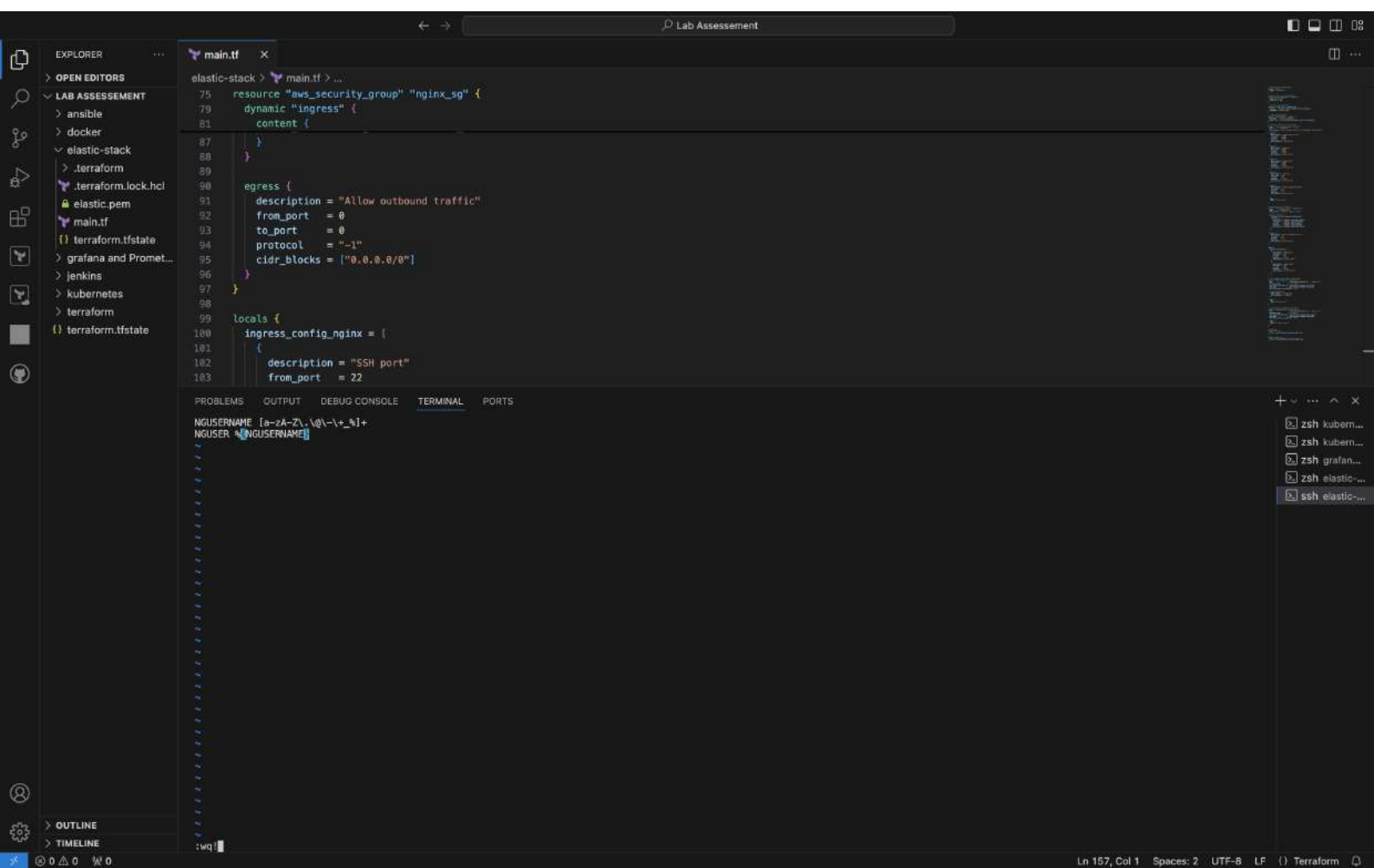
No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-28-2:~$ sudo vi /etc/logstash/conf.d/nginx.conf
```

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EXPLORER

> OPEN EDITORS

LAB ASSESSMENT

> ansible

> docker

> elastic-stack

> .terraform

terraform.lock.hcl

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() terraform.tfstate

> grafana and Promet...

