Curriculum Vitae - Vincent Dirks

Software Quality Engineer

As a versatile Software Quality Engineer, I aim to understand the nuances of the product, team dynamics, technological landscapes, and organisational structures so that I can adapt and contribute effectively.
I specialise in adapting to diverse contexts, and look beyond traditional testing methodologies to consider the design of the whole quality ecosystem necessary for delivering quality software solutions efficiently.

Skills

Testing

- Context Driven Testing
- API Testing
- Testing Native Mobile Apps
- Testing Web Apps
- Testing Firmware/Embedded Systems
- Data Privacy
- Testability & Observability Concepts
- Exploratory Testing
- Visual Modelling
- Metrics Driven Development (A/B Testing)
- Accessibility Testing

Programming and Automation

Javascript	Java	Other
• Node.js, npm • Express.js, React • Playwright • Jest • Cypress.io • Webdriver.io	• Maven, JUnit, TestNG • Cucumber (BDD) • REST-assured • Selenium • Page Object Models (POMs) • Tidal. Wave	• C#: Specflow (BDD) • SQL & SSMS • Appium • XCUITest • GraphQL • C++: Arduino, ESP32

Tools

- Splunk (log aggregation & analysis)
- Postman, Newman
- VS Code, IntelliJ, Visual Studio
- Github, Bitbucket
- Docker, Linux
- Fiddler, Charles Proxy, Wireshark
- Jenkins, Azure Devops (TFS), GCP
- Bash & PowerShell scripting
- Jira, Confluence, Zephyr Scale, XMind
- SoapUI, ReadyAPI

General

- Banking and Finance Sector
- AML/CFT Solutions
- Online Auction Platforms
- Vehicle Leasing systems
- Platform Engineering
- Staff Mentoring & Induction
- Agile (Scrum, Kanban, SAFe, Squad Master)
- Microservices Architecture
- Manufacturing Resource Planning
- Physics - Radar, Lasers, Fibre-optics
- Electrical & Electronic Engineering

vincent@dirksonline.net 021-0269-6216

Work Experience

Upskilling & Community Roles (May-2024 - Current)

Skills: Playwright, Splunk, Docker, Node.js, Cloudlets, Wikimedia, Meetup Organising, IoT & ESP32 embedded programing

Whilst looking for work I'm leading the efforts to bring back a regular schedule of events for the Ministry of Testing in Auckland. And I'm pursuing personal projects with Playwright, Splunk, Docker, Node.js to setup an online publicly accessible instance of these for testing my CV Wiki through app.cloudlets.com.au. I'm also trying out some embedded programming of an ESP32 to send data to Splunk.

Water Services Reform, DIA - Senior Test Automation Engineer (Nov-2023 - Jan-2024)

Skills: Java, Maven, Selenium, POM's, Tidal. Wave, IntelliJ, Web App Testing, Azure DevOps

Contracting through TTC Global - Auckland Branch

The organisation was developing an Enterprise Asset Management system customized for water services entities. (eg. Watercare). The system under test, as well as the automation suites, were operated on the Azure DevOps (ADO) platform.

I contributed to the development of web browser UI automation suites implemented using Java, and frameworks such as Tidal. wave (built on Selenium) and Cucumber with BDD methodology.

I found Tidal. wave to be a valuable framework that streamlines element identification, assertions, and user interactions on web pages. I benefited significantly from the expertise of my team lead, Philip Kurian, a co-author of this open-source framework. (See Philip's Best Practices for browser automation code).

Westpac NZ - Senior Automation Quality Engineer (Apr-2021 - Nov-2023)

Skills: Banking, API's, Mobile, Web, Observability, Accessibility, Microservices, Java, Cucumber, TestNG, REST-assured, Selenium, POM's, JavaScript, React, Jest, Linux, Docker, Event Queues, Appium, XCUITest, Charles Proxy, Jira, Confluence, Zephyr, Splunk, Platform Engineering, Jenkins, ADO

During my time at Westpac, I worked as a roving Senior Automation Quality Engineer across various teams. This role involved learning about different product domains, as well as the technology stacks used for the product, infrastructure, and automation suites. It was a challenging yet rewarding experience that kept me engaged and encouraged continuous learning. My focus was always on thorough testing, addressing immediate issues, and anticipating future challenges to drive project success.

