

Project Background

Qualcomm is the connected processor company for the intelligent edge with leadership in wireless connectivity, RF front-end, high-performance, low-power computing, multimedia, and on-device intelligence. Within the Test Base Station Project we design internal custom, integrated cellular call flow test boxes that rival or exceed capabilities of external third party solutions. The project has over 200 Engineers world wide and has deployed over \$200 million of equipment for 5G wireless verification. The team supports a product portfolio that includes 3G, 4G, 5G, and V2X products.

Customer support is provided to this product portfolio of over 2000 systems leveraged on a daily basis throughout the global company.

One of the challenges of customer support is to quickly identify the root cause of the issues reported by the users and provide effective solutions. This can be difficult when dealing with complex systems that generate large amounts of log data. To address this challenge, the TBS team has developed an internal tool LogAn (Log Analyzer) that processes log files to diagnose problems and guide the engineer handling the support ticket. LogAn is implemented in Python and uses Python libraries such as Pandas, Bokeh etc. to analyze the log files, extract relevant information, visualize the outputs, and suggest possible actions. By using LogAn, the TBS team can reduce the time and effort required for troubleshooting, improve the quality of customer support, and enhance the user satisfaction.

LogAn runs via the command line on Windows and Linux, generating text, JSON, Excel, and HTML file outputs.

Log Analyzer Front End Project Description

LogAn's output is not user-friendly as it forces users to sift through various files for identifying problems. The goal is to develop an Electron desktop application using TypeScript that offers a contemporary interface that simplifies the use of the diagnostic tool and its results presentation. It will also utilize Python APIs to reveal the diagnostic features and incorporate them into the interface.

Development will occur in a Qualcomm Windows 11 environment. The user will use a desktop application that needs to communicate with a Python-based backend on the same computer using ZeroRPC or similar libraries. The Python backend will employ existing APIs for determining its functionalities, processing a set of log files, and displaying results. The tool should offer a straightforward interface to emphasize key results and provide references to explore detailed outputs. Currently most outputs are presented in Excel format. The tools should present a friendly interface for viewing tables, filtering data, selecting specific columns and more.

Development should follow recognized best practices, which include writing unit tests, following coding standards of the industry, and packaging for internal use in a suitable manner.

The chosen team will collaborate extensively with Qualcomm Engineers in the Boulder office and at various other sites. It is imperative for the team to initially review the existing documentation to grasp the functionalities and APIs of the tool and learn the procedures for downloading and examining log files, as well as operating the tool to gain familiarity. Subsequently, they should coordinate with Qualcomm Engineers to establish the scope, outcomes, and timeline. Furthermore, the team is expected to submit a High-Level Design document detailing their approach before starting the development phase. They should suggest suitable technologies for the project's execution. The final product developed must be complete with all features and ready for immediate use by Qualcomm personnel.

Desired Skill Set

- Web Interface Design Experience
- Python3 programming experience.
- Electron, TypeScript, React knowledge/experience or desire to learn.
- Familiarity with git and working in github environment.

Preferred Team Size

Initiating with a three person is ideal. Availability of additional resources would allow us to broaden the project's reach.

Location

The Qualcomm TBS project will provide support mostly locally from the Qualcomm Boulder and Bridgewater NJ office. Remote work is the expectation with possibilities of on-site for key needs or discussions.

Resources

Qualcomm intends to open a remote development environment with sufficient compute and virtual desktop portables for all required development.

Contact

Email Kevin Wolver at kwolver@qti.qualcomm.com for high level project questions. If selected, other engineers will be made available for guidance, leadership, and mentoring.

Background

TBS = Test Base Station