Gperf Manual

1. Introduction

Gperf is an active network measurement platform. People can simultaneously use multiple probes located in different locations in the world to monitor target domain names and obtain periodic detection results. It provides '***ping***', '***dig***', '***curl***' and '***traceroute***' functions, and supports both IPv4 and IPv6. In addition, people can choose to register their host on the Gperf platform and become a new probe to provide services to other users.

The homepage URL of the Gperf platform is **https://gperf.cgtf.net/**, and the probe status and historical test data are publicly displayed (*Figure 1*).

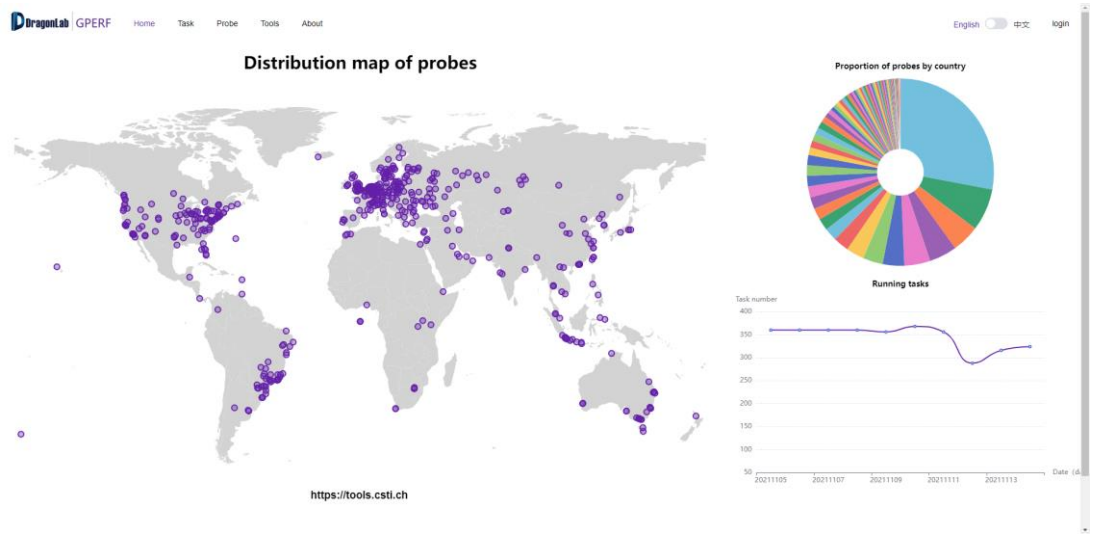

Figure 1. Homepage of Gperf

The architecture of Gperf can be divided into three parts: website user, web server, and probe hosts (*Figure 2*). Users can initiate detection tasks, view results, and manage their probes on the website. As the backend of the web page, the server is responsible for distributing tasks to designated probes after the user initates their tasks on website. The webserver is also responsible for communicating with probe hosts. The webserver gets information,processes it and stores results from the probes. The deployed probes are responsible for receiving tasks from the server and performing corresponding detection operations, including ping, curl, dig, and traceroute. The probes then return results to the webserver.