MF8TL Team - Legacy API Server Replacement

In my last role with Westpac I was part of the team that implemented a replacement of a legacy API Server used by the bank's mobile and web apps. The old system had a mature API automation suite implemented using Java, TestNG, and REST-assured.

My contributions:

- Refactored the automation suite for use with the new server.
- Streamlined code, reduced duplication, and used method overloading to centralise request and response handling, which also facilitated logging to Splunk.
- Enhanced the API automation by crafting new test scenarios, adhering to established patterns such as service classes and POJOs (Plain Old Java Objects).
- Adapted testing tools and processes from the legacy system for seamless integration with the new implementation.
- Developed Splunk dashboards to monitor the progress of the new solution's implementation against the legacy system.

Test Environments Team - React Web App to Visualise Test Environments

The BS11 Outsourcing policy for banks by the RBNZ requires banks like Westpac NZ to have systems and processes to be able to replace any outsourcing by the start of the next business day. For Westpac

NZ this includes severing all links to its parent Westpac Banking Corporation in Australia, within a matter of hours. Furthermore, BS11 requires credible evidence of this capability.

The Test Environments Team was established to manage the test environments necessary for Westpac NZ to demonstrate a separation event. My main responsibility within this team was to build a small web app (UI and API) for visualising systems, and their interconnections across various test environments. My role primarily focused on JavaScript web app development, but I often provided insights from a tester's perspective and liaised with the Westpac Quality Engineering Chapter for their feedback.

My work

- Developed a small web app (UI and API) using Node.js, Express.js, and React..
- Created node maps illustrating system interconnections across various test environments using mermaid.js.
- Provided insights from a tester's perspective and liaised with the Westpac Quality Engineering Chapter.

Observability Squad - Platform Engineer and Splunk Champion

The Observability Squad, a Platform Engineering team tasked with supporting Splunk and other observability tools like Dynatrace, I had the opportunity to learn and grow in the role of "Splunk Champion". I was encouraged into this role by Isaac Carrington(Head of Platform Engineering) despite limited prior platform engineering experience.

In my role, I:

- Acquired skills in Platform Engineering (Docker, Linux VM's, Terraform, Bash, HashiCorp Vault)
- Supported internal Splunk users for (Searching, analysis, dashboard creation, PagerDuty integration)
- Managed a distributed instance of Splunk Enterprise (Indexers, search heads, forwarders, event collectors, role-based access controls)
- Introduced the Quality Engineering Chapter to use Splunk for Reporting and Dashboarding the results from their automation suites

Moreover, as the "Splunk Champion", I strived to help people see the customer's experience through the data being collected. When onboarding new systems, I guided users through a series of questions aimed at maximising the Splunk system. Focusing on how best to monitor the solution's performance and errors, as well as on the quality of the information being logged, to really enable efficient issue resolution.

Ultimately, the goal of observability is to swiftly remediate critical issues by

- Detecting them,
- Understanding their impact, and
- Resolving them promptly.

D365 KiwiSaver Squad - Java API and UI Automation

In response to IRD's review of default KiwiSaver providers in 2021, the Westpac-run BT Funds emerged as one of the continuing providers, necessitating the enrollment of approximately 40,000 clients. To manage this influx efficiently, the D365 KiwiSaver Team undertook the creation of a D365 workflow for streamlined enrollment processing. This involved developing an API interface to handle requests from IRD, along with automating basic flows and supporting staff with exception cases through the D365 UI. The solution utilised micro-services, Kafka event queues, Azure Event Hub queues, and Azure functions.

My Contributions:

- Contributed to system design, test planning, and testing, and developed automation suites for both API and D365 web UI.
- Utilised Java, with Cucumber (BDD), REST-assured for API automation, and Selenium WebDriver for UI automation.
- Implemented Page Object Models (POM's) for the web UI automation suites.
- Played a pivotal role in monitoring project subsystems using Splunk, introducing session IDs for comprehensive tracking of data and actions throughout the pipeline.

Mobile Squad - Testing and Automating Mobile Banking Apps

In my first role at Westpac, I tested Westpac's iOS and Android consumer banking apps.

I contributed to

- Automating the new features developed by the team (Appium, XCUITest).
- App design and UX to test that new features were beautiful, simple and accessible for a wide range of users. ("shifting-left")
- Using Charles Proxy to intercept and modify API calls to facilitate alternative and negative testing scenarios.
- Maintaining the on-device mocks (compiled into the debug builds of the apps).
- Release testing activities.

