LAB: Log Management Lab - Graylog

Please follow the lab guide to login to the VM.

Note:

- Commands preceded with `$` imply that you should execute the command as a general user - not as root.
- Commands preceded with `#` imply that you should be working as root.
- If a command line ends with `\` this indicates that the command continues on the next line and you should treat this as a single line.

Note: Graylog requires a reasonably modern multicore CPU and 4 GB of main memory to function properly. Please check with your instructor to make sure adequate resources are allocated to your group before doing the lab

1. Install Required Packages

Update the package index for the APT package manager and install necessary packages:

```
$ sudo apt-get update
$ sudo apt-get install apt-transport-https openjdk-8-jre-headless \
uuid-runtime pwgen
```

If you get an error stating Unable to locate package, you likely need to enable the universe repository which can be done typing the below command, and subsequent commands as follows:

```
$ sudo add-apt-repository universe
$ sudo apt-get update
$ sudo apt-get install apt-transport-https openjdk-8-jre-headless \
uuid-runtime pwgen
```

2. Install MongoDB

The official MongoDB repository provides the most up-to-date version and is the recommended way of installing MongoDB:

```
$ sudo apt-key adv --keyserver hkp://keyserver.ubuntu.com:80 \
--recv 9DA31620334BD75D9DCB49F368818C72E52529D4
$ sudo bash -c 'echo "deb http://repo.mongodb.org/apt/ubuntu \
bionic/mongodb-org/4.0 multiverse" > /etc/apt/sources.list.d\
/mongodb-org-4.0.list'
$ sudo apt-get update
$ sudo apt-get install -y mongodb-org
```

The next step is to enable MongoDB during the operating system’s startup and verify it is running:

```
$ sudo systemctl daemon-reload
$ sudo systemctl enable mongod.service
$ sudo systemctl restart mongod.service
$ sudo systemctl --type=service --state=active | grep mongod
```

3. Install Elasticsearch

Graylog can be used with Elasticsearch 7.x, please follow the below instructions to install the open source version of Elasticsearch.

```
$ wget -q https://artifacts.elastic.co/GPG-KEY-elasticsearch -O myKey
$ sudo apt-key add myKey
$ echo "deb https://artifacts.elastic.co/packages/oss-7.x/apt stable main" | \
sudo tee -a /etc/apt/sources.list.d/elastic-7.x.list
$ sudo apt-get update && sudo apt-get install elasticsearch-oss
```

Modify the Elasticsearch configuration file (`/etc/elasticsearch/elasticsearch.yml`) and set the cluster name to `graylog` and uncomment `action.auto_create_index: false` to enable the action:

```
$ sudo tee -a /etc/elasticsearch/elasticsearch.yml > /dev/null <<EOT
cluster.name: graylog
action.auto_create_index: false
EOT
```

Due to memory limitations on our hosts, we will need to lower the amount of memory that Elastisearch wants to use.
We do this by creating an `.options` file in `/etc/elastisearch/jvm.options.d/`

```
$ sudo tee -a /etc/elasticsearch/jvm.options.d/lowmem.options > /dev/null <<EOT
-Xms512m
-Xmx512m
EOT
```

After you have modified the configuration, you can start Elasticsearch and verify it is running.

```
$ sudo systemctl daemon-reload
$ sudo systemctl enable elasticsearch.service
$ sudo systemctl restart elasticsearch.service
$ sudo systemctl --type=service --state=active | grep elasticsearch
```

4. Install Graylog

Now install the Graylog repository configuration and Graylog itself with the following commands:

```
$ wget https://packages.graylog2.org/repo/packages\
/graylog-4.0-repository_latest.deb
$ sudo dpkg -i graylog-4.0-repository_latest.deb
$ sudo apt-get update && sudo apt-get install graylog-server
```

5. Configure Graylog

Next you need to edit `/etc/graylog/server/server.conf` file. Additionally add `password_secret` and `root_password_sha2` as these are mandatory and Graylog will not start without them.

To create your root_password_sha2 run the following command:

```
$ echo -n "Enter Password: " && head -1 </dev/stdin \
| tr -d '\n' | sha256sum | cut -d" " -f1
```

For the lab we will use `training` as password. And also change the `http_bind_address`. Replace `X` with your group number.

```
$ sudo vi /etc/graylog/server/server.conf

password_secret =
c2fb788c7deedbeaa296e424d4c2921b871a4f6cb4cf393c1c1105653ab399b4
root_password_sha2 =
c2fb788c7deedbeaa296e424d4c2921b871a4f6cb4cf393c1c1105653ab399b4
http_bind_address = 192.168.X.10:9000
```

Save and exit.