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93 to_port = 0
94 protocol = "-1"
95 cidr_blocks = ["0.0.0.0/0"]
96 }
97 }
98 }
99 locals {
100 ingress_config_nginx = [
101 {
102 description = "SSH port"
103 from_port = 22

PROBLEMS

OUTPUT

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ubuntu@ip-172-31-28-2:~\$ sudo mkdir /etc/logstash/pattern
ubuntu@ip-172-31-28-2:~\$ sudo chmod 755 /etc/logstash/pattern
ubuntu@ip-172-31-28-2:~\$ sudo vi /etc/logstash/pattern/nginx
ubuntu@ip-172-31-28-2:~\$ sudo cat /etc/logstash/pattern/nginx.conf
cat: /etc/logstash/pattern/nginx.conf: No such file or directory
ubuntu@ip-172-31-28-2:~\$ sudo cat /etc/logstash/conf.d/nginx.conf
input {
beats {
port => 5044
}
}
filter {
grok {
patterns_dir => ["/etc/logstash/pattern"]
match => { "message" => "%{IPORHOST:clientip} %{NGUSER:ident} %{NGUSER:auth} \[%{HTTPDATE:timestamp}\] \"%{WORD:verb} %{URIPATHPARAM:request} HTTP/%{NUMBER:httpversion}\" %{NUMBER:response}" }
}
}
output {
elasticsearch {
hosts => ["127.0.0.1:9200"]
index => "nginx-%{+YYYY.MM.dd}"
}
}
ubuntu@ip-172-31-28-2:~\$ sudo cat /etc/logstash/pattern/nginx
NGUSERNAME [a-zA-Z_\.@\\-+~%]*
NGUSER %{NGUSERNAME}
ubuntu@ip-172-31-28-2:~\$ sudo systemctl start logstash.service
ubuntu@ip-172-31-28-2:~\$ sudo systemctl enable logstash.service
Created symlink /etc/systemd/system/multi-user.target.wants/logstash.service → /etc/systemd/system/logstash.service.
ubuntu@ip-172-31-28-2:~\$

OUTLINE

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EXPLORER

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99 locals {
100 ingress_config_nginx = [
101 {
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103 from_port = 22

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Connection to 3.0.238.97 closed.
mac@SirNicks-MBP elastic-stack % ssh -i elastic.pem ubuntu@18.134.248.126
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-1016-aws x86_64)

* Documentation: <https://help.ubuntu.com>
* Management: <https://landscape.canonical.com>
* Support: <https://ubuntu.com/pro>

System information as of Fri Nov 29 10:00:17 UTC 2024

System load: 0.0 Processes: 103
Usage of /: 23.0% of 6.71GB Users logged in: 0
Memory usage: 20% IPv4 address for enX0: 172.31.20.87
Swap usage: 0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See <https://ubuntu.com/esm> or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.
ubuntu@ip-172-31-20-87:~\$ sudo apt-get update

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Terraform

EXPLORER

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LAB ASSESSMENT

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93 to_port = 0
94 protocol = "-1"
95 cidr_blocks = ["0.0.0.0/0"]
96 }
97 }
98 }
99 locals {
100 ingress_config_nginx = [
101 {
102 description = "SSH port"
103 from_port = 22

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The following additional packages will be installed:
nginx-common
Suggested packages:
fcgiwrap nginx-doc ssl-cert
The following NEW packages will be installed:
nginx nginx-common
0 upgraded, 2 newly installed, 0 to remove and 58 not upgraded.
Need to get 552 kB of archives.
After this operation, 1596 kB of additional disk space will be used.
Get:1 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 nginx-common all 1.24.0-2ubuntu7.1 [31.2 kB]
Get:2 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 nginx amd64 1.24.0-2ubuntu7.1 [521 kB]
Fetched 552 kB in 0s (20.8 MB/s)
Preconfiguring packages ...
Selecting previously unselected package nginx-common.
(Reading database ... 67836 files and directories currently installed.)
Preparing to unpack .../nginx-common_1.24.0-2ubuntu7.1_all.deb ...
Unpacking nginx-common (1.24.0-2ubuntu7.1) ...
Selecting previously unselected package nginx.
Preparing to unpack .../nginx_1.24.0-2ubuntu7.1_amd64.deb ...
Unpacking nginx (1.24.0-2ubuntu7.1) ...
Setting up nginx (1.24.0-2ubuntu7.1) ...
Setting up nginx-common (1.24.0-2ubuntu7.1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/nginx.service → /usr/lib/systemd/system/nginx.service.
Processing triggers for ufw (0.36.2-6) ...
Processing triggers for man-db (2.12.0-4build2) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ubuntu@ip-172-31-20-87:~\$ wget -qO - https://artifacts.elastic.co/GPG-KEY-elasticsearch | sudo apt-key add -

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elastic-stack > main.tf > ...

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79 dynamic "ingress" {

81 content {

87 }

88 }

89 }

90 egress {

91 description = "Allow outbound traffic"

92 from_port = 0

93 to_port = 0

94 protocol = "-1"

95 cidr_blocks = ["0.0.0.0/0"]

96 }

97 }

98 }

99 locals {

100 ingress_config_nginx = {

101 {

102 description = "SSH port"

103 from_port = 22

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0 upgraded, 2 newly installed, 0 to remove and 58 not upgraded.

Need to get 552 kB of archives.

After this operation, 1596 kB of additional disk space will be used.