FirstAML - Test Analyst (Oct-2020 - Mar-2021)

Skills: Postman, AML/CFT, Accessibility, Data Privacy, GraphQL, AWS

FirstAML is a startup company dedicated to assisting organisations in meeting their AML/CFT compliance (Anti-Money Laundering/Countering Financing of Terrorism) requirements.

- Served as one of two quality coaches supporting a team of six or so developers in the development of their ReactJS Web App for the platform.
- Managed testing for a complex product, encompassing in-house features tailored for AML Analysts as well as client-facing, and end-user features.
- Collaborated closely with AML analysts to comprehend the range of test scenarios for in-house features,
- Thorough testing for accessibility and cross-device compatibility for end-user features.
- Contributed to testing the security and privacy of sensitive data, including images of driver's licenses and passports.
- Created a Postman collection for generating test data through the solution's API
- Trialed Applitools for visual regression testing.
- The front end was implemented using React.
- The backend was implemented on AWS, with some lambda's, and S3 buckets for storage

Weather Radar NZ limited - Weather Radar Systems Engineer (Jun-2020 - Oct-2020)

Skills: Weather Radar Systems, Electronics, Embedded Testing, Arduino

Weather Radar NZ limited specialises in rain radar advice, consulting, and monitoring services.

- Contributed to the upgrade of a legacy weather radar system by designing new electronics and embedding Arduino microcontrollers
- Designed and assembled PCBs
- Maintained power waveguide systems
- Conducted Radar signal analysis

Grappler- Agile Quality Analyst (Jun-2020 - Oct-2020)

Skills: Postman, Newman, Google Cloud Platform, JavaScript, Node.js, Express.js

Grappler specializes in providing solutions for premium trust accounting, leveraging deep industry experience and best practice credit control processes.

- Developed a Postman collection to test the API.
- Implemented a node in Google Cloud Platform to execute the collection using Newman.
- Created a simple Web UI using Node.js and Express.js to trigger test runs and display HTML test reports.
- Implemented access restrictions for whitelisted IPs and authenticated users within the Web UI.

Fiserv Auckland - Intermediate Software Test Engineer (Jan-2017 - Apr-2020)

Skills: Banking, Automation, API Testing, Mobile Testing, Accessibility, Observability, Postman, Splunk, JavaScript, Node.js, Express.js, C#, Specflow (BDD), SQL & SSMS, Fiddler, Jira, Confluence, Microsoft Test Manager, TFS, PowerShell

Fiserv Auckland is responsible for developing mobile apps utilized by over 2000 banks (mainly in the USA), serving more than 8 million active users. Additionally, they manage multi-tier and multi-tenanted Web and API integration servers interfacing with core online banking (OLB) systems and third-party platforms. Fiserv's solutions offer extensive configurability of features and branding. Operating within the stringent and risk-averse USA banking domain, reliability and quality are paramount. Testing at Fiserv presented complexities and challenges, yet it has been a rewarding and intellectually stimulating role despite its difficulties.

Software Developer in Testing

With this role I assisted with integration testing the mobile API server, which was used by the mobile apps as a gateway to a network of core online banking systems (OLBs). Each OLB had its own interface contract, and each served multiple financial institutions (FIs). Due to the expense and difficulty of replicating the OLB systems, only three integrated testing environments were created. These test environments were subject to frequent configuration changes, used by many staff, and tightly controlled from the USA. Despite these difficulties and the non-deterministic nature of testing in these environments, integration testing remained essential.

To streamline integration testing and monitor environment readiness, I spearheaded the development of the Postman Testrunner Framework (PTF), a flexible solution capable of dynamically executing complete user scenarios through various OLB's and FI/user configurations.

Development of Postman Collection

Utilising tools like Fiddler, Burp Suite CE, and MITM Proxy, we captured API calls made by the mobile app, and to then create a comprehensive Postman collection of requests. Each user scenario was a sequence of calls, each call performing an action and storing relevant data in the Postman Environment Variables. I emphasised obtaining data dynamically from the OLB to minimise reliance on potentially stale data.

