

SCATS Evolution

SNUG 2023





Our goal is to provide you with solutions to help you:

- Manage your road network
- Implement public policy
- Prove value to your city
- Do more with less

This is what **2023 and beyond** looks like and we're excited to have you on the journey!

Move smarter with SCATS

Outcomes focused: Supporting sustainable, liveable and safe cities

Policy responsive: Optimise and prioritise road user movement

Predictive and adaptable: Responsive to network and environmental conditions

Connected and integrated: Geographically integrated and flexible

Technology focused: Leverages new and emerging technology including CAVs

> **Data driven:** Data rich and insights driven decisions



The platform

Great transport helps cities thrive. Great transport requires a modern traffic management platform. SCATS is a platform that is:



Recap

SNUG 2022











SCATS Core – new version release

Control Centre

Cit-e

SCATS Data

SCATS Learn

SCATS Evolution







SCATS Core 6.9.5 build 9 & 10



Control Centre – Alpha



CAV capability – AIMES & ACFR Trials



Data Insights – Congestion Dashboard Alpha



TRAFF 6.2.4



Launch of SCATS Learn





Progress Control Centre to the next stage of availability

OFFICIAL



Core 6.10.0

Enhanced Incremental Split Selection (ISS) to optimise traffic flow

- Improved vehicle throughput at intersections with enhanced ISS algorithm
- Introducing 'phase max' to the ISS algorithm to enable operators to define constraints/ perimeters (% and time) in which ISS operates.

Includes an automated upgrade wizard

• Easier and guided upgrades, replacing the existing slow and cumbersome manual upgrade process

Supports Control Centre

• Developing Core API to support Control Centre features

SCATS new User Interface

The new SCATS user interface (UI) is a suite of traffic management products to manage and optimise your city's transport network. It will provide access to all SCATS capabilities, giving you a seamless experience.

- Web based user experience
- A unified interface, consolidating separate products into one UI
- Easy and intuitive navigation
- Accessible (AA standard)
- Responsive for desktop, tablet, and mobile
- Single Sign On authentication
- Role based access control

The first SCATS capabilities available will be **Control Centre** and **Data Insights.**



Control Centre

Control Centre will allow you to effectively and efficiently manage your smart city through a consolidated, intuitive, and modern map-based user interface (UI) with easy-to-use workflows.

- Easy to understand and customisable map interface
- Real time network situational awareness
- Streamlined workflows to control and monitor your sites
 - Site operating mode, site operations, compare multiple sites, alarms, lock status, subsystems, active links and notes.
- Easy to learn and use, reducing time taken for onboarding and training



Control Centre



*Conceptual designs

Control Centre – Trial with Transport for New South Wales (Alpha)

Feedback summary:

Users were positive about the interface

User feedback validated many features in the roadmap

Users were able to complete the tasks

Insights:

- \mathcal{Q}^{-} Participants were able to intuitively navigate the system
 - Cornerstone data, specifically phase direction is essential
 - Pie chart rather than a bar chart for sites in Masterlink mode

Transport for NSW feedback:

"Layer level is great..."

"I like this map showing a wide area. Good work!"

"Ability to compare sites is also great. Saves having to open multiple

windows. Thank-you."

Next up:

Feedback from the Alpha trial has informed the roadmap in preparation for our Beta release. This includes:

- Integrated map schematics to show phase movements, lane markings, and detectors
- Alarm management, acknowledging, hiding, clearing, snoozing and assigning alarms
- Advance alarm filtering on map layers
- Site operation pie chart and bar chart improvements
- Pin and highlight important notes in site panel
- Live and non-recurring/unusual congestion map layers

Data Insights

Data Insights will give you a deep understanding of the road network by identifying trends, patterns, and correlations allowing you to make strategic data-driven decisions.

Turn-key insights with powerful visualisations that are easy to view, read, and analyse.

- **Congestion** Network and site view of live and historical recurring and non-recurring congestion index and severity.
- **Site performance** understand if sites are performing optimally through the visualisation of traffic flow, throughput, capacity, degree of saturation, and volume to occupancy ratio.
- **Site investigation** single view of critical data points to aid in the investigation of incidents.



SCATS Data - How does it work?







SCATS Data Collection – TfNSW Alpha (July 2023)





Data Insights are served in the new SCATS user interface to provide SCATS users with actionable insights; powered by the **Data Platform**.

Data Platform process and store SCATS data in a form best suited to build **Data Insights**.

Data Port extracts SCATS data in daily batch files and near-real-time subscription messages using the secure ITSLink interface and transfers to the SCATS **Data Platform**.

