Heureka Index Appliance
Installation Instructions

Import OVA File

1.1   Import the provided .ova into a virtualization environment. Set the CPU and memory settings to the appropriate values for the targeted data and performance.

- Recommended Settings: 16 core CPU, 32 GiB RAM
- Minimum Settings: 8 core CPU, 8 GiB RAM

1.2   Configure the virtual machine to have both reserved memory and cpu's to minimize performance impact from other virtual machines.

1.3   Add an additional disk that will be used to store the index. Do not resize the default hard disk for this purpose, this must be an additional disk that is provisioned to support the index of the endpoint software.

- This disk should be **at least 20%** the size the of the targeted data

Configure Appliance

2.1.   Start up the virtual machine, log in to the virtual machine with the default credentials:

- Username: heureka
- Password: heureka

2.2   Set a new password for the heureka user, ensure this password cannot be lost:

```
sudo passwd heureka
```

2.3   Set up networking

2.3.1   Determine what interfaces are installed on your system.

```
ip a
```

2.3.2   Ensure interface name in /etc/network/interfaces match the interface you wish to use.

2.3.3   If you would like to use anything other than DHCP, please refer to the Ubuntu help documentation listed here:

https://help.ubuntu.com/16.04/serverguide/network-configuration.html

2.3.4   Once done, apply the settings with:

```
sudo systemctl restart networking
```

2.3.5   Verify networking is working correctly through usual network utilities such as nslookup, ping, and wget.

2.4   At this point ssh should be accessible to the machine. It is recommended to ssh in for the rest of the installation.

2.5   The disk added back in step 1.3 can now be added to the appliance and formatted for usage:

     2.5.1   Identify the disk to format

```
sudo lsblk
```

     2.5.2   Set it to a variable, for example:

```
DEVICE=/dev/sdb
```

     2.5.3   Format the disk, for example:

```
sudo mkfs.ext4 -m 0 -F -E \
lazy_itable_init=0,lazy_journal_init=0,discard $DEVICE
```

     2.5.4   Make directory where to mount disk

```
sudo mkdir /opt/data
```

     2.5.5   Determine UUID of disk

```
UUID=$(sudo blkid -s UUID -o value $DEVICE)
```

     2.5.6   Backup fstab

```
sudo cp /etc/fstab /etc/fstab.orig
```

     2.5.7   Add fstab entry

```
echo "UUID=$UUID /opt/data ext4 discard,defaults,nofail 0 2" \
| sudo tee -a /etc/fstab
```

     2.5.8   Mount all entries in the fstab

```
sudo mount -av
```

Endpoint File Share

3.1   Update the appliance operating system to the latest version

```
sudo apt-get update
sudo apt-get upgrade
```

If prompted, accept the default options

3.2   Operating system configuration

3.2.1   Disable swap:

```
sudo swapoff -a
```

3.2.2   Disable swap partitions in /etc/fstab:

```
sudo sed -i '/ swap / s/^/#/' /etc/fstab
```

3.2.3   Install jq

```
sudo apt-get -y install jq
```

3.3   Mounting a samba share

3.3.1   Put the credentials (if necessary) into /root/.smbcredentials:

```
domain=<domain>
username=<username>
password=<password>
```

3.3.2   Set the permissions of the file to restrict access:

```
sudo chmod 600 /root/.smbcredentials
```

3.3.3   Make the directory where the share will be mounted:

```
sudo mkdir /media/<share_name>
```

3.3.4   Determine the correct mount command for your mount point. For example:

```
sudo mount -t cifs //nas/media /media/nas -o \
iocharset=utf8,ro,credentials=/root/.smbcredentials
```

3.3.5   Once you successfully mount your mount point, use the umount command to unmount your mount point. For example:

```
sudo umount /media/nas
```

3.3.6   Adding an entry to `/etc/fstab` using the parameters which were successful from step 3.3.4. For example:

```
//nas/media /media/nas cifs iocharset=utf8,ro,credentials=
/root/.smbcredentials 0 0
```

3.3.7   Mount the share:

```
sudo mount -av
```

3.3.8   Check that the mount is working by listing the contents of the mounted directory:

```
ls /media/<share_name>
```

3.3.9   Verify file permissions have read access on the mount:

```
ls -l /media/<share_name>/path/to/a/test/file.txt
```

3.4   Configuring the endpoint software

3.4.1   Copy the `agent.config` and `updater.config` files that were supplied by Heureka into the following location:

```
/var/lib/indexing-service/conf
```

3.4.2   Determine the number of processor cores on the machine using the following command and record the value. It will be used shortly.

```
nproc
```

3.4.3   In the `agent.conf` file, set the crawl path to the include the file share that was added during step 3.3. For example:

```
endpoint.indexer.crawlPaths=/media/nas
```

This value can also be set to a comma delimited list of paths to index. For example:

```
endpoint.indexer.crawlPaths=/media/nas/photos,/media/nas/docs
```

3.4.4   In the `agent.conf` file, set the indexing threads to match your core count from step 3.4.2 and set the software to use 100% of the processors. For example, if you have 16 cores it should like this:

```
endpoint.indexer.threads=16
endpoint.system.cpu.max=1.0
```

3.4.5   Determine how much memory in GB is available by running the following command and record the value. It will be used shortly.

```
free -g | grep "Mem:" | awk '{ print $2 }'
```

3.4.6   In the `/var/lib/indexing-service/bin/indexing-service` file, change the amount of memory allocated to the endpoint processes. Change the `-Xmx` argument in the START_COMMAND variable to be 50% of the physical RAM of the machine. For example, for a machine with 32 GB of RAM change:

```
"  -Xmx1024m"\
```

To:

```
"  -Xmx16g"\
```

3.4.7   In the `/var/lib/indexing-service/bin/indexing-service` file, change the location where the indexing will be written to the mount point mounted in step 2.5.8. Change:

```
"  -Duser.dir=${INDEXING_HOME}"\
```

To:

```
"  -Duser.dir=/opt/data"\
```

3.5   Start the indexing service

```
sudo systemctl start indexing-service
```

3.6   Tail the logs to ensure the service is working. To stop tailing the logs use CTRL+C.

```
sudo journalctl -u indexing-service --utc -o json-pretty -f \
| jq -r ' .MESSAGE'
```

Expanding the index disk

If you ever run out of space on the indexing mount created in step 1.3 it will need to be expanded.

4.1   Shutdown the appliance

```
sudo shutdown now
```

4.2   Expand the disk in the virtualization software

4.3   Start the appliance back up

4.4   Expand the filesystem

4.4.1   Identify the device

```
sudo lsblk
```

4.4.2   Resize the filesystem

```
sudo resize2fs /dev/sdb
```

Performance monitoring

The appliance comes with **netdata** installed for live performance monitoring running as a webserver on port 19999. More information can be found at:

https://my-netdata.io

Editing files

The system comes with both `vi` and `nano` preinstalled. If you want any additional editors, they can be installed using the `apt-get` command.

Heureka