



## RBS QA Challenge Overview

Hello comrade! Welcome to your quest!  
(We are hiring! This is your technical interview)

We put a lot of time and care into making this challenge interesting, and so should you! We politely ask that you not publish the details of your solution.

In this box, you will find:

- Mystery (Pi Zero W)
- SD Card (SanDisk 4GB, inserted in the Pi Zero)
- Serial cable (JBtek Windows 8 USB to TTL)
- Candy (Nerds, Fun-Dip, Poprocks)

This challenge is split into two (2) levels. The instructions for Level 1 are in a README file in the home directory on the device. The instructions for Level 2 are hidden and will be unlocked only for candidates who have made substantial progress on Level 1. If you remove files or format the SD card, you might lose the treasure!

You have 14 days from the date of delivery. If stuck, you may schedule one (1) helpful, hintful, 15-minute phone call by emailing [mysteriousmysteries@redballoonsecurity.com](mailto:mysteriousmysteries@redballoonsecurity.com). Send a brief write-up of your work and your problem along with your availability in your email. While we encourage applicants to attempt to complete both levels of the challenge, we do accept and will review submissions by applicants who have unlocked (but not finished) the second level of the challenge.

## QA Challenge Introduction

The future is here.

From IoT to IIoT to I-I-I-IIoT (innovative, immersive, integrative, industrial, internet of things), we are surrounded by embedded devices that support a range of applications, including aerospace defense, power grid protection, automated robotic systems for milking cows, and tamagotchis.

We have been seeking to capitalize on this burgeoning wave of industrial automation. To do so, we designed an embedded system so powerful, so exhaustively complicated that we lacked the ability to even develop it, at one point. After years of multi-billion-dollar R&D, we outsourced the development to create what is now officially known across the world as the Clusterenfluckulator (Version 1.3.37). Thanks to years of taxpayer money and brilliant, outsourced labor, we have achieved near perfection in industrial automation.

This device has one of the most crucial responsibilities known to mankind. The Clusterenfluckulator (Version 1.3.37) is a system designed to control a Nuclear Power Plant. Its feature set is unparalleled: Alexa enabled, cloud-based enabled, Bordelaise-flavored, and SmartWatch compatible, just to name a few. Its capabilities are unheard of: Emulsified Port Reduction, Occipital Expansion, and Real-Time Self-Gastrorrhaphy.

Unfortunately, we now face a problem. The Clusterenfluckulator (Version 1.3.37) is functioning inadequately and the Nuclear Power Plant is suffering from decay. We have traced the technical bugs and still cannot determine what is wrong. So, we are turning back to the open world to tap the minds of the most brilliant engineers on the planet.

Make Clusterenfluckulator Work. Make Plant Happy. Make Planet Safe.

Your challenge awaits...

## Setup

### Serial Console

You can initially interface with the Mystery device that we mailed you over a serial console connection. Working over serial can be challenging; it helps to have the right drivers. Comrades who have gone before you have found this one to be useful, but mileage may vary.

See [http://www.trendnet.com/support/supportdetail.asp?prod=265\\_TU-S9](http://www.trendnet.com/support/supportdetail.asp?prod=265_TU-S9). If you believe you've set up everything right but still don't see texts over the serial console, try walking around with it a little--it might be a wonky connection.

Use a baud rate of 115200. You need to connect the serial cable in order to see the console output. The device can be powered via the serial cable or a standalone USB cable (if you have one, as we have not provided it). See <https://learn.adafruit.com/raspberry-pi-zero-creation/give-it-life>.

## SSH

Once you have connected to the Mystery device via its serial console connection, we recommend that you connect the device to your WiFi network. You can connect the Clusterenfluckulator (Version 1.3.37) to your WiFi network with the following command, `/sbin/wifi <ssid> <password>` where `<ssid>` is the ssid of your WiFi network and `<password>` is the password to that network. Once the device is connected to your WiFi network, you should be able to SSH into it using `qa@qa.local` with password `challenge@rbs`.

Good luck!