Position Description

Title	Senior Software Engineer
Air Traffic Services Development	
Locations:	Christchurch
Reports to:	Software Team Leader
Direct Reports:	NIL
Indirect Reports:	NIL
Date:	April 2025

Overview

Our people manage New Zealand's 30 million square kms of airspace, providing air traffic control, surveillance, communication, flight inspection, mapping and airspace design services. We work with government, regulatory authorities, airlines, airports and the general aviation community to ensure pilots, passengers and goods reach their destination - safely. At Airways, our values underpin all that we do. We value Safety, One Airways, Excellence and Success in all that we do.

Our organisation is made up of operational business groups that are supported by governance and corporate services functions. To learn more about our people and organisational structure, check out www.airways.co.nz/about.

Business Unit Purpose

The Air Traffic Services Development (ATSD) unit sets the requirements for, architects, designs, develops, tests, deploys, and maintains New Zealand's Air Traffic Management systems and Aeronautical Information Systems provided within New Zealand airspace.

Purpose of the Position

A specialist software engineer analyses, designs, codes, tests, and documents real-time life-critical software linked to the national Air Traffic Management system, to required functional, performance, and quality standards.

- In addition to the responsibilities of the Software Engineer, a Senior Engineer may be delegated responsibility for a sub-system or project within the Air Traffic Management system.

- Also, the Senior Engineer may be delegated responsibility for training and mentoring Software Engineers working in similar areas of the system.

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- A Senior Engineer is expected to be able to competently conduct detailed quantitative analysis where required, and to produce thorough, concise, and elegant reports.

- <u>In addition to the responsibilities of the Senior Software Engineer</u>, a Principal Engineer may be delegated responsibility for a major sub-system or major project within the Air Traffic Management system, from inception including requirements analysis, through to release. This delegated responsibility includes that of leading Software Engineers and Senior Software Engineers working within the sub-system or project.

General

Your general duties include those outlined in this position description and may be reviewed and updated from time to time in consultation with you. You will also be required to undertake any other duties that are within your ability to perform, if asked to do so.

Key Areas of Accountability	
Leadership	▶ Train, mentor and motivate Software Engineers towards supporting their development to enable an engaged and high performing team and business. ▶ Provide thought leadership and act as a subject matter expert in your field. Keep abreast of trends and technology, sharing knowledge with the team. ▶ Work cooperatively with team members and stakeholders, influencing and leading by example. ▶ Consistently demonstrate Airways values, support change initiatives and ensure a customer focused approach in all activity.
Software Development	▶ Thoroughly master the methodology, technical detail, and operational use of your assigned part of the system. ▶ Research, analyse; size; design; build; document; test and install fixes; enhancements and new systems or sub-systems as authorised by the Team Leader. ▶ Provide thorough, detailed, quantitative, elegant, and concise analyses of components, systems, or processes as tasked. ▶ Ensure that best practice is adhered to and where possible, suggest continuous improvements. ▶ Ensure that a thorough understanding is maintained to enable effective support on appropriate operational systems.
Software Team Standards	▶ Do not introduce any critical problems into the system ▶ Assume responsibility for all delivered defects. ▶ Consistently and systematically work to minimise the introduction of defects in all work delivered.

	▸ Fully test and document all work for which the engineer is responsible. ▸ Conform in detail to the team standards, configuration control and Quality Assurance mechanisms, and positively participate in improvement of processes and standards. ▸ Assume responsibility for the correct operation of the system component for which the engineer is responsible. ▸ Consistently and systematically work to minimise defects in the system component for which the engineer is responsible.
Stakeholder Management	▸ Liaise with air traffic controllers and flight service staff, technicians, training staff, and supervisory staff, in the spirit that these are the customers for which the Air Traffic Management (ATM) system exists. ▸ Liaise with other technical teams, and technical managers, in a spirit of cooperation, cheerfulness and professionalism. ▸ Liaise with operations management in the spirit that these are the customers for which the Air Traffic Management (ATM) system exists. ▸ Liaise with external vendors, and agencies, in a spirit of cooperation, cheerfulness and professionalism. ▸ Ensure the end user expectations are met through continual liaison with appropriate stakeholders and customers.
Personal Development	▸ Monitor own performance and seeks development opportunities to improve one's knowledge, skills, competencies and abilities. ▸ Implement agreed development plans within agreed timeframes. ▸ Be unfailingly co-operative in providing information, assistance, and support to other team members. ▸ Pro-actively study and apply software engineering skills, techniques, methods, tools, and best practices to benefit the system worked on, and to improve the efficiency of the software engineering process, and work of the team. ▸ Keep abreast of changes in technology including undertaking both internal and external courses to keep up-skilled in both ANS technology and software development. Is willing and able to travel to attend courses.