Get:1 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 nginx-common all 1.24.0-2ubuntu7.1 [31.2 kB]

Get:2 http://eu-west-2.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 nginx amd64 1.24.0-2ubuntu7.1 [521 kB]

Fetch: 552 kB in 0s (20.8 MB/s)

Preconfiguring packages ...

Selecting previously unselected package nginx-common.

(Reading database ... 67836 files and directories currently installed.)

Preparing to unpack .../nginx-common_1.24.0-2ubuntu7.1_all.deb ...

Unpacking nginx-common (1.24.0-2ubuntu7.1) ...

Selecting previously unselected package nginx.

Preparing to unpack .../nginx_1.24.0-2ubuntu7.1_and64.deb ...

Unpacking nginx (1.24.0-2ubuntu7.1) ...

Setting up nginx (1.24.0-2ubuntu7.1) ...

Setting up nginx-common (1.24.0-2ubuntu7.1) ...

Created symlink /etc/systemd/system/multi-user.target.wants/nginx.service = /usr/lib/systemd/system/nginx.service.

Processing triggers for ufw (0.36.2-6) ...

Processing triggers for man-db (2.12.0-4build2) ...

Scanning processes...

Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.

ubuntu@ip-172-31-20-87:~\$ wget -qO - https://artifacts.elastic.co/GPG-KEY-elasticsearch | sudo apt-key add -

Warning: apt-key is deprecated. Manage keyring files in trusted.gpg.d instead (see apt-key(8)).

OK

ubuntu@ip-172-31-20-87:~\$ sudo apt-get install apt-transport-https

echo "deb https://artifacts.elastic.co/packages/7.x/apt/stable/main" | sudo tee /etc/apt/sources.list.d/elastic-7.x.list

sudo apt-get update

sudo apt-get install filebeat

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EXPLORER

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LAB ASSESSMENT

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() terraform.tfstate

> OUTLINE

> TIMELINE

main.tf

elastic-stack > main.tf > ...

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79 dynamic "ingress" {
81 content {

87 }
88 }
89 }
90 egress {
91 description = "Allow outbound traffic"
92 from_port = 0
93 to_port = 0
94 protocol = "-1"
95 cidr_blocks = ["0.0.0.0/0"]
96 }
97 }
98 }
99 locals {
100 ingress_config_nginx = [
101 {
102 description = "SSH port"
103 from_port = 22

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ubuntu@ip-172-31-28-87:~\$ sudo vi /etc/filebeat/filebeat.yml

zsh kubern...

zsh kubern...

zsh grafan...

zsh elastic...

ssh elastic...

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elastic-stack

.terraform

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grafana and Promet...

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elastic-stack > main.tf > ...

```
75 resource "aws_security_group" "nginx_sg" {
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81     content {
87   }
88 }
89
90 egress {
91   description = "Allow outbound traffic"
92   from_port   = 0
93   to_port     = 0
94   protocol    = "-1"
95   cidr_blocks = ["0.0.0.0/0"]
96 }
97
98 locals {
99   ingress_config_nginx = {
100     {
101       description = "SSH port"
102       from_port   = 22
103     }
104   }
105 }
```

PROBLEMS

OUTPUT

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Filebeat Configuration Example

This file is an example configuration file highlighting only the most common options. The filebeat.reference.yml file from the same directory contains all the supported options with more comments. You can use it as a reference.

You can find the full configuration reference here:

<https://www.elastic.co/guide/en/beats/filebeat/index.html>

For more available modules and options, please see the filebeat.reference.yml sample configuration file.

===== Filebeat Inputs =====

filebeat.inputs:

Each - is an input. Most options can be set at the input level, so you can use different inputs for various configurations.

Below are the input specific configurations.

filestream is an input for collecting log messages from files.

- type: filestream

Unique ID among all inputs, an ID is required.

id: my-filestream-id

Change to true to enable this input configuration.

enabled: false

Paths that should be crawled and fetched. Glob based paths.

paths:

- /var/log/*.log

- c:\programdata\elasticsearch\logs*

Exclude lines. A list of regular expressions to match. It drops the lines that are matching any regular expression from the list.

#exclude_lines: ['^DBG']

"etc/filebeat/filebeat.yml" 229L, 8348B

1,1

Top

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Terraform

EXPLORER

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99 locals {
100 ingress_config_nginx = {
101 {
102 description = "SSH port"
103 from_port = 22

PROBLEMS

OUTPUT

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Configure what output to use when sending the data collected by the beat.

----- Elasticsearch Output -----
output.elasticsearch:
Array of hosts to connect to.
#hosts: ["localhost:9200"]

Protocol - either 'http' (default) or 'https'.
#protocol: "https"

Authentication credentials - either API key or username/password.
