
Ubuntu 16.04.x and 18.04.x LTS Install Guide

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This document provides a Ubuntu 16.04.x LTS and 18.04.x LTS install guide. The guide can be followed for Ubuntu installation or serve as a starting point for installing on other Linux OS.

You should read the Deployment documentation beforehand, in order to understand the components and their roles.

Login to server

```
1 ssh user@<server>
2 sudo su
3 #password
4 cat /etc/issue
5 #Ubuntu 16.04.x LTS \n \l
6 # or
7 #Ubuntu 18.04.x LTS \n \l
```

Ensure access to repositories

If target machine has no internet, you could use a HTTP proxy. Otherwise skip this point. If your host is a mac: install squidman <http://squidman.net/squidman/>

```
1 #Open ssh tunnel from local host to enable HTTP proxy connections
2 ssh -R 8080:localhost:8080 root@<ip address of target machine>
```

```
3 #On the target machine
4 export http_proxy=http://localhost:8080
5 export https_proxy=http://localhost:8080
6 # with visudo add the text:
7 visudo
8 Defaults env_keep = "http_proxy https_proxy ftp_proxy"
```

Get the Essentials

```
1 sudo apt install -y htop
2 sudo apt install -y nano
3 sudo apt install -y wget
4 sudo wget https://github.com/bcicen/ctop/releases/download/v0.7.3/ctop
   -0.7.3-linux-amd64 -O /usr/local/bin/ctop
5 sudo chmod +x /usr/local/bin/ctop
6 sudo apt install -y postgresql
```

Install Docker

On the target machine

```
1 curl -fsSL https://download.docker.com/linux/ubuntu/gpg \
2 | sudo apt-key add -
3 sudo add-apt-repository "deb [arch=amd64] \
4 https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable"
5 sudo apt-get update
6 apt-cache policy docker-ce
7 sudo apt-get install -y docker-ce
8 sudo systemctl start docker
9 sudo docker run hello-world
10 sudo systemctl enable docker
11 sudo systemctl status docker
```

If target machine has no internet add http(s) proxy to docker

```
1 nano /etc/default/docker
2 # Add these lines #(maybe not needed?)
3 export http_proxy="http://localhost:8080"
4 export https_proxy="http://localhost:8080"
5 #Create a systemd drop-in directory for the docker service:
6 sudo mkdir -p /etc/systemd/system/docker.service.d
```

```
7 nano /etc/systemd/system/docker.service.d/http-proxy.conf
8 #Add these lines
9 [Service]
10 Environment="HTTP_PROXY=http://localhost:8080/"
11 #Flush changes:
12 sudo systemctl daemon-reload
13 #Restart Docker:
14 sudo systemctl restart docker
15 #Verify that the configuration has been loaded:
16 systemctl show --property=Environment docker
17 #Environment=HTTP_PROXY=http://localhost:8080/
```

Install Docker Compose

On the target machine

```
1 sudo curl -L "https://github.com/docker/compose/releases/download
  /1.27.4/docker-compose-$(uname -s)-$(uname -m)" -o /usr/local/bin/
  docker-compose
2 sudo chmod +x /usr/local/bin/docker-compose
3 docker-compose --version
4 #docker-compose version 1.27.4, build 40524192
```

Pull software

On the target machine pull some Sirenia software

```
1 mkdir /root/deploy
2 cd /root/deploy
```

Create a docker-compose file for your specific setup.

```
1 nano docker-compose.yml
```

