

# Foreword

This document describes how to evaluate an ndConf Evaluation installation under a Docker framework.

Most of the operations in the following document can be done from a Docker management tool such as “Docker Desktop” or from the VSCode Docker plugin. However the most universal interface is the ‘docker’ command line available once docker has been enabled on a system. Consequently, all the following instructions use the docker command line.

## Installation

To using the docker image, from the a command line, type:

```
docker load --input <file path and name>
```

E.g.

```
docker load --input \Users\user1\Desktop\ndconfeval.2.4.0.tar.gz
```

You should see something like the following during that command’s execution:

```
d101c9453715: Loading layer
[=====>] 80.41MB/80.41MB
c2c44f8008bf: Loading layer
[=====>] 311MB/311MB
a1e6492a06ab: Loading layer
[=====>] 102.7MB/102.7MB
Loaded image: ndconfeval:2.4.0-build002
```

When that’s done, if you run

```
docker images
```

you should see something like the following, indicating the availability of the image:

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
<b>ndconfeval</b>	2.4.0-build002	a08f3673ae37	21 minutes ago	478MB

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# Setting Up

This documentation discusses exposing two of the ndConfEval docker image's "servers" that should be exposed to the external host to allow for testing outside the container. The first is the **lighttpd** WEB server with both HTTP and HTTPS operational to provide an interface to ndConf's RESTCONF access agent. The other is associated with ndConf's SNMP access agent<sup>1</sup>. This mapping is done during the initial "docker run" of the image.

The web server uses TCP ports 80 & 443. The SNMP agent uses UDP port 161. If the host has none of these ports open, then you could type the following command:

```
docker run -dit -p 80:80 -p 443:443 -p 161:161/udp ndconfeval:2.4.0-build002 /bin/bash -c /startup.sh
```

When this command runs, it will output something like

```
ec50ce75a477e56f10d4672d5d1619919c305995f1c3a1b168f8aecdd90ad483
```

You can read docker "run" document for more information on this.

The last parameters of the command sequence, `/bin/bash -c /startup.sh`, instructs docker to run the script "startup.sh" to perform some startup initialization culminating with running the ndConf "testagent". More about this later.

The command will fail if any of the ports specified above are already in use on the host. If so, you would see something like:

```
docker: Error response from daemon: Ports are not available: exposing port TCP 0.0.0.0:80 -> 0.0.0.0:0: listen tcp 0.0.0.0:80: bind: An attempt was made to access a socket in a way forbidden by its access permissions.
```

The solution to this is to pick a different port(s) for the conflicted port(s) on the host.

E.g.

```
docker run -dit -p 81:80 -p 444:443 -p 4161:161/udp ndconfeval:2.4.0-build002 /bin/bash -c /startup.sh
```

In the above, **http** is mapped to tcp port "81", **https** is mapped to tcp port "444" and **snmp** is mapped to udp port "4161". The values you choose will depend on the ports not being in use on your host.

As identified above, "testagent" is run as the last step of initialization. Since "testagent" requires an evaluation license to run, the container created by this step will exit immediately.

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<sup>1</sup> The third NETCONF access agent is also in this image, but command line tools for testing this are include in the image.

To proceed, you will need to copy the provided license to the newly created container. First you need to obtain the container id. To do this, do the following:

E.g.

```
PS C:\Users\Brian> docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS
ec50ce75a477	ndconfeval:2.4.0-build002	"/bin/bash -c /start..."	10 seconds ago	Exited (1) 1 second ago	0.0.0.0:81->80/tcp, 0.0.0.0:444->443/tcp, 0.0.0.0:4161->161/udp pedantic_dewdney
f1f57296b725	ndconfeval:2.4.0-build002	"/bin/bash -c /start..."	34 seconds ago	Created	zealous_nobel

The container id to use is the one from the “ndconfeval” container indicating it has exited. The container id is used in the following ‘docker cp’ command.

E.g.

```
docker cp <license host path and name> ec50ce75a477:/etc
```

This places the license in the ‘/etc/’ directory. After that completes successfully, start the container again.

```
docker start ec50ce75a477
```

At this point, you should be able to access RESTCONF via the web server ports “81” or “444” and SNMP on “4161”, based on the last “run” example given above.

Type the following into a web browser to access the provided RESTCONF web app, “restconf-submit-test.html”.

```
http://127.0.0.1:81/restconf-submit-test.html
```

or

```
https://127.0.0.1:444/restconf-submit-test.html
```

The web and ssh server are setup by default for a single user, “**user1**” with a password of “**password1**”. You will be required to input this information to access the server through the web, or if you use ssh to connect to the NETCONF server using **ncclient**.

**Note:** since “testagent” is started automatically and it is a command line application, if you “attach” to the started container, you will be attached at its command prompt, waiting for input.

```
docker attach ec50ce75a477
```

If you type a ‘?’ you will see the list of commands available to you.

**Also note**, if you type ‘quit’, you will exit “testagent” and the container will then exit as well.

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Alternatively, you can start a new bash command line to the running container, by typing:

```
docker exec -it ec50ce75a477 bash
```

## Other Info

The ndConf docker image contains the latest release version of our ndCONF evaluation SDK. It is the only thing installed under '/opt'. You can copy the user guide for the evaluation from under the '/doc' directory.

E.g.

```
docker cp ec50ce75a477:/opt/ndConfEval-2.4.0-build002/ndconf/doc/NuDesign\ ndCONF\ User\ Guide.pdf .
```

The document provides information about how to use the SDK.

Lastly, these instructions do not expose NETCONF to the external environment. To access NETCONF from the provided 'ncclient', create a new bash command line and 'cd' to the 'ncclient' directory.

E.g.

```
docker exec -it ec50ce75a477 bash
```

```
root@ec50ce75a477:/# cd /opt/ndConfEval-2.4.0-build002/ndconf/ncclient/
```

```
root@ec50ce75a477:/opt/ndConfEval-xxx-buildyyy/ndconf/ncclient/# ./ncclientstart
```

```
*****
```

```
NuDesign NetConf CALL HOME Client
```

```
Version 2.0.0
```

```
Copyright (c) 2014-2024 NuDesign Technologies Inc.
```

```
*****
```

```
>
```