

Improved Access to IGS Real-time Services in the Asia-Pacific Region

Part of the National Positioning Infrastructure Capability

Ryan Ruddick and Brandon Owen | Geoscience Australia, Canberra

Overview

The National Positioning Infrastructure Capability is part of an Australian Government investment into building a world-class satellite positioning capability. NPIC provides a unified approach to the management of Australia's positioning infrastructure ensuring that consistent, fit-for-purpose precise positioning data and services are available to government, business, and academia.

A core component of the NPIC ecosystem is the AUSCORS NTRIP Broadcaster – an accessible platform that facilitates the distribution of data streams from the regional CORS networks and rebroadcasting of the International GNSS Service real-time services to Australian users.

In September 2021, to meet the growing demand from users we released a new and enhanced AUSCORS platform. This new platform was designed from the ground up utilising modern cloud technologies.

This poster provides an overview of changes and shares insights into the use of this service across the Australian region.

Insights



Data streams are available from over 700 stations.



Over 5,500 registered users.



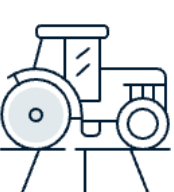
99.9% uptime of services in 2023.



20% of users are doing research and development.



40% of users are aligned with geospatial applications.

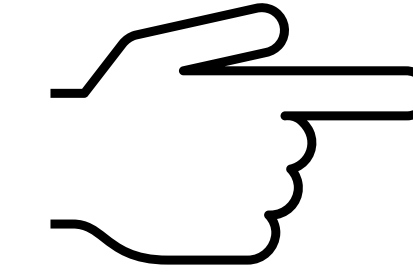


20% of users are aligned with agriculture applications.



17% of users are aligned with construction applications.

Register for AUSCORS



Improvements

Secure Connections

The new platform was designed with security in mind. Transport Layer Security (TLS) is the leading industry standard security protocol for internet applications and is the preferred approach for users connecting to AUSCORS as it provides a measure of integrity, allowing users to trust the source of the streams.

Increased Reliability

The AUSCORS platform was designed using modern cloud technologies, this has allowed us to improve the redundancy of our infrastructure. For example, the micro-server architecture patterns improve reliability by scaling the processes horizontally across multiple physical data centres.

Improved Performance

The AUSCORS NTRIP Broadcaster uses well supported MQTT cluster software, which is designed for greater throughput than the GNSS data typically generates. By doing this we have been able to improve the performance of AUSCORS – resulting in decreased latency and the ability to support a greater number of connections.

Multiple Protocols

Network Transport of RTCM over Internet Protocol (NTRIP) is the standard way to connect to GNSS data streams. Geoscience Australia has been undertaking research into alternative protocols for real-time data streaming. Message Queuing Telemetry Transport (MQTT) is the standard for Internet of Things (IoT) messaging and has emerged as a very promising alternative.

An MQTT broker forms the backbone of the AUSCORS platform and from February 2024 we have been providing a public MQTT endpoint for accessing our streams.

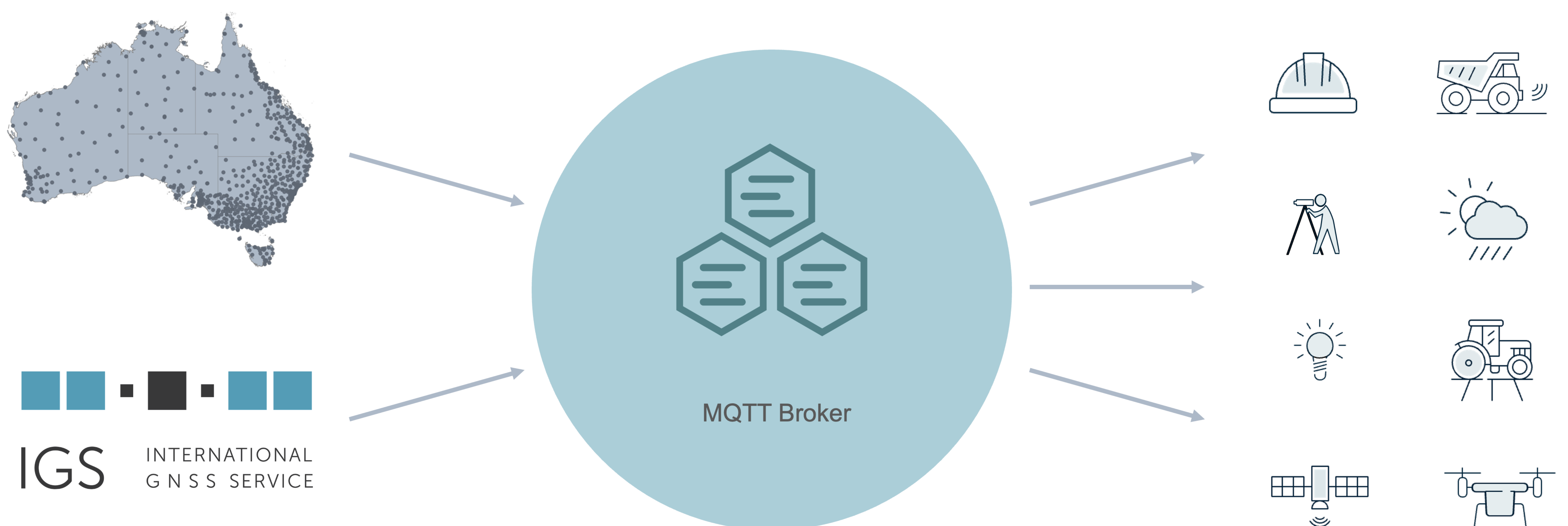


Figure 1: The AUSCORS NTRIP Broadcaster has been redesigned to improve performance, reliability, and security. With an MQTT broker and cloud technologies, we can support the ever-increasing demands of real-time positioning applications across the region.

