

A-DCF Simulator Guide

(v0.1)

July 30, 2014

This document will continuously be updated.

1. Overview

The A-DCF simulator is based on NS-3. We extend the `wifi` module to implement A-DCF and O-DCF. For details on NS-3, refer to <http://www.nsnam.org>.

2. Building the simulator

Decompress `adcf-simulator-0.1.tar.bz2` by typing the following:

```
tar xvjf adcf-simulator-0.1tar.bz2
```

Change into the directory by typing the following:

```
cd ns-allinone-3.14.1-adcf-0.1
```

Build by typing the following:

```
./build.py
```

3. Running a scenario

Change into the directory by typing the following:

```
cd ns-3.14.1
```

Run the FIM scenario by typing the following:

```
./waf --run tcp-fim
```

4. Script details

You will find sample scenario scripts in directory `scratch/`, where `tcp-fim.cc` and `tcp-fc.cc`

correspond to flow-in-the-middle and fully-connected topologies, respectively. You can change the simulation configuration by changing values for appropriate variables. To use 802.11 DCF, set `macType` to `"ns3::AdhocWifiMac"`. To use O-DCF, set `macType` to `"ns3::ODcfAdhocWifiMac"` and set `ta` to `"queue"`. To use A-DCF, set `macType` to `"ns3::ODcfAdhocWifiMac"` and set `ta` to `"delay"`.

5. Implementation details

We implement A-DCF and O-DCF by extending the `wifi` module. You will find source codes for A-DCF and O-DCF in `src/wifi/model/` directory. Main classes are `ODcf`, `ODcfQueue`, and `ODcfDcaTxop` which are in `odcf.{h, cc}`, `odcf-queue.{h, cc}`, and `odcf-dca-txop.{h, cc}`.