# NCSDK
# SDK for the Intel Movidius Neural Compute Stick

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## -Overview

The Intel Movidius Neural Compute SDK (NCSDK) was developed by Intel to allow rapid prototyping and deployment of deep neural networks (DNNs) on compatible devices like the Intel Movidius Neural Compute Stick. The NCSDK inlcudes a set of software tools to compile, profile and check DNNs.

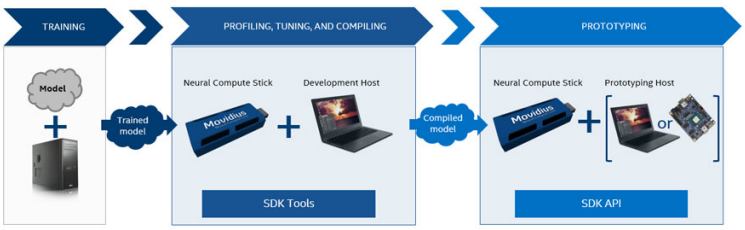


Figure 1: Monasca architecture

In this case NCSDK and Intel Movidius are used to measure the performance increase the Intel Movidius has on a common tensorflow network: InceptionV3. This is an installation guide for installing NCSDK on Raspberry Pi.

## -Installing ncsdk2 and OpenCV on Raspberry pi.

This is a step-by-step guide on installing ncsdk and OpenCV on the raspberry pi. Neural Compute SDK is software for the Intel Movidius Neural Compute stick.

### -Prerequisites.

- Git
- Raspberry Pi 3 with RASPBIAN STRETCH
- Internet Connection

If Raspbian Strectch Lite is installed on your raspberry pi or git is not installed, use
sudo apt-get install git
To install git.

### Increase swapfile size

The default size of the swapfile on a raspberry pi is 100 megabytes. This must be increased to at least 1024 megabytes for NCSDK to install. This can be done by editing the CONF_SWAPSIZE variable in /etc/dphys-swapfile. Open this file using the command:
sudo nano /etc/dphys-swapfile
Increase the variable and save and exit the file. Then restart the swapfile service.
sudo /etc/init.d/dphys-swapfile restart
The swapfile is now large enough for the installation.

### installing NCSDK and OpenCV

Installing NCSDK and opencv is going to take around two to three hours so be sure that enough time is reserved. Use the following command to install:

git clone -b ncsdk2 http://github.com/Movidius/ncsdk && cd ncsdk && make install

During the process you will have to enter the password for the raspberry pi (sfs2018 if you are using the same cluster) If OpenCV is already installed, it asks whether it should uninstall OpenCV and reinstall. Answer with yes.

Since the goal is to conduct some reproducible experiments the examples also must be installed.

**installing the examples.**

Keep in mind that this process may take another hour to two hours. First, navigate to the ncsdk folder. Then give the following command:
make examples
It should ask for a password again. Next, it asks if it should install OpenCV. Answer with yes.
Alternatively, since the only examples used are Tensorflow and Caffe, navigate to the corresponding folder and call:
make run
to build and install individual examples. This takes less time than install all examples at once.

## References


**1.** Intel. (2018, October 5). Retrieved from Intel Movidius Neural Compute SDK: [Online]. Available: `https://movidius.github.io/ncsdk/index.html`

**2.** Intel. (2018, October 5). Retrieved from Software Development Kit for the Neural Compute Stick: [Online]. Available: `https://github.com/movidius/ncsdk`