#api_key: "id:api_key"
#username: "elastic"
#password: "changeme"

----- Logstash Output -----
#output.logstash:
The Logstash hosts
#hosts: ["3.0.230.97:5044"]

Optional SSL. By default is off.
List of root certificates for HTTPS server verifications
#ssl.certificate_authorities: ["/etc/pki/root/ca.pem"]

Certificate for SSL client authentication
#ssl.certificate: "/etc/pki/client/cert.pem"

Client Certificate Key
#ssl.key: "/etc/pki/client/cert.key"

----- Processors -----
processors:
- add_host_metadata:
when.not.contains.tags: forwarded
- add_cloud_metadata: ~
- add_docker_metadata: ~
- add_kubernetes_metadata: ~
:wq

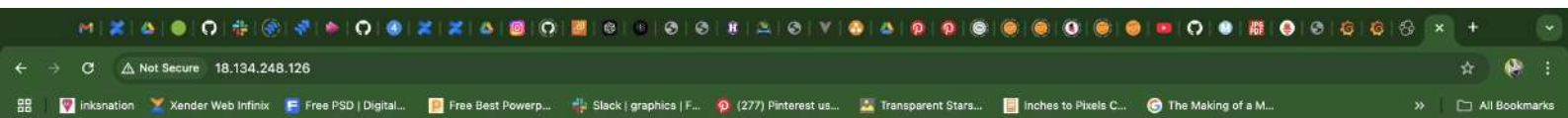
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Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.

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OUTLINE

TIMELINE

main.tf

elastic-stack > main.tf > ...

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101 {
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PROBLEMS

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ubuntu@ip-172-31-28-87:~\$ sudo vi /etc/filebeat/filebeat.yml
ubuntu@ip-172-31-28-87:~\$ sudo filebeat modules enable nginx
Enabled nginx
ubuntu@ip-172-31-28-87:~\$ sudo systemctl start filebeat.service
sudo systemctl enable filebeat.service
Synchronizing state of filebeat.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable filebeat
Created symlink /etc/systemd/system/multi-user.target.wants/filebeat.service → /usr/lib/systemd/system/filebeat.service.
ubuntu@ip-172-31-28-87:~\$

zsh kubem...
zsh kubem...
zsh grafan...
zsh elastic...
ssh elastic...

Ln 157, Col 1 Spaces: 2 UTF-8 LF Terraform

Welcome home



Enterprise Search

Create search experiences with a refined set of APIs and tools.



Observability

Consolidate your logs, metrics, application traces, and system availability with purpose-built UIs.



Security

Prevent, collect, detect, and respond to threats for unified protection across your infrastructure.



Analytics

Explore, visualize, and analyze your data using a powerful suite of analytical tools and applications.

Get started by adding integrations

To start working with your data, use one of our many ingest options. Collect data from an app or service, or upload a file. If you're not ready to use your own data, add a sample data set.

[Add integrations](#)

[Try sample data](#)

[Upload a file](#)



Management

[Dev Tools](#) [Stack Management](#)

[Manage permissions](#)

[Monitor the stack](#)

[Back up and restore](#)

[Manage index lifecycles](#)

elastic

Search Elastic

Stack Management

Index Management

Management

Ingest

Ingest Pipelines

Data

Index Management

Index Lifecycle Policies

Snapshot and Restore

Rollup Jobs

Transforms

Remote Clusters

Alerts and Insights

Rules and Connectors

Reporting

Machine Learning Jobs

Kibana

Index Patterns

Saved Objects

Tags

Search Sessions

Spaces

Advanced Settings

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License Management

Upgrade Assistant

Index Management docs

IndicesData StreamsIndex TemplatesComponent Templates

Update your Elasticsearch indices individually or in bulk. [Learn more.](#)

Include rollout indices

Include hidden indices

Search

Reload indices

<input type="checkbox"/>	Name	Health	Status	Primaries	Replicas	Docs count	Storage size	Data stream
<input type="checkbox"/>	.apm-custom-link	green	open	1	0	0	227b	
<input type="checkbox"/>	.ds-ilm-history-5-2024.11.29-000001	green	open	1	0	9	27.5kb	ilm-history-5
<input type="checkbox"/>	.kibana_7.17.25_001	green	open	1	0	321	2.9mb	
<input type="checkbox"/>	.apm-agent-configuration	green	open	1	0	0	227b	
<input type="checkbox"/>	.ds-logs-deprecation.elasticsearch-default-2024.11.29-000001	green	open	1	0	3	30.4kb	logs-deprecation.elasticsearch-default
<input type="checkbox"/>	.kibana-event-log-7.17.25-000001	green	open	1	0	1	6.1kb	
<input type="checkbox"/>	.kibana_task_manager_7.17.25_001	green	open	1	0	17	464.3kb	

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