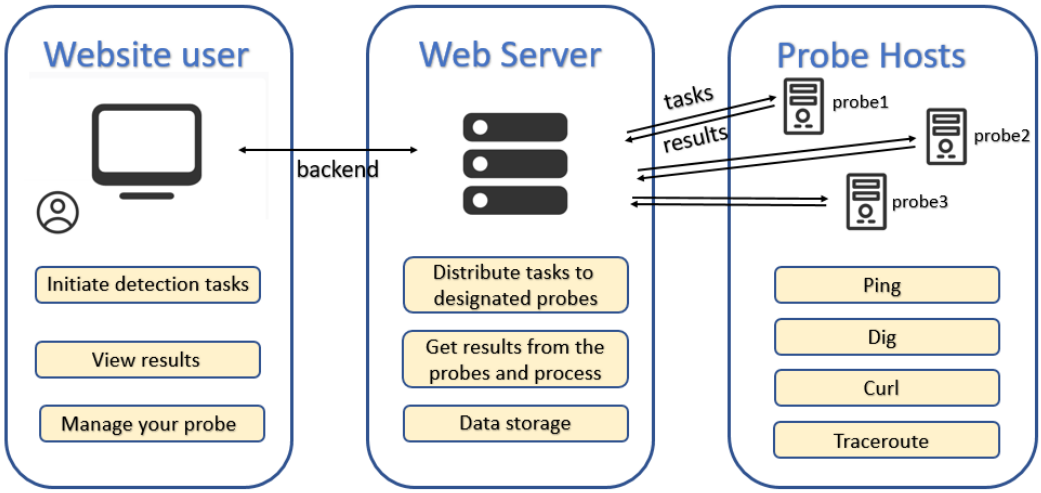

Figure 2. Architecture of Gperf

Click the 'Probe' column at the top of the web page, then select 'Probe' in the Drop-down bar which is at the upper left corner of the web page, you will see the available probe list (*Figure 3*). The probes in this list can be selected for detection.

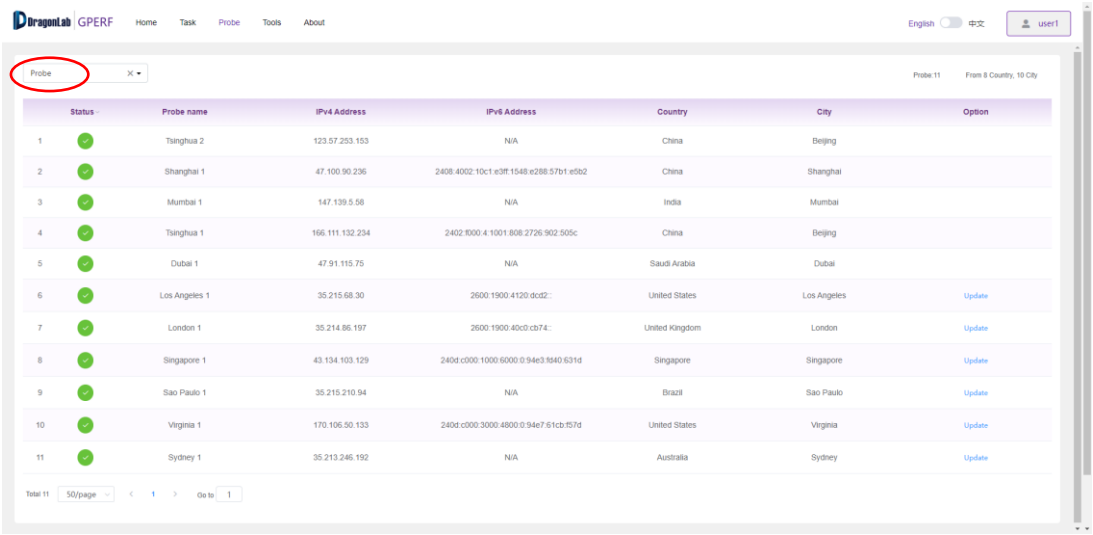

Figure 3. Available probe list

2. Benefits to Partners

1) Register

An account is precondition for creating tasks, which means only registered users can use Gperf's detection function. Click the 'login' button in the upper right corner of the homepage to move to the registration (*Figure 4*) and login interface (*Figure 5*). Enter your email address and other information to complete the registration. After registering and logging in, you can also join us and deploy your probe host.