SCATS Data Insights – Network Live Congestion



Features and interactions were well understood by the customers

- Map representation was useful to identify the relationship between sites
- The ability to filter by usual and unusual congestion gave customer insight and provided means to identify sites that can't be fixed through SCATS, or mark it for optimisation activities

Ability to filter by severity levels and seeing congestion at detector level were found to be useful

Transport for NSW feedback:

" You can see these detectors are having issues here and this is causing traffic up here as well. Like you have it all in the map... so I reckon this is great "



*Conceptual designs

Data Insights - Site Live Congestion



Customers used to SCATS initially assumed links from network level would go straight to Access or Control Centre, however they found the site live congestion view provided useful information, and expressed they would like to see this information first before making any changes in SCATS

Grouping by "Movement" provides extra context, paired with the site schematics let customers know exactly where to focus their attention



 $\langle \bigcirc \rangle$

Instant access to historical data is highly valued

🌐 scats								
								_
C Back to Data Insights					Sea	rch for sites		Q
Site: 337								
Falcon St, Warringah	Fwy, N/B Exit S/B Entry, North Sydne	у						
Site live conges	tion • Last updated 28 June 23,	3:05pm						
0								
		By det	ector By m	novement ?				
336	AN RUND	Det. No.	Congest. ? Index (%)	Congest. ? Type	Severity ?	Congest. ? Time (mins last hr)	Flow (veh/hr)	Speed (% (
		12	113	Unusual	High	59	1261	66
ALCON-ST-	4041	11	95	Unusual	E Low	47	1195	68
000	FALCON ST	1	62			-	1327	47
990		19	61			-	1409	66
		4	57			-	1314	50
86	and the second se	18	53			-	1291	73
1 Da		2	49			-	1407	53
		17	49			-	1092	72
		10	42			-	843	62
Operating mode Masterlink	Sites in subsystem	8	38			-	514	57
Masterlink	220 1011	9	37			-	735	55
		13	29			-	399	70
		5	28			-	201	42
		7	27			-	189	54
		14	25			-	360	66
		14	25					

SCATSLearn

- eLearning platform for SCATS products and technologies
 - Self-paced learning; accessible 24/7
- Product and Role pathways
 - Product: Transit Priority using SCATS Priority Engine
 - Role: SCATS for Control Room Operators
- Certifications in specialist areas
 - Access SCATS software within a 'Learning Lab' via your browser
- Courses are live



Home page, workflow and certification

<	tslearn Welcome, Thor	mas	Knowledge Base Course Catalogue	e SCATS Website Start your search here.	1. Traffic flow to Traffic flow theory, a field of trait to an understanding of how SC/ 1.1. Traffic Flow Theory (2)	theory affic engineering, deals with the r ATS works.	novement of traffic with	in the traffic system. Ur	derstanding these concepts	E is important
	My Learning Pathways	Select Pathway Introduction to SCAT	rs		Certificate of training	B LS Swarter				
	View all pathways View all courses Course Feedback Form	This pathway has 1 course. You've completed 1, well do CPD points earned Date Started Date Completed	ne! 1 21/11/20 21/11/20	100%	Congratulations Thoma	as Teo				
		1. Overview of SCATS The course presents the problem SCATS tries t SCATS works, and the SCATS applications. 1.1. •	o solve, the solution and the benefits realised by cust	 omers. It also explains the SCATS architecture, how 	for the successful Introduction	ul completion of to SCATS				
		Show Certificate			21/11/2022 5:28:43 PM					
	Register for more Pathways	Pathways Traffic engineering concepts	Courses • Traffic flow theory	Actions Register	Signed: Team SCA	ATS	NSW			

Course development FY 2023



Topics for 2023		FY 2023					
		Q4	Q1	Q2			
NGEN				Х			
Introduction to Cornerstone		Х					
Transit Priority using SCATS Priority Engine		Х					
Basic traffic concepts – Control room operator		Х					
Controller operation - Control room operator		Х					
Intro to SCATS Access - Control room operator		Х					
Manual intervention- Control room operator		Х					
SCATS' concepts - entities & relationships			Х				
SCATS principles of coordination			Х				
Traffic signal operation				Х			
Overview of Strategic Monitoring: Traffic Reporter, Detector Counts				Х			

Getting involved in SCATS customer research



Mediums



Surveys



Usability testing (concepts)



Interviews



Focus groups



Market research



Workshops



Alpha and Beta Trials

Frequency?

Frequency of engagement is to be agreed with staff, and their managers. Users can opt-out at any time.

Get involved

We are seeking end users to opt-into for research and validation related to the Control Centre and Congestion visualisation.

To get involved come and say hello during the conference.

SCATS future state



SCATSCloud exclusive technology preview





Benefits of SCATSCloud

- For smaller cities (initially)
- Turnkey operation, low-infrastructure:
 - Managed comms
 - Managed infrastructure (no on-prem required), software updates
 - No application installation
- Easy to adopt
 - Familiar applications
 - Existing SCATS Controllers (ideally VC6.2)
- Reduced CAPEX spend
- Improved reliability
- Improved security: 2FA, etc

- Hosted in AWS Cloud
- Resilient server architecture, split across two availability zones
- Redundant database and file share (SCATS data) storage
 - Short RTO/High RPO
 - Failover in minutes
- Application streaming via browser or desktop client
- Secure connectivity via 4G
- ITS Application integration via VPN

How does it work?



Live demo

- WinTRAFF connected via Private 4G connection
- Streamed applications
 - SCATS Access
 - Cornerstone



We'll keep you updated on our progress.

Thank you