You could take a base in this example. You must change at least kwanza version, cuesta version and `${HOSTNAME}` of your server. You MUST use all small letters in the fqdn. eg. some.sirenia.io

```
1 version: '3'
2
3 networks:
4   default:
```

```
5     ipam:
6         driver: default
7         config:
8             - subnet: "172.27.0.0/24"
9
10    services:
11        kwanza:
12            image: registry.sirenia.io/kwanza:v2.16.2
13            restart: unless-stopped
14            environment:
15                KWANZA_DATABASE: pg://postgres:postgres@postgres/kwanza
16                KWANZA_MINTLSVERSION: 1.2
17                KWANZA_CIPHERSUITES: "TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
18                                     TLS_RSA_WITH_AES_128_GCM_SHA256
19                                     TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA
20                                     TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256"
21                KWANZA_PREFERSERVERCIPHERSUITES: "True"
22                KWANZA_STRICTTRANSPORTSECURITY: "True"
23                KWANZA_CERT_SUBJECTS: "${HOSTNAME}"
24                KWANZA_CERT_DURATION: 87600h
25                KWANZA_CERT: "/cert/cert.pem"
26                KWANZA_KEY: "/cert/key.pem"
27                KWANZA_SALT: kwanzified
28                KWANZA_AUTH: jwt
29                KWANZA_MAXSTREAMSPERSUBSCRIBER: 102400
30                KWANZA_MAXAUTHTHROTTLEDKEYS: -1
31                KWANZA_MAXTHROTTLEDKEYS: -1
32            ports:
33                - "8000:8000"      # HTTP(S)
34                - "8001:8001"      # TCP (gRPC)
35                - "127.0.0.1:6060:6060"  # Profiling to host-only
36                - "127.0.0.1:8080:8080"  # Expvar to host-only
37            volumes:
38                - "/usr/local/etc/sirenia/cert:/cert"
39                - "/usr/local/etc/sirenia/kwanza/conf:/etc/sirenia/kwanza"
40            depends_on:
41                - postgres
42
43        cuesta:
44            image: registry.sirenia.io/cuesta:v1.14.17
45            restart: unless-stopped
46            environment:
47                CUESTA_CERT: "/cert/cert.pem"
```

```
45     CUESTA_KEY: "/cert/key.pem"
46     KWANZA_URL: "https://${HOSTNAME}:8000/v1"
47     KWANZA_STREAMURL: "wss://${HOSTNAME}:8000/v1/stream"
48     ports:
49       - "80:80"
50       - "443:443"
51     volumes:
52       - "/usr/local/etc/sirenia/cert:/cert"
53     depends_on:
54       - kwanza
55
56     postgres:
57       image: postgres:10
58       restart: always
59       ports:
60       - "127.0.0.1:5432:5432"
61       environment:
62         PGDATA: "/data"
63         POSTGRES_PASSWORD: "postgres"
64       volumes:
65       - "/root/postgresdata:/data"
```

Configure Kwanza

```
1 mkdir -p /usr/local/etc/sirenia/kwanza/conf
2 cd /usr/local/etc/sirenia/kwanza/conf
3 nano .kwanza.yml
```

paste this

```
1 users:
2   john:
3     d224cfd091471383708424f3e494f8029b456b0e559fe82ee9adb5b66a7f1e55
4   martin:
5     d224cfd091471383708424f3e494f8029b456b0e559fe82ee9adb5b66a7f1e55
6   jonathan:
7     d224cfd091471383708424f3e494f8029b456b0e559fe82ee9adb5b66a7f1e55
```

Now pull some software from the repository and try to start the combined setup.

```
1 cd /root/deploy
2 docker login registry.sirenia.io
```

```
3 #dist-<username> / <password>
4 # ... Login Succeeded
5 docker-compose up
6 <ctrl-c> (stop again)
```

Add a certificate

Kwanza will generate self-signed cert at startup. Alternatively copy valid cert for prod here `/usr/local/etc/sirenia/cert` It must be a valid x.509 certificate with a full trust chain to a CA in PEM format.

Test

Ok, we are ready to test the complete setup

```
1 cd /root/deploy/
2 docker-compose stop
3 docker-compose up
```

Look for errors etc in the logs. Login to Cuesta

- `https://<FQDN>/`
- `user:john pass:1234`

If no errors show up, we are ready to go. Start the setup as background processes.

```
1 docker-compose stop
2 docker-compose up -d
```

Sirenia Analytics

If you have acquired a license to the Data Driven Operational Intelligence solution Sirenia Analytics, follow the installation guide here. You can deploy this on the same server as Cuesta and Kwanza (assuming it is sized coorectly), or on is's own. If you install on a new server, you must first install docker and docker-compose as explained above.

Create a docker-compose file for your specific setup (or add to existing).

```
1 mkdir /root/deploy-elk
2 cd /root/deploy-elk
3 nano docker-compose.yml
```