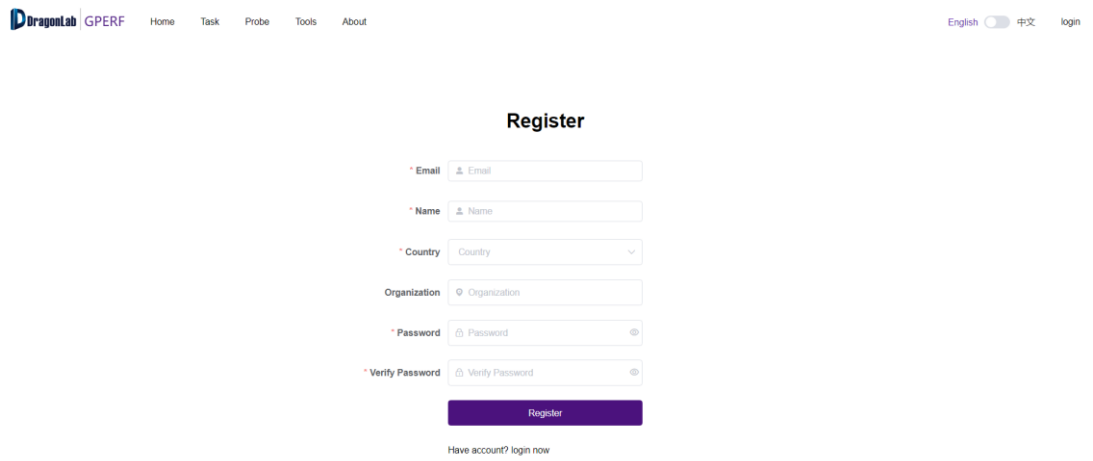

Figure 4. Register page

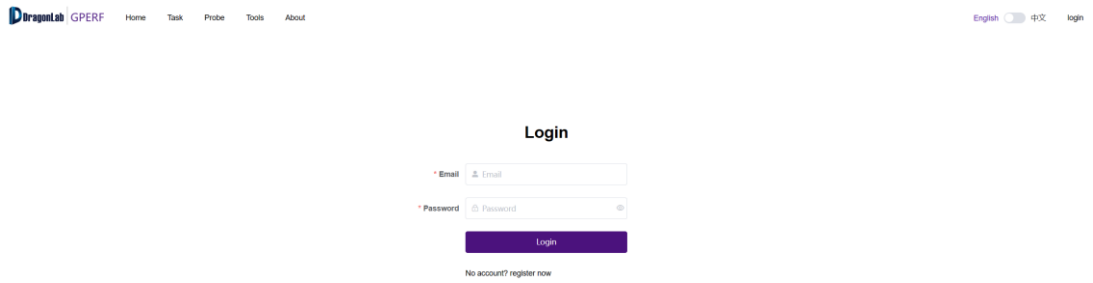

Figure 5. Login page

2) Create a Detection Task Group

Click the 'Task' column at the top of the page. If you have logged into your account, there will be a 'Create Task Group' button in the upper right corner (*Figure 6*). When creating a task group, you need to input some information. You should enter the task group name, select several probes for this task and input the task period. You should choose some target domain names to detect, you can enter text or upload a file. Then click 'OK', this task group will be created (*Figure 7*).