The last step is to enable Graylog during the operating system’s startup and verify it is running.

```
$ sudo systemctl daemon-reload
$ sudo systemctl enable graylog-server.service
$ sudo systemctl start graylog-server.service
$ sudo systemctl --type=service --state=active | grep graylog
```

If graylog is running successfully you will see the following log:

```
$ sudo tail -f /var/log/graylog-server/server.log

2020-12-28T10:57:25.383+10:00 INFO  [JerseyService] Started REST API at
<192.168.10.10:9000>
2020-12-28T10:57:25.387+10:00 INFO  [ServerBootstrap] Services started, startup
times in ms: {GracefulShutdownService [RUNNING]=81, InputSetupService
[RUNNING]=83, EtagService [RUNNING]=126, JobSchedulerService [RUNNING]=126,
OutputSetupService [RUNNING]=126, UrlWhitelistService [RUNNING]=127,
JournalReader [RUNNING]=127, ConfigurationEtagService [RUNNING]=128,
BufferSynchronizerService [RUNNING]=129, KafkaJournal [RUNNING]=129,
MongoDBProcessingStatusRecorderService [RUNNING]=157, PeriodicalsService
[RUNNING]=232, StreamCacheService [RUNNING]=243, LookupTableService
[RUNNING]=248, JerseyService [RUNNING]=21668}
2020-12-28T10:57:25.391+10:00 INFO  [ServerBootstrap] Graylog server up and
running.
2020-12-28T10:57:25.392+10:00 INFO  [ServiceManagerListener] Services are
healthy
```

If you are doing the lab on-line/remote, refer to the lab access guide for instructions on creating a tunnel with ssh

Now you can access graylog web interface `http://groupX-server.apnictraining.net:9000/`. Replace `X` with group number. Login with username `admin` and password `training`.

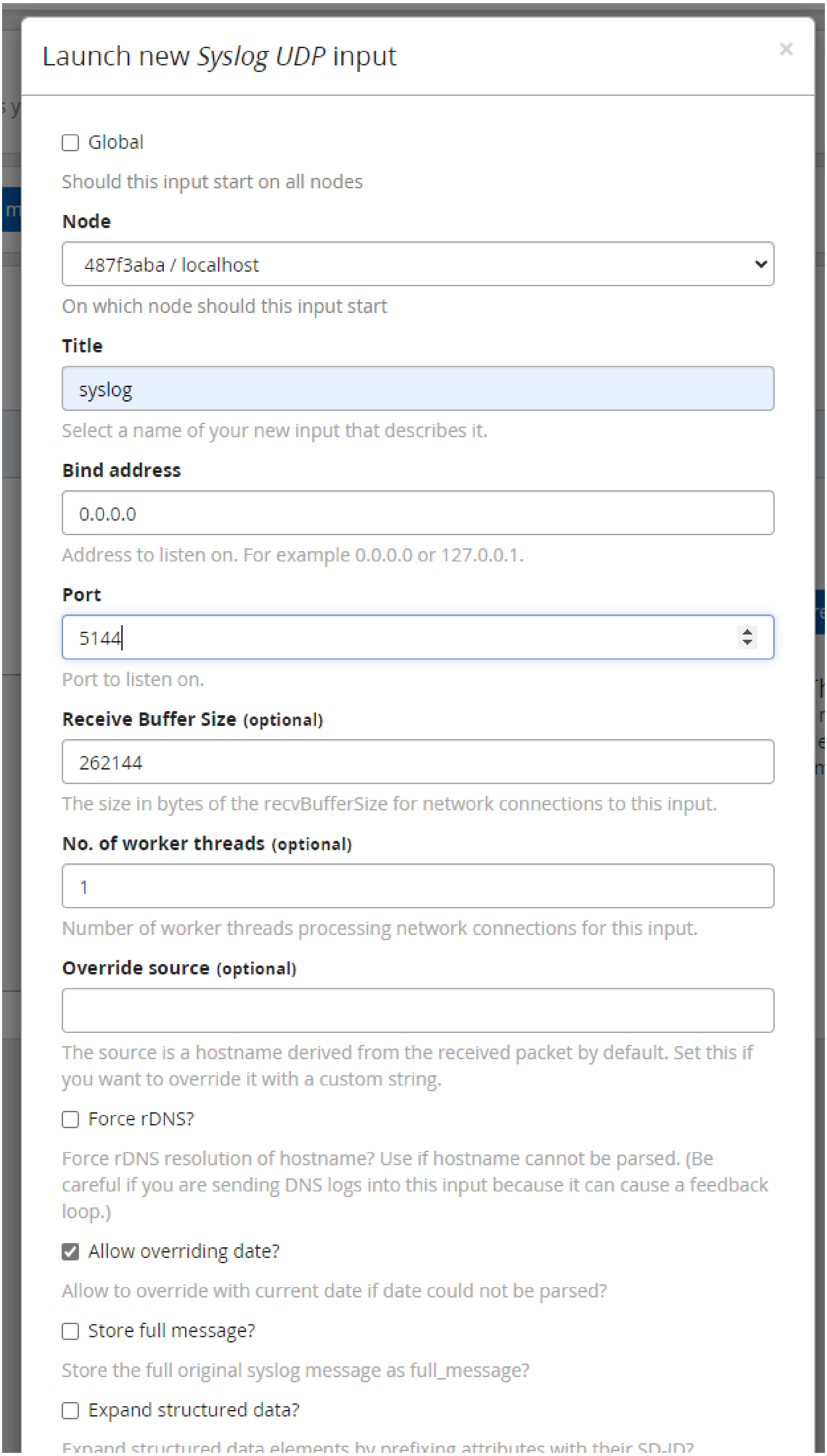
6. Create input pipeline and receive syslog