Architecture of the Postman Testrunner Framework (PTF)

The PTF automatically orchestrated the calls in the correct order to execute the user scenarios reliably. It used an external JSON file to specify a sequence of steps called userActions, each userAction referenced a request from the collection, and contained response handlers for each http response code which set the next userAction to perform. Effectively, the PTF was a simple state-machine. The PTF also implemented a simple nested JSON data syntax to be able to store data such as user credentials as well as FI connection settings. Passwords were encrypted when stored, and decrypted at run time.

Custom Development and Build Pipeline

The PTF was implemented using Newman in a Node.js project, with a custom JavaScript reporter developed to process events emitted by Newman during execution. This allowed for real-time capture of results and detailed logs, providing clear insights into failures and partial successes. Results were sent to the PTF dashboard, as well as to a dedicated Splunk instance for comprehensive monitoring and analysis. The PTF dashboard and Splunk implementations are detailed in the sections below.

A build pipeline was created in TFS - Team Foundation Server (now rebranded to Azure DevOps), with two VM's each running 10+ build agents. The pipeline executed the PTF for all users concurrently in parallel, every hour. Environment variables were used to provide the PTF with FI settings and user credentials.

The automation suite could be triggered from the Web UI, and code commits to the automation suite itself also triggered executions.

The VM's were set up and configured with Splunk and kept real time test results, extensive console logging tied to individual tests, as well as full API request and response traces.

Development of PTF Dashboard for Current Test Results

I used Node.js with Express.js and Pug to create

- an API for receiving events from the PTF, and
- a Web UI to display a snapshot of the latest results in a tabular dashboard.

The API was designed to process data from concurrent PTF executions, and the Web UI updated in real-time to give immediate feedback about the environment health from multiple user perspectives. The fast feedback for multiple users was particularly useful following a deployment of the mobile API server.

In addition to pass and fail, I chose to also show that sometimes scenarios

- *could not run,* - eg. a user with just one account could not try to transfer money between accounts.
- *pass* ⚠ - when only partially successful. eg. an attempt to fetch a list of bill payments returning no items because none had been made
- *not supported* - by the FI/OLB
- *not run* - eg. skipped, or still waiting to be run

For each result cell I used hover and mouse actions to show details.

Setup Splunk Enterprise

I set up a dedicated instance of Splunk Enterprise to store and analyse trends in the PTF data (results, logging, and full API requests and responses). This involved configuring indexes, HEC event collectors, user access permissions, and managing VM storage requirements. I developed dashboards to visualise historical PTF data, utilising shades of green, red, and grey to represent pass, fail, and indeterminate results. The shading was used to differentiate users. These grids provided valuable insights into environment health, user status, feature performance, and OLB status. Click-through functionality was added to facilitate investigations and drill down through the layers into increasingly more detailed views of the data.

- Configured indexes, HEC event collectors, and user access permissions
- Extensively analysed historical PTF data
- Developed dashboards to visualise historical PTF data, using colour to show health, status, and performance
- Implemented click-through functionality for detailed data exploration

Software Test Engineer

At Fiserv, I began as a QA member within agile teams responsible for implementing changes across various mobile banking solutions.

My responsibilities included:

- Testing new features for mobile apps, and conducting cross-device regression checks.
- Contributing to the development of the C# Specflow API automation suite for mobile API servers.
- Deploying environments and modifying configurations using Octopus.
- Testing a banking Web App hosted on dedicated hardware, where I leveraged Powershell scripts for configuring and automating deployments.

Trade Me - Senior Software Test Analyst (Dec-2014 - Aug-2016)

Skills: Context Driven Testing, Exploratory Testing, Agile, Testability, Accessibility, Observability, Jira, Confluence, DB, Web App, Mobile, API Testing, PowerShell, Splunk, ReadyAPI, A/B Testing, XMind, Onboarding, SQL & SSMS

Trade Me is the iconic consumer auction website in NZ, one of the most popular websites accessed from NZ. Trade Me are renowned for their agile implementation, and have a well established test guild.

I was a Test Analyst with the Motors group, in a small cross functional agile squad, testing software changes to the iconic NZ Trade Me website focussing on the Motors page and features.

Squads owned the full technology stack to deliver new features and projects, from inception through to deployment in production. They were responsible for the story's design, implementation, testing, and deployment.