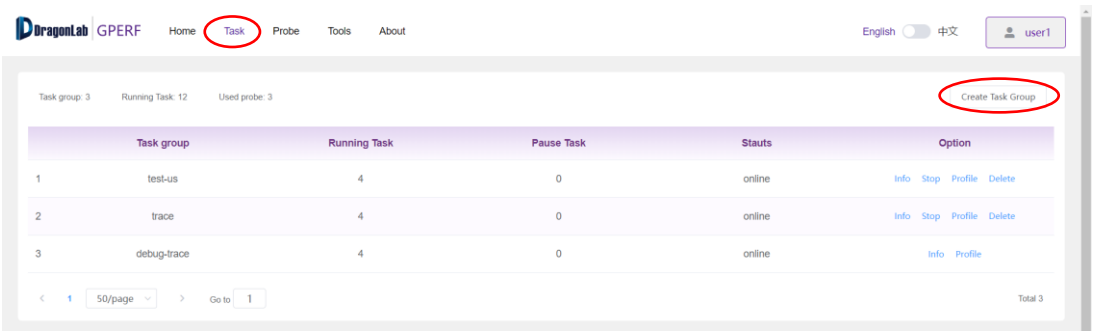

Figure 6. Task group page

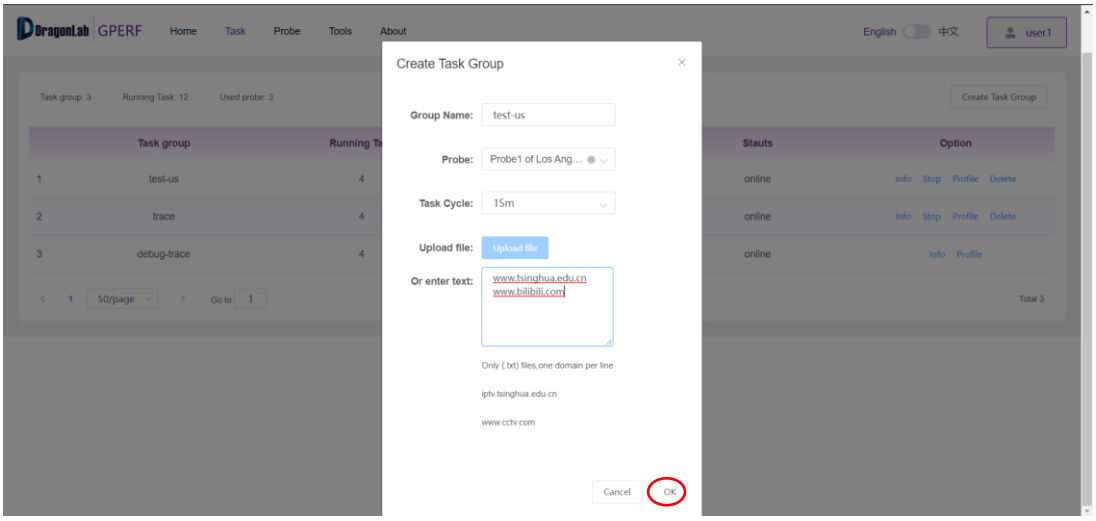

Figure 7. Create your task group

3) View Detection Results

After the task group is created, the corresponding task group can be found in the task list (*Figure 8*). Only the task group creator can perform the 'Stop' and 'Delete' operations. Click the 'Info' operation of a task group to enter the task group details interface.

The task group details interface (*Figure 9*) shows the average value of the most recent detection results for each target domain name. You can 'Add and 'Delete' some target domain names. Click the 'Info' button then you will go to the detailed page which shows the details of results for the corresponding domain name.

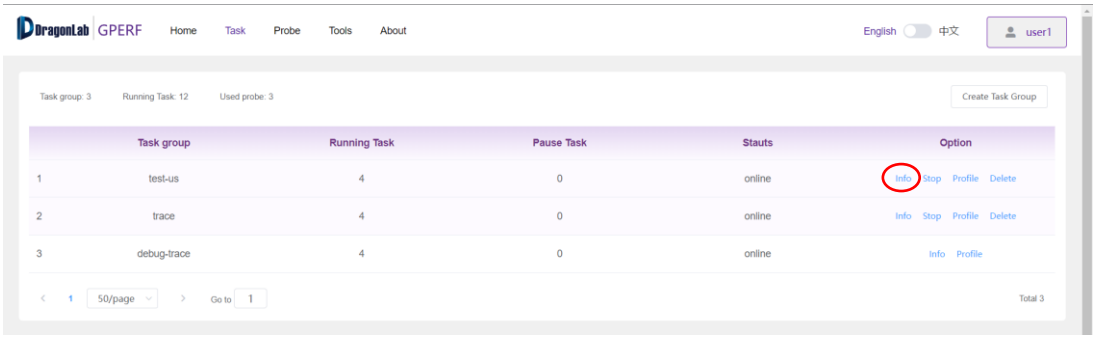

Figure 8. Task group management

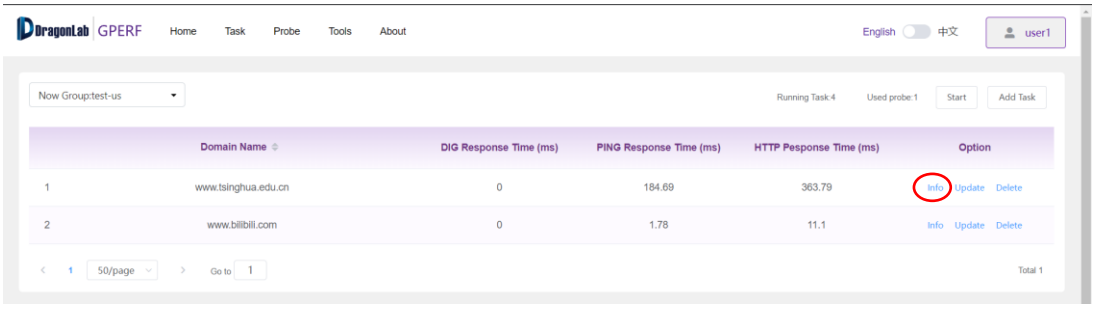

Figure 9. Task group details

The details of results include the following parts:

a) Time delay and packet loss rate of ***'ping'*** command for IPv4 (*Figure 10*). If both the probe and the target domain name support IPv6, there will be another IPv6 detection result (*Figure 11*).

