

Record the results of a test as CSV from the REALM monitor script

Goal: Record the results of a LANForge test as a CSV file.

Some scripts in the LANForge library have a monitor function built in.

We are going to be using the `test_ipv4_variable_time` script for this demonstration.

This is useful for running a test and then analyzing the results afterwards.

1. Start LANForge GUI. It is recommended to run this script on a fresh LANForge configuration with no stations loaded.
2. Make sure you have `lanforge-scripts` on your device.
If `lanforge-scripts` is already installed on your device, skip this step
Navigate to `py-scripts` in the `lanforge-scripts` folder. If your LANForge device doesn't have this open source software yet you can clone them from [Github](#)
To install `lanforge-scripts` paste `git clone https://github.com/greearb/lanforge-scripts` into your terminal.
3. Type the following command into your command line

```
./test_ipv4_variable_time.py --radio wiphy0 --security wpa2 --ssid lanforge --password password --output_format csv
```

Replace the `security`, `ssid`, and `password` variables with the settings for the network you are testing.
This will create 2 `wiphy` stations by default, connect them to the network you are testing, and report the results to a CSV file. You can change the following fields in the `Realm Monitor` function:
4. This creates a default file in your `report-data` folder under your home directory. The name will be in the format with today's timestamp and the name of the test you ran. It's a normal Excel file which you can use however you want..
5. There are multiple commands you can use with this function, here is a list of the flag and what each of them mean:
 - A. `report_file`: Name the full path of the file you want to save results to. Default will save to your `report-data` folder.
 - B. `duration_sec`: how long you want to run the test
 - C. `output_format`: The output format you want your file in. The following formats are supported:
 - A. `xlsx` DEFAULT
 - B. `pickle`
HINT: `pickle` is recommended if you are going to be manipulating data in python since it preserves formatting and can be quickly loaded into a `Pandas DataFrame` without any manipulation required
 - C. `csv`
 - D. `json`
 - E. `pdf`
WARNING: PDF is hard to export data from without an Adobe Acrobat license
 - F. `png`
WARNING: `png` is going to export an image, do not use this if you are planning on manipulating your data because it does not preserve the numbers recorded
 - G. `html`
 - H. `hdf`
 - I. `parquet`
 - J. `stata`
 - D. `ssid`: REQUIRED Name of the network you are connecting to
 - E. `password`: REQUIRED Password to the network
 - F. `radio`: REQUIRED The radio which you are going to create stations from.
 - G. `security`: Match the security protocol of your router.

- H. `test_duration`: Default is 60 seconds, write in a any number if you need. You can also use minutes or hours notation in this command, so for 42 minutes write 42m and for 8 hours write 8h.
- I. `upstream_port`: Most users won't need to use this option, but it tells the program where to connect to the router
- J. `created_cx`: List of the cross connects you are going to be analyzing. If you are starting with no stations created, you won't need to use this option.

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