

## 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 (TBS) 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 worldwide 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. Due to the high value of test equipment, and to streamline support workflow, it's very important to get accurate information about stations in the field.

## Field Data Collector Project Description

As part of the data analytics infrastructure to collect utilization, deployment, and other metrics, there is a singleton script that would collect station properties (i.e. SW version, OS version, HW type, config, etc.) through ssh. The script is running daily on a VM, and would sequentially communicate with the primary Linux server (which is used to manage protocol SW and configuration) of each station, writing the station properties to a CSV file.

Drawbacks of the current approach:

- Long run time (5-6 hours)
- Inability to maintain previous station properties when station is down/offline
- Prone to failure

To replace the current system, the team would develop a script that can be distributed and run on each of the primary Linux server of a station, and push the station properties to a DB using a REST API.

Breakdown of tasks:

- Develop a script to push the station properties to a DB using a REST API
- Setup a cron schedule to run the script periodically
- Package the script and cron with RPM
- Setup distribution of the RPM to all primary Linux servers
- Develop the REST API handler to write the station properties to the DB
- Migrate existing Power BI reports to utilize these station properties

## Desired Skill Set

- Python3 programming experience
- Familiarity with git
- Familiarity with REST API
- Experience with DB (SQLAlchemy) or desire to learn
- Familiarity with Linux RPM and environments or desire to learn
- Familiarity with Power BI or desire to learn

## Preferred Team Size

A two to three person team would be adequate.

## Location

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

## Resources

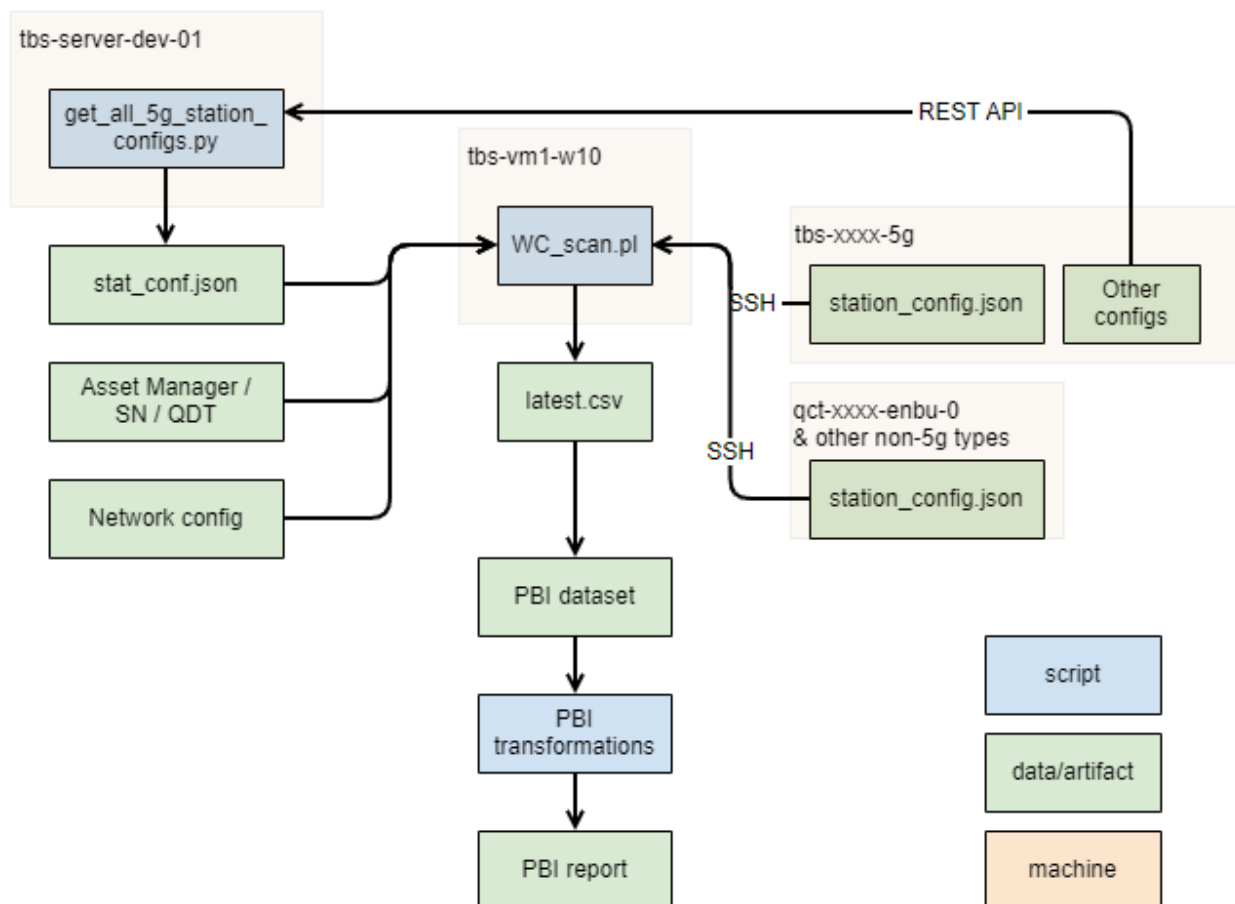
Qualcomm intends to open a remote development environment with sufficient compute and virtual desktop portables for all required development.