b) Response time of ***'dig'*** command for IPv4 (*Figure 12*). If the target domain name supports IPv6, there will be another IPv6 detection result (*Figure 13*).

c) Http connection establishment time and download speed of ***'curl'*** command for IPv4 (*Figure 14*). If both the probe and the target domain name support IPv6, there will be another IPv6 detection result (*Figure 15*).

d) Traceroute topology result of '***traceroute***' command for IPv4 (Figure 16).

e) Alert information which is used to record errors that occurred during the detection process (Figure 17).

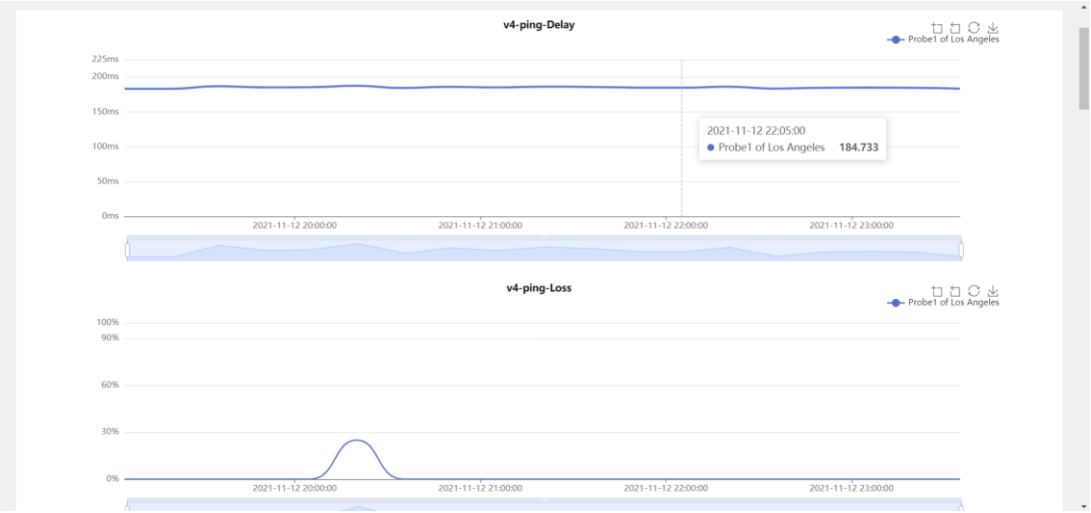

Figure 10. Results of IPv4 '*ping*' command

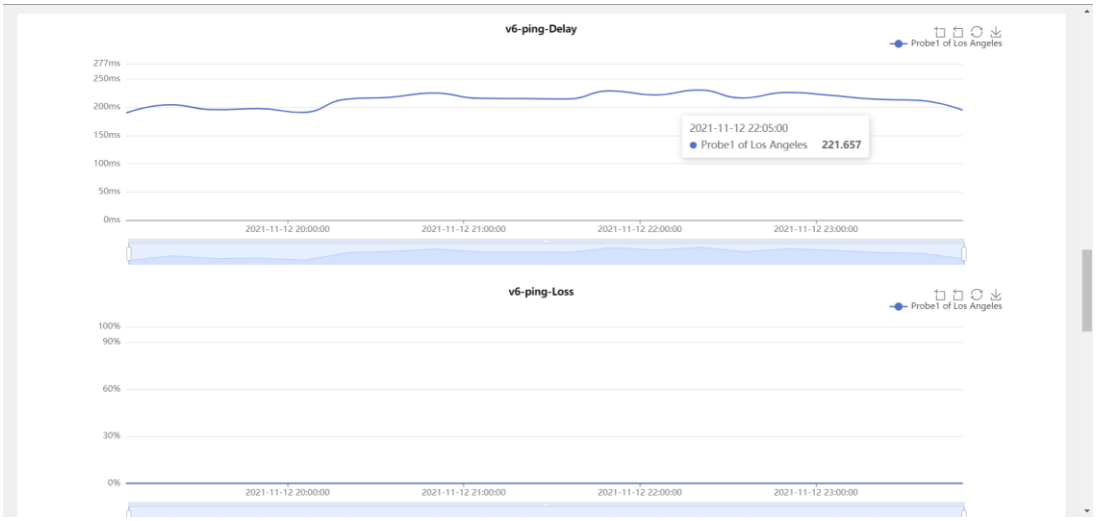

Figure 11. Results of IPv6 '*ping*' command

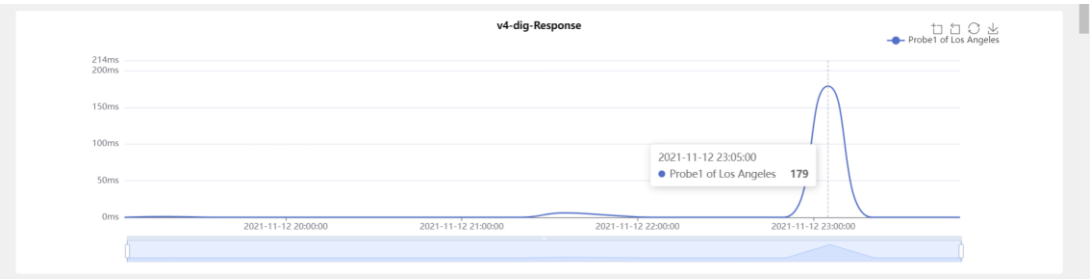

Figure 12. Results of IPv4 '*dig*' command

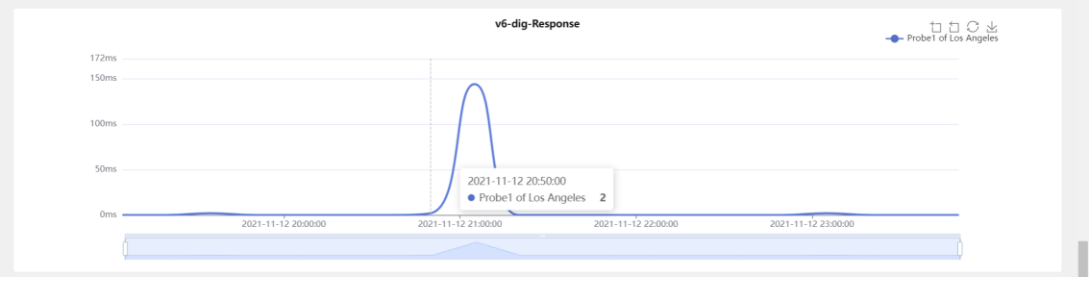

Figure 13. Results of IPv6 '*dig*' command

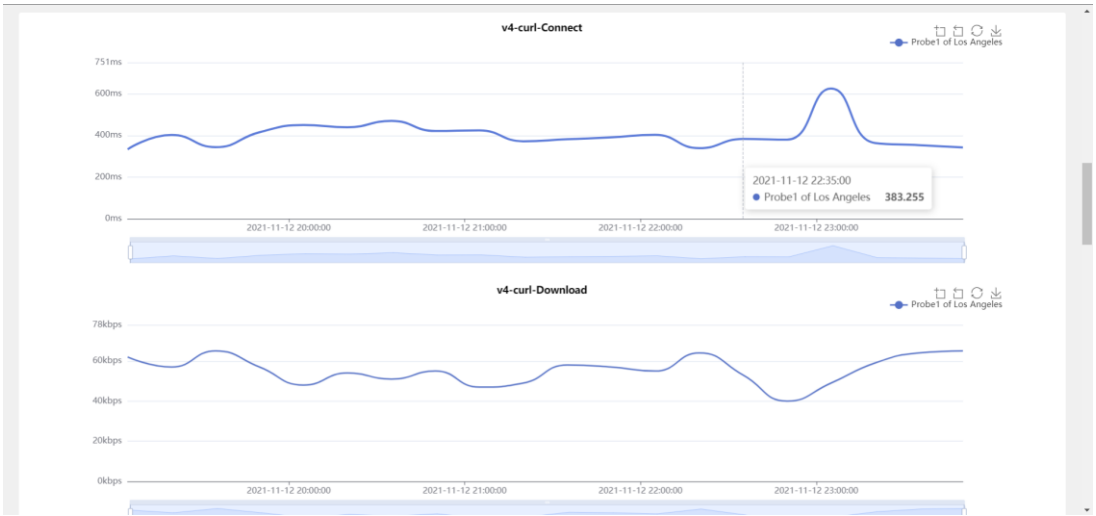

Figure 14. Results of IPv4 '*curl*' command

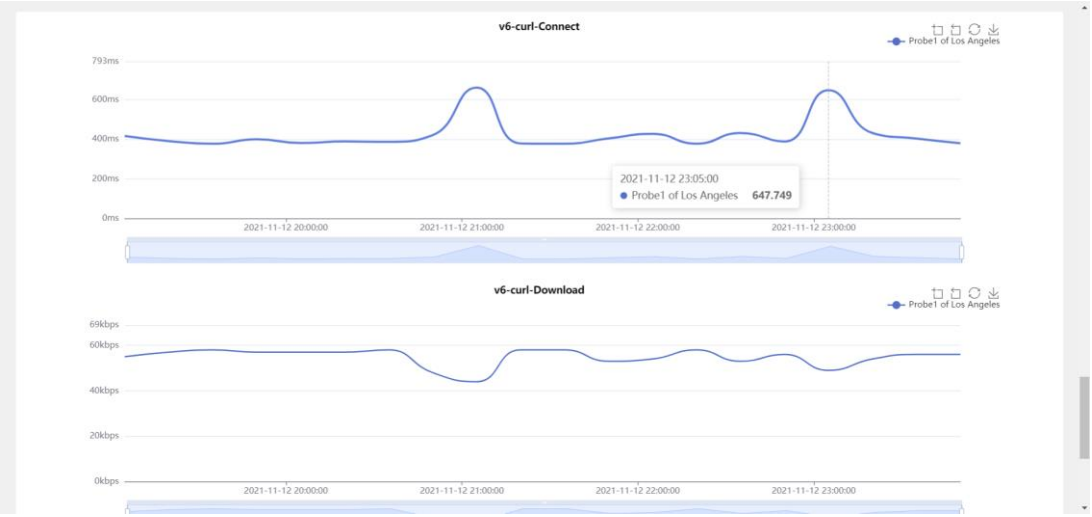