First we need to create input pipeline to receive syslog message.

Goto System > Inputs. From the select input drop down choose `Syslog UDP` and click on `Launch new input`

From Launch new Syslog UDP input select the following option:

Node: `localhost`
Title: `syslog`
Bind Address: `0.0.0.0`
Port: `5144`



Launch new *Syslog UDP* input

□ Global

Should this input start on all nodes

Node

487f3aba / localhost

On which node should this input start

Title

syslog

Select a name of your new input that describes it.

Bind address

0.0.0.0

Address to listen on. For example 0.0.0.0 or 127.0.0.1.

Port

5144

Port to listen on.

Receive Buffer Size (optional)

262144

The size in bytes of the recvBufferSize for network connections to this input.

No. of worker threads (optional)

1

Number of worker threads processing network connections for this input.

Override source (optional)

The source is a hostname derived from the received packet by default. Set this if you want to override it with a custom string.

□ Force rDNS?

Force rDNS resolution of hostname? Use if hostname cannot be parsed. (Be careful if you are sending DNS logs into this input because it can cause a feedback loop.)

☑ Allow overriding date?

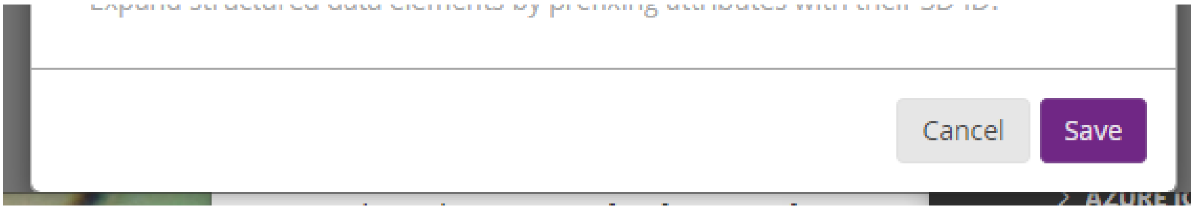
Allow to override with current date if date could not be parsed?

□ Store full message?

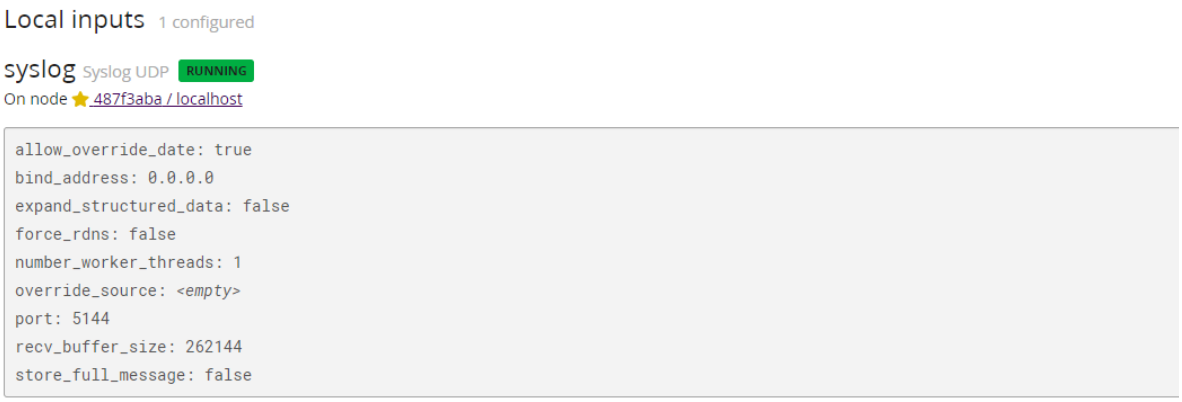
Store the full original syslog message as full_message?

□ Expand structured data?

Expand structured data elements by prefixing attributes with their SD-ID?


Expand structured data elements by prefixing attributes with their SD ID.
Cancel
Save

This will create a new pipeline to receive UDP syslog message on port 5144.