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Health & Safety	▶ Responsible for proactively working in compliance with Airways Safety values for physical and emotional health. ▶ Responsible for proactively ensuring the software delivered to the Air Traffic Management system is stable and effective. ▶ Responsible for ensuring Airways physical and cyber security is always maintained.
Travel Requirement	▶ Work may be required in other locations within NZ/internationally to perform the duties of the role.
Budget	▶ Responsible for managing a budget of $NIL.
Financial Delegation	▶ Delegated financial authority for Capital Expenditure of $NIL. ▶ Delegated financial authority for Operational Expenditure of $NIL.
Contractual Delegation	▶ Signing Authority to a limit of $NIL.
Legislative Owner	▶ NIL.

Key Relationships / Customers	Nature of Relationship
Internal	
Software Engineers	Liaise with air traffic controllers and flight service staff, technicians, training staff, and supervisory staff, in the spirit that these are the customers for which the Air Traffic Management (ATM) system exists.
External	
Manufacturers	Work cooperatively and sympathetically with partner organisation engineers.

Formal Qualifications / Training / Experience	Required	Desirable
Honours or master's degree in Computer Science or Software Engineering, or a related degree with demonstratable equivalent experience.	✓	
5 years or more experience working in software development in a stable team in a formal development environment.	✓	

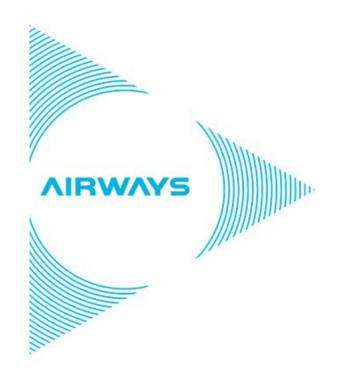|	Required	Desirable
Experience in C/C++, C#, Java, Python, Bash scripting and equivalent languages.	✓	
Exposure to Rust programming language		✓
Experience in working on distributed computer systems.	✓	
Exposure in Kubernetes-based microservices.		✓
Experience in Git and Gerrit, Redmine, and Jenkins.	✓	
Experience in an agile development environment and a willingness to also work in an iterative-waterfall environment.	✓	
A proven record of designing and producing high quality and robust software.	✓	
Proven trouble shooting and problem-solving ability.	✓	
Exposure to Qt/GTK+/X-Motif development.		✓
Exposure to SQL (Sybase, PostgreSQL etc.).		✓
Experience in real-time, mission critical systems.		✓
Demonstrable experience coaching and mentoring the performance and development of junior or trainee staff members.		✓
Exposure to Machine/Deep-Learning technologies		✓

Key Competencies / Skills / Knowledge	Required	Desirable
Customer & Partnership Focused - Liaise with Air Traffic controllers, Flight Service staff, technicians, training staff, and supervisory staff, in the spirit that these are the customers for which the Air Traffic Management system exists. Work cooperatively and sympathetically with partner organisation engineers.	✓	
Quality Focused - Thoroughly checks own work against standards, designs, or specifications; tests in detail all functionality before releasing systems; uses knowledge of the whole system to test all potential impacts and to verify final outcome; designs or uses tests which check changes made.	✓	
Planned & Organised - Develops realistic plans to ensure deadlines are met; ensures all resources available to implement the plan; continually reprioritises as new work comes in, based on criteria and information from the	✓	

customer; works on a number of jobs simultaneously without any dropping off.		
Dealing with pressure - Adaptable and resilient, capable of maintaining a flexible, professional work ethic with a sense of humour over a long term. Copes with complex problems calmly; maintains a good rapport with people in stressful situations; handles issues and problems as they arise; is calm even under difficult circumstances; takes time to think problems through.	✓	
Problem Solving - Seeks out the data required; identifies discrepancies in data and is meticulous in generating hypotheses that incorporate all the symptoms; is tenacious when faced with difficult problems maintaining a systematic and logical approach; appreciates there are always a number of solutions to problems and thinks laterally to identify these.	✓	
Decision Making - Thoroughly considers alternatives generated; makes decisions that are safe, balancing trade-offs on requirements, costs, and timeliness; seeks feedback from customers on designs, specifications, and options; deals with complex information quickly and accurately.	✓	
Oral Communication - Facilitates two-way communication through adapting style of communication to the audience; is diplomatic, providing reassurance where there is uncertainty; keeps people in the loop; takes the time to demonstrate how things will work to increase buy in to solutions being proposed; Makes sure people know what is expected of them; clarifies roles; gets buy-in to who is doing what	✓	
Written Communication - Produces thorough proposals, procedure manuals and plans; ensures users' needs are met; clear and precise; tidies up all the documentation at the end of projects.	✓	
Our Values - Demonstrates the Airways Values consistently and naturally, showing a personal commitment to value Safety, One Airways, Excellence and Success; consistently exhibits behaviours that inspire understanding of and commitment to these values.	✓	

Our values underpin everything we do

We are **safe**

Safety is at the forefront of everything we do. We are committed to the safety of our people, operations and the communities we serve.

We strive for **excellence**

We deliver our best work each and every day, and look for ways to continue to improve what we do

We are **One Airways**

We all have our own areas of expertise and by working together, collaborating and sharing knowledge, we achieve our aspiration

We celebrate **success**

We recognise our people's achievements, big and small, and celebrate our successes