Figure 15. Results of IPv6 '*curl*' command

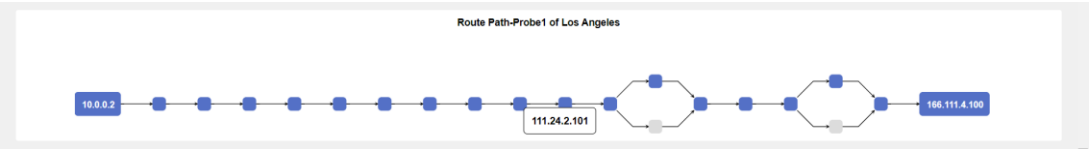

Figure 16. Topology of IPv4 traceroute result (per probe)

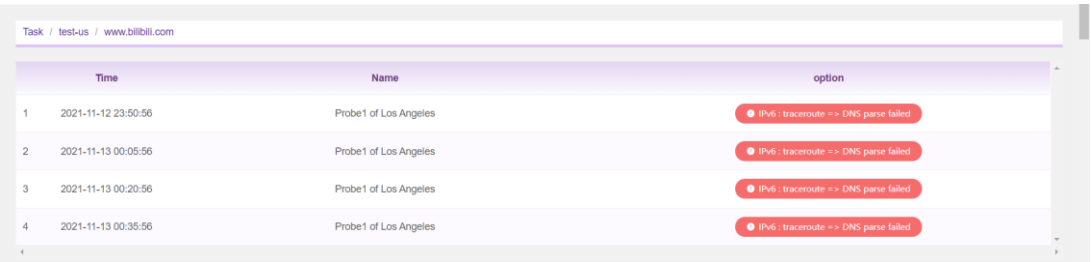

Figure 17. Alert information during the detection

3. What Partners Can Contribute

1) Download and Deploy Your Probe

Click the 'Tools' column at the top of the webpage, download the Gperf probe client compression package (wget -4 https://gperf.cgtf.net/gperf_client_install.tar.gz) and follow the steps in the guide to install and run (*Figure 18*).