Responsibilities

- Context driven, tool assisted exploratory testing, using session and thread based techniques
- Testing DB, UI, API, and architectural changes
- Leading daily deployments to production
- Splunk system monitoring
- Agile Squad Mastering (Facilitating project inception, story grooming, planning & estimation, retrospectives, daily standups, sprintboard)
- Test automation for API (ReadyAPI/SoapUI) and UI changes (protractor) using BDD with Gherkin syntax.
- Test planning, peer test plan reviews, executing test sessions, defect workflow.
- Documentation of test practices.
- Metrics driven development - using A/B Testing.
- Active contributor to test and agile guilds.
- New staff induction and junior staff support.

Testing at Trade Me

- Followed Context Driven Testing principles. Considering a wide scope for testing, looking for anything that might surprise someone that matters.
- Shifted Left. Contributing early to discussions about UX, system architecture, and testability.
- Efficient, focussed on high risks, leaving acceptable risks, with great Observability to detect problems early.
- Used "Three Amigos" to share and understand the problem, the solution, and the testing.
- Peer reviewed test plans (session based exploratory test charters)
- Test early for early feedback. ie. before dev work was completed. Aiding alignment, informing what is left to complete a story, avoids re-work.
- Dev walk through - UI and code - review test plan
- Demo to PO
- Testers deployed to production during twice daily release windows

Pre-2014 Roles

LeasePlan NZ - Software Tester (Apr-2013 - Dec-2014)

Full time testing contractor to the IS department, testing a variety of bespoke applications primarily for internal use.

- Complex quotation app for car leasing built in MS-Access
- Online driver FBT data collection portal (UI, web security, data flows, emailing)
- Legacy AS-400 system testing
- Developed a test automation framework for AS-400 using VB

At LPNZ I was introduced to testing as a proper profession by my friend Christina Linwood.

Attended the NZ Tester Magazine conference, and the Risk Based Testing Workshop by Matt Mansell, it was exhilarating to learn from people passionate about testing.

Primary Caregiver (Sep-2009 - Mar-2013)

Looking after my two school age children, the house chores, and Volunteering for the community

Monitor Business Machines NZ Ltd - Logistics Manager (Aug-2005 - Aug-2009)

- Managed end-to-end logistics and quality control for electronic hardware production and delivery, including procurement, packing, and global shipping.
- Managed all aspects of sourcing sub-assemblies from third-party suppliers.
- Supervised staff and casual workers, fostering a culture of customer service and product quality.
- Continuously reviewed and optimized company procedures to enhance workflows and business information accuracy.
- Implemented innovative solutions to improve production quality and efficiency.
- Worked closely with mechanical & electronic engineers designing large cash receiving units (similar to ATM's).

Primary Caregiver (Sep-2003 - Jul-2005)

Looking after my two young children and facilitating the renovations of our first home prior to selling and moving to a larger home.

University of Auckland - Lab Coordinator & Physics Tutor (Sep-2003 - Jul-2005 part time)

BTech Opto-electronics lab coordinator & Dept of Maori & Pacific Island Health physics tutor

Bioengineering Institute - Embedded Software Engineer (Sep 2002 - Aug 2003)

Developed an embedded solution with Bluetooth protocol stack for data telemetry from devices implanted in rabbits used for medical research at the University of Auckland.

- Bluetooth HCI commands
- Protocol stack implemented in low resource PIC micro-controller
- Code written in C++ and cross compiled for multiple device types
- LabView integration

Monitor Business Machines NZ Ltd - Development & Support Engineer

(Aug 1997 - Nov 2001)

Monitor Business Machines developed a cost management system (mainly tracking photocopying) through networked (RS232/RS485/TCP-IP) electronic swipe card terminals.

My roles and responsibilities covered

- Global customer support lead
- Development and Testing of Hardware, embedded firmware, and software
- Release Management
- Global training
- Project Manager to develop a casino premium player loyalty program (Terminal & infrastructure hardware and software) for Burswood Casino (Perth)
- Built a performance test lab for automated testing of firmware and software updates
- Built numerous test jigs for testing & diagnosing various hardware items
- CE Mark & RoHS compliance Testing

Short Term Contracts (1996 - 1997)

- Cerebos Greggs – Production Planner & documentation
- Auckland City Council – Ph PABX maintenance & support

Carter Holt Harvey(Tissue Group) - Production Scheduler (1994 - 1996)

- Production scheduling (MRPII) of diapers and facial tissues
- Sales forecasting
- Product specifications
- Continuous improvement projects
- Developed a VB application to automate the generation of productions plans from data in AS-400