You could take a base in this example. You must change at least versions and <FQDN> of your server.

```
1  version: '2'
2
3  networks:
4    default:
5      ipam:
6        driver: default
7        config:
8          - subnet: "172.28.0.0/24"
9
10 services:
11
12   nginx-proxy:
13     container_name: nginx-proxy
14     image: jwilder/nginx-proxy
15     ports:
16       - "81:443"
17     restart: always
18     #environment:
19     volumes:
20       - "/var/run/docker.sock:/tmp/docker.sock:ro"
21       - "./nginx-proxy/htpasswd:/etc/nginx/htpasswd"
22       - "/usr/local/etc/srenia/cert:/etc/nginx/certs"
23
24   aripuana-stats:
25     image: registry.srenia.io/aripuana:v1.5.1
26     restart: unless-stopped
27     environment:
28       ARIPUANA_MINTLSVERSION: 1.2
29       ARIPUANA_CIPHERSUITES: "TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
30         TLS_RSA_WITH_AES_128_GCM_SHA256
31         TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA
32         TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256"
33       ARIPUANA_PREFERSERVERCIPHERSUITES: "True"
34       ARIPUANA_STRICTTRANSPORTSECURITY: "True"
35       ARIPUANA_CERT_SUBJECTS: "${HOSTNAME}"
36       ARIPUANA_CERT_DURATION: 87600h
37       ARIPUANA_CERT: "/cert/cert.pem"
38       ARIPUANA_KEY: "/cert/key.pem"
39       ARIPUANA_SALT: "fishy"
40       ARIPUANA_WRITERS: 1
41       ARIPUANA_PORT: 8083
```

```
39     ARIPUANA_LOGNAME: "stats.manatee"
40     ARIPUANA_OUTPUTDIR: "/data"
41     ports:
42     - "8082:8082"
43     - "8083:8083"
44     volumes:
45     - "/usr/local/etc/sirenia/cert:/cert"
46     - "./aripuana/data:/data"
47
48     aripuana-logs:
49     image: registry.sirenia.io/aripuana:v1.5.1
50     restart: unless-stopped
51     environment:
52     ARIPUANA_MINTLSVERSION: 1.2
53     ARIPUANA_CIPHERSUITES: "TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
54     TLS_RSA_WITH_AES_128_GCM_SHA256
55     TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA
56     TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256"
57     ARIPUANA_PREFERSERVERCIPHERSUITES: "True"
58     ARIPUANA_STRICTTRANSPORTSECURITY: "True"
59     ARIPUANA_CERT_SUBJECTS: "${HOSTNAME}"
60     ARIPUANA_CERT_DURATION: 87600h
61     ARIPUANA_CERT: "/cert/cert.pem"
62     ARIPUANA_KEY: "/cert/key.pem"
63     ARIPUANA_SALT: "fishy"
64     ARIPUANA_WRITERS: 1
65     ARIPUANA_PORT: 8085
66     ARIPUANA_LOGNAME: "all.manatee"
67     ARIPUANA_OUTPUTDIR: "/data"
68     ports:
69     - "8084:8084"
70     - "8085:8085"
71     volumes:
72     - "/usr/local/etc/sirenia/cert:/cert"
73     - "./aripuana/data:/data"
74
75     aripuana-perf:
76     image: registry.sirenia.io/aripuana:v1.5.1
77     restart: unless-stopped
78     environment:
79     ARIPUANA_MINTLSVERSION: 1.2
80     ARIPUANA_CIPHERSUITES: "TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
81     TLS_RSA_WITH_AES_128_GCM_SHA256
```

```

        TLS_ECDHE_ECDSA_WITH_AES_256_CBC_SHA
        TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256"
78     ARIPUANA_PREFERSERVERCIPHERSUITES: "True"
79     ARIPUANA_STRICTTRANSPORTSECURITY: "True"
80     ARIPUANA_CERT_SUBJECTS: "${HOSTNAME}"
81     ARIPUANA_CERT_DURATION: 87600h
82     ARIPUANA_CERT: "/cert/cert.pem"
83     ARIPUANA_KEY: "/cert/key.pem"
84     ARIPUANA_SALT: "fishy"
85     ARIPUANA_WRITERS: 1
86     ARIPUANA_PORT: 8087
87     ARIPUANA_LOGNAME: "perf.manatee"
88     ARIPUANA_OUTPUTDIR: "/data"
89     ports:
90     - "8086:8086"
91     - "8087:8087"
92     volumes:
93     - "/usr/local/etc/sirenia/cert:/cert"
94     - "./aripuana/data:/data"
95
96     elk6:
97         container_name: elk6
98         environment:
99             ES_JAVA_OPTS: "-Xmx1500m -Xms1500m"
100            EL_JAVA_OPTS: "-Xmx256m -Xms256m"
101            VENDOR: Sirenia
102            ELASTICSEARCH_START: 1
103            LOGSTASH_START: 1
104            KIBANA_START: 1
105            VIRTUAL_HOST: "${HOSTNAME}" # will be fwd by nginx proxy
106            VIRTUAL_PORT: 5601 # will be fwd by nginx proxy
107            CERT_NAME: linked_for_nginx
108        image: registry.sirenia.io/sirenia-elk-7:7.2.0.1
109        restart: always
110        volumes:
111        - "./elk6/conf.d:/etc/logstash/conf.d/"
112        - "./aripuana/data:/etc/logstash/indata/"
113        - "./elk6/elk-data:/var/lib/elasticsearch/" #OBS: Required
            chown 991:991 elk6/elk-data/
114        expose:
115        - "5601"
116
117    #elk6-readonly:

