

## Traces Downsizing SOP

### ENVIRONMENT

1. Set up replay environment
  - Replayer: Linux Machine
  - Check Device: Linux/Windows machine
  - DUT
2. Download and Install **mergecap** (apt-get install mergecap)  
*mergecap is used to concatenate multiple pcap file into a unique one*
3. Install **splitPcap** (chmod +x splitPcap)  
*splitPcap is a perl script used to split a pcap file into multiple pcap files based on the suggested size*

### DOWNSIZING

- Replay large pcap file to DUT
- Record the CheckDevice log file
- From the CheckDevice log file get the size of the pcap file when the DUT hanged (or other defect). In the example below, the defect is hanging and the size of traces that we replayed is 326.3 GB

```

=====Hanging @ Fri Dec 30 02:05:41 CST 2011 =====
Replay file name: /media/1e5613c4-40cb-4c96-bbb7-0866a6aad342/100614/anon-100213-0640.pcap
Total tcp connection: 8843165
Total udp connection: 182304083
Bandwidth utilization: 100.455316 MBps
Concurrent tcp connection: 4090019
Total traffic: 326354.2090291977 MBs
Stopping CheckDevice ...
ArpChecker done
RawPacketIcmpChecker done
TimerChecker done
HttpChecker done

```

The CheckDevice log also provides the list of all the replayed pcap files that were replaying before the log occurrence.

1. Merge all the pcap files that were replayed before the defect occurrence

```
$ merg pcap -w outputfile.pcap file1.pcap file2.pcap
```

2. Downsizing

#### a. Linear Downsizing

Split outputfile.pcap into small files of 500 MB

General command: ./pcap-util split <infile> <outfile prefix> <size in MB>

```
./splitPcap split outputfile.pcap small 500
```

This command will generate a bunch of pcap files of 500 MBs.

- Replay these files to the DUT in a descending order. The first pcap file to be replayed is the last pcap file produced by the previous command.
- Each time a small pcap file is replayed to the DUT, check the CheckDevice log to see if the defect has been reproduced.
- If the defect has been reproduced, we save the small pcap file as the downsized file. Otherwise we append the next pcap file by merging the last replayed pcap file with the next one and replay the output pcap file

```
$ merg pcap -w SMALL.pcap small.x2.pcap small.x1.pcap
```

This process is done until the defect is reproduced

### **b. Binary Downsizing**

For the binary downsizing we split the outputfile.pcap into 2 equal parts.

In our example, since the pcap files size is 326GB, each part has 163G

```
./splitPcap split outputfile.pcap half 163
```

This command will generate 2 files.

- Replay the last generated file first (half.1.pcap) to the DUT.

If the defect is reproduced split half.1.pcap in two parts and replay the last generated file.

However if the log is not reproduced, split half.0.pcap in two and merge the last generated pcap file with half.0.pcap

```
./splitPcap split half.0.pcap halfhalf 82 (82 = 163/2)  
$ mergecap -w SMALL.pcap halfhalf.1.pcap half.1.pcap
```

Replay SMALL.pcap as the input pcap file

This process is done until the defect is reproduced.