## Contact

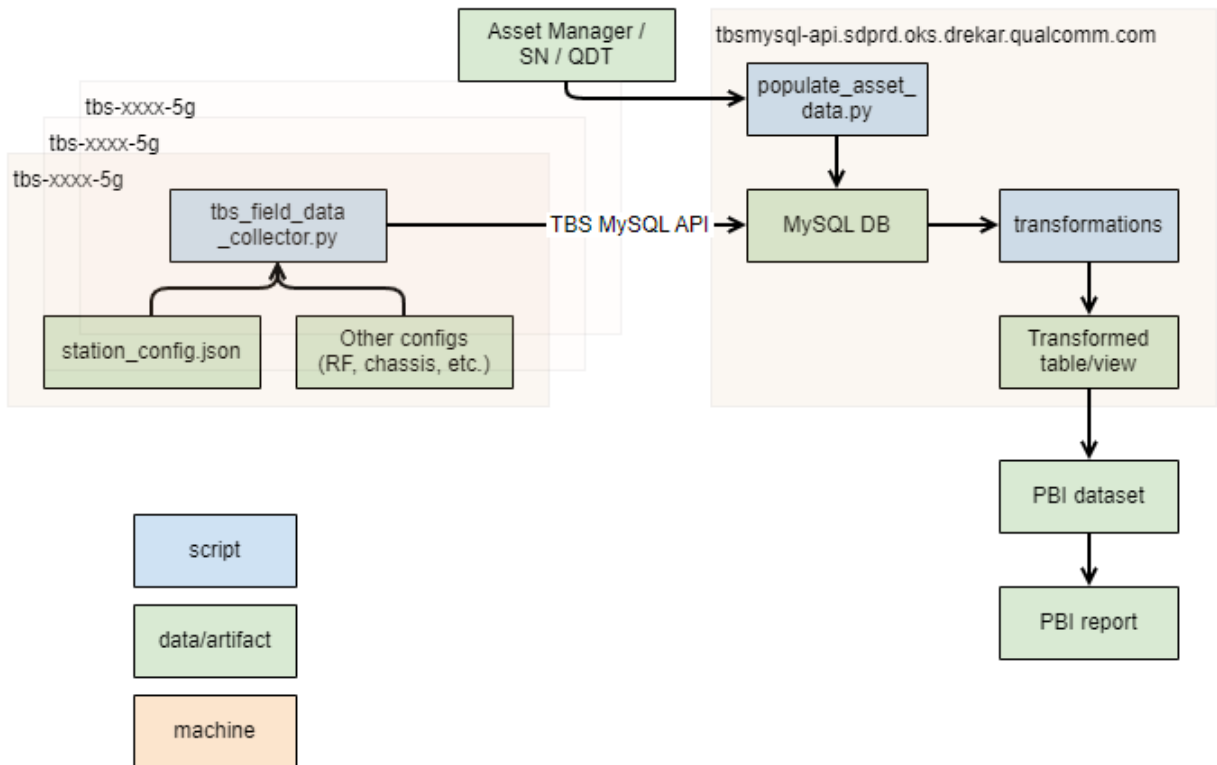
Email Kevin Wolver at [kwolver@qti.qualcomm.com](mailto:kwolver@qti.qualcomm.com) for high level project questions. If selected, other engineers will be made available for guidance, leadership, and mentoring.

## Goals / Requirements

Current framework for non-5G stations



## Redesigned workflow



This redesigned workflow is currently only available for 5G stations. The goal of the team is to implement this redesigned workflow for LTE and other non-5G systems.

## LTE Station properties

- ID
- Hostname
- SW version
- OS version
- Template
- Template date
- Number of cells
- Chip/HW type
- 5GC pair

## References

These are internal only documentation, which will be accessible once the team has access to Qualcomm resources:

- [Deployment Data-Field Data - TBS - Qualcomm Confluence](#)
- 5G field data collector: <https://review-tbs.qualcomm.com/cgit/tbscssw/tbs-field-data-collector/tree/?h=master>

## Qualcomm Support Staff

- Kevin Wolver (TBS Lead) – [kwolver@qti.qualcomm.com](mailto:kwolver@qti.qualcomm.com)
- Ed Sunarto (TBS Data Analytics lead) – [esunarto@qti.qualcolmm.com](mailto:esunarto@qti.qualcolmm.com)