Local inputs 1 configured

syslog Syslog UDP RUNNING

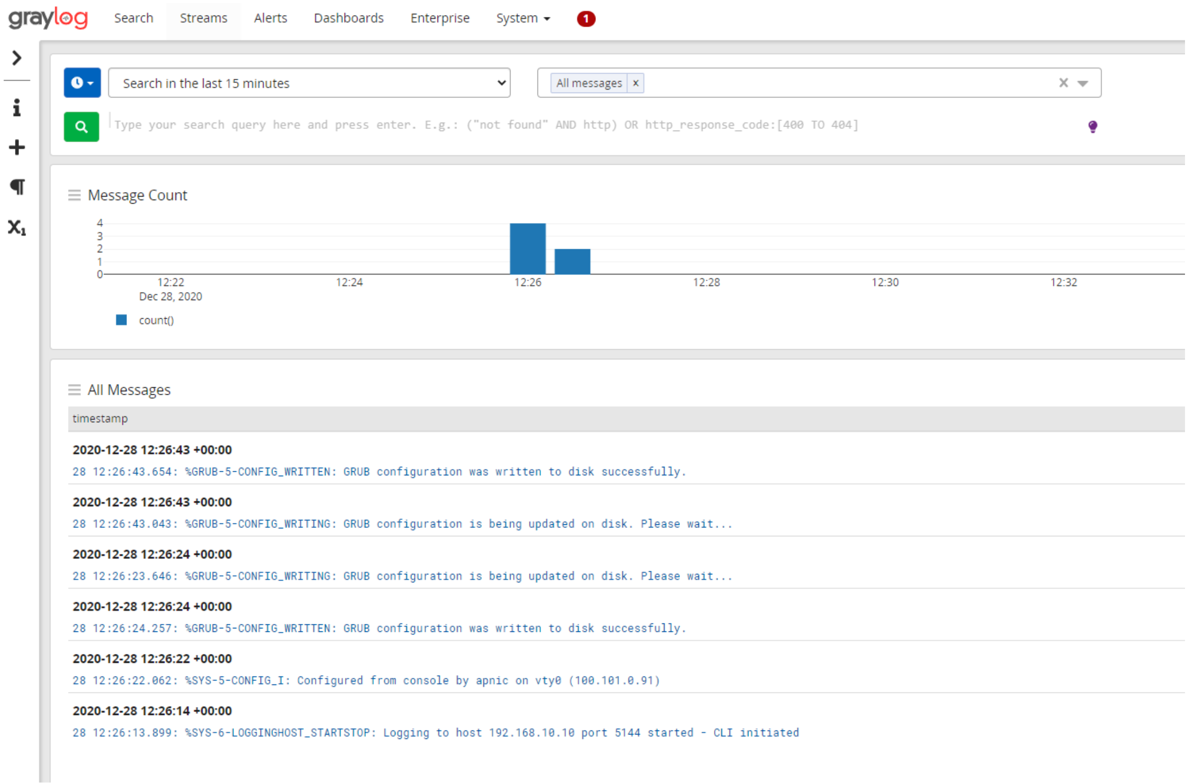
On node ★ 487f3aba / localhost

```
allow_override_date: true
bind_address: 0.0.0.0
expand_structured_data: false
force_rdns: false
number_worker_threads: 1
override_source: <empty>
port: 5144
recv_buffer_size: 262144
store_full_message: false
```

Login to your group router and add the following configuration. Replace `X` with your group number:

```
(config)# logging host 192.168.X.10 transport udp port 5144
(config)# logging facility local0
(config)# logging userinfo
(config)# exit
# write memory
```

Go to Streams > All Messages from Graylog menu. After sometime you will see syslog message are coming to graylog.



```
2020-12-28 12:26:43 +00:00
28 12:26:43.654: %GRUB-5-CONFIG_WRITTEN: GRUB configuration was written to disk successfully.

2020-12-28 12:26:43 +00:00
28 12:26:43.043: %GRUB-5-CONFIG_WRITING: GRUB configuration is being updated on disk. Please wait...

2020-12-28 12:26:24 +00:00
28 12:26:23.646: %GRUB-5-CONFIG_WRITING: GRUB configuration is being updated on disk. Please wait...

2020-12-28 12:26:24 +00:00
28 12:26:24.257: %GRUB-5-CONFIG_WRITTEN: GRUB configuration was written to disk successfully.

2020-12-28 12:26:22 +00:00
28 12:26:22.062: %SYS-5-CONFIG_I: Configured from console by apnic on vty0 (100.101.0.91)

2020-12-28 12:26:14 +00:00
28 12:26:13.899: %SYS-6-LOGGINGHOST_STARTSTOP: Logging to host 192.168.10.10 port 5144 started - CLI initiated
```

End of Lab