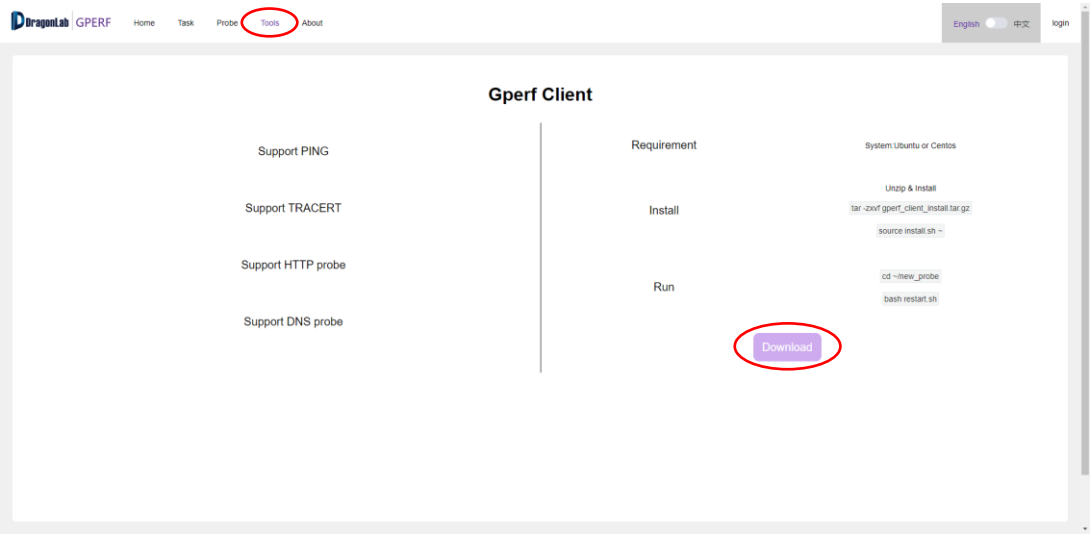

Figure 18. Download and deploy the probe

2) Login into Your Account

You need to login into your account on the website. If you do not have an account, follow the steps in **(2-1)** to register an account.

3) Verify Your Probe

When your probe starts to run, you can find your uncertified probe in the 'Raw probe' option of the 'Probe' column. Click the 'Verify' button and enter the probe information to officially become an available probe for Gperf (*Figure 19*).

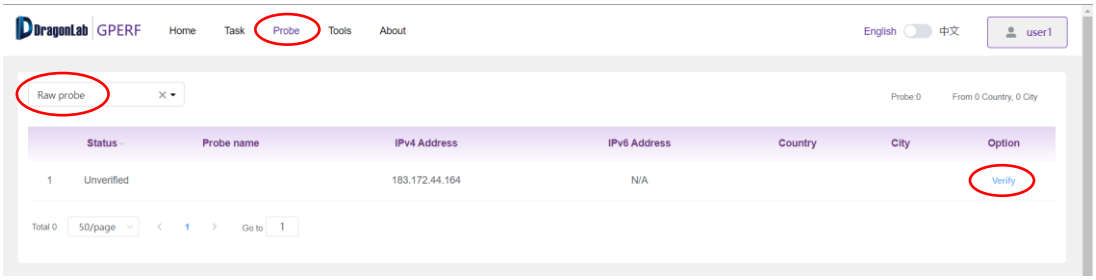

Figure 19. Verify your probe

4) Create and View your Task

Follow steps in **(2-2)** to create a detection task and follow steps in **(2-3)** to view detection results. Enjoy it!

If you have any questions, please contact us: *dev@dragonlab.org*