```

```
118 # container_name: elk6-readonly
119 # environment:
120 #     VENDOR: Sirenia
121 #     KIBANA_START: 1
122 #     VIRTUAL_HOST: "ro-$(HOSTNAME)" # will be fwd by nginx proxy
123 #     VIRTUAL_PORT: 5601 # will be fwd by nginx proxy
124 #     CERT_NAME: linked_for_nginx
125 # image: registry.gitlab.com/sirenia/dist/analytics/sirenia-elk-7-
126 #     readonly:7.2.0.6
127 # restart: always
```

Make sym-links for cert for proxy use

```
1 cd /usr/local/etc/sirenia/cert
2 ln -s key.pem linked_for_nginx.key
3 ln -s cert.pem linked_for_nginx.crt
```

Pull the software and initialize folder structure.

```
1 cd /root/deploy-elk
2 docker-compose up
```

Wait for download of software and start-up of all dockers. Is expected til give errors, as the setup have not been configured yet.

```
1 ctrl-c to stop
```

Configure Elastic Search

To configure Elastic do the following

```
1 chown 991:991 elk6/elk-data/
2 echo "vm.max_map_count=262144" >> /etc/sysctl.conf
3 sysctl -w vm.max_map_count=262144
4 cd elk6/conf.d
5 nano logstash-in-out.conf
```

Add this to the file

```
1 input {
2   file {
3     #All for debug
```

```
4     type => "all-manatee"
5     path => "/etc/logstash/indata/all.manatee*.log"
6     #start_position => "beginning"
7     start_position => "end"
8     codec => json
9 }
10 file {
11     #Stats for BI only
12     type => "bi-manatee"
13     path => "/etc/logstash/indata/stats.manatee*.log"
14     #start_position => "beginning"
15     start_position => "end"
16     codec => json
17 }
18 file {
19     #perf for perf only
20     type => "perf-manatee"
21     path => "/etc/logstash/indata/perf.manatee*.log"
22     #start_position => "beginning"
23     start_position => "end"
24     codec => json
25 }
26 }
27 filter {
28     #NOOP
29 }
30 output {
31     if [type] == "all-manatee" {
32         elasticsearch {
33             hosts => ["localhost"]
34             manage_template => false
35             index => "all-manatee-1"
36         }
37     }
38     if [type] == "bi-manatee" {
39         elasticsearch {
40             hosts => ["localhost"]
41             manage_template => false
42             index => "all-manatee-1"
43         }
44     }
45     if [type] == "perf-manatee" {
46         elasticsearch {
```

```

47     hosts => ["localhost"]
48     manage_template => false
49     index => "all-manatee-perf-1"
50   }
51 }
52 }

```

Configure Nginx Proxy

To configure the Nginx Proxy do the following. Change user and password according to your desired setup

```

1  cd ../../nginx-proxy/htpasswd/
2  apt install -y apache2-utils
3  htpasswd -nb user password >> <FQDN>

```

Test

Ok, we are ready to test the complete DDOI setup. Start all dockers

```

1  cd ../../
2  docker-compose up

```

Look for errors etc in the logs. Login to Sirenica Analytics

- `http://<FQDN>:81/`
- `user:user pass:password`

If no errors show up, we are ready to go. Start the setup as background processes. `ctrl-c` to stop

```

1  docker-compose up -d

```

Ensure that the containers are running as expected

```

1  docker-compose ps

```

Should produce output showing five containers running un Up state.

1	Name	Command	State
2	-----	Ports	

```
3 aripuana-logs    aripuana run          Up
    0.0.0.0:8084->8084/tcp, 0.0.0.0:8085->8085/tcp
4 aripuana-perf    aripuana run          Up
    0.0.0.0:8086->8086/tcp, 0.0.0.0:8087->8087/tcp
5 aripuana-stats   aripuana run          Up
    0.0.0.0:8082->8082/tcp, 0.0.0.0:8083->8083/tcp
6 elk6            /usr/local/bin/start.sh Up      5044/tcp,
    5601/tcp, 9200/tcp, 9300/tcp
7 nginx-proxy      /app/docker-entrypoint.sh ... Up
    0.0.0.0:81->443/tcp, 80/tcp
```

Restart Server

You should always finish an install procedure with a complete server restart, to test that all services starts after a complete host restart

```
1 reboot -n
```