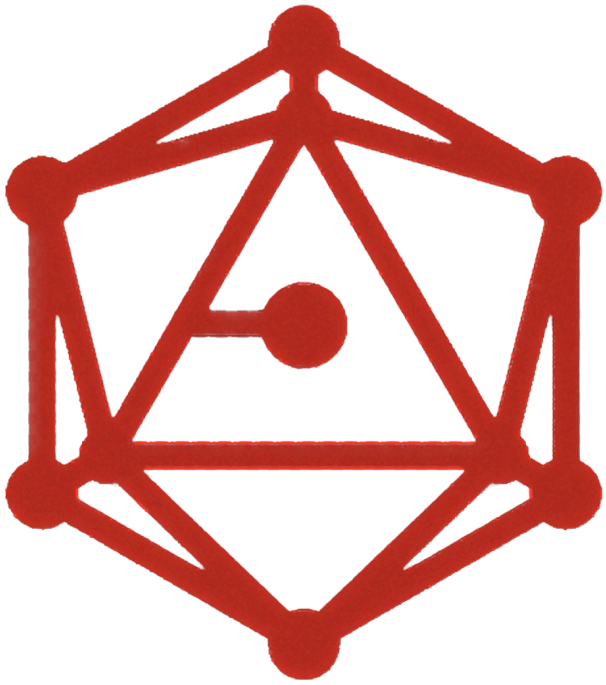
FLIGHT TECHNOLOGIES



ARGUS Video Training System (VTS)

Quick Start Guide

-DRAFT-

Document Version: V2.1

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Foreword

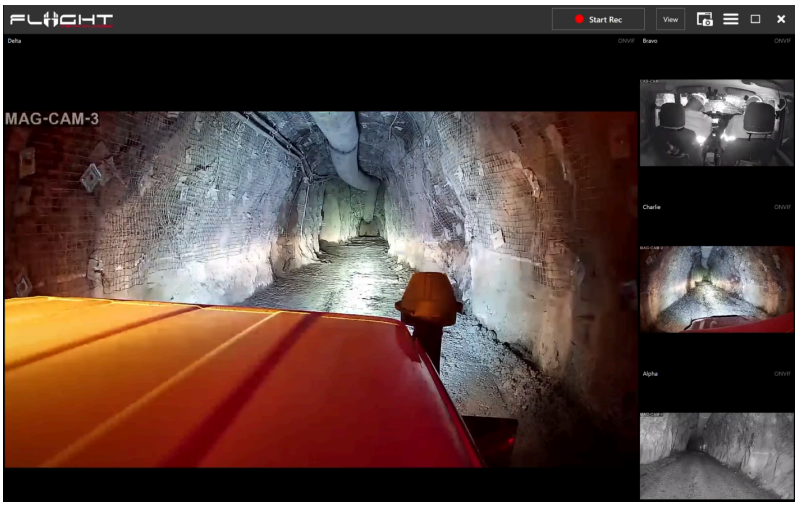
This document is provided to support the deployment, testing and use of the Argus Remote Video Training system. The Argus Remote video Training system is designed to support the remote training of heavy vehicle operators in an underground environment. The Argus system comes in a single, easy-to-deploy hard case designed for rapid deployment in any environment.

The system is made up for 4 key components:

1. The Argus Software;
2. The Argus Access Points;
3. The Remote Camera System; and
4. The Remote Trainers Tablet.

The Argus Software

The Argus software allows the remote trainer to access multiple video feeds from the Remote camera system. Argus allows the remote trainer to swap between video feeds as well as record all video feeds concurrently for future review and additional feedback to the trainee. The software is designed to run on a Windows laptop.



The Argus Access Points

The Argus access points (AP) are a dynamic mesh network designed to provide high-quality low latency streaming in an offline, underground environment. The APs are fully self-contained and will operate for a minimum of 10 hours on a single charge.

The Remote camera system

The Remote camera systems are self-contained remote streaming cameras which are to be placed on the trainee vehicle. They are fully self-powered, either magnetically mounted or suction-mounted camera systems and will operate for approximately 44 hours on a single charge.

Remote Trainers Tablet

A windows based field tablet which will run the Argus Software and connect to AP-1 in order to access the camera feeds. The laptop will also be the location where the video recordings will be stored for future playback.

Operation

System Initialisation

To turn on an individual Argus system component the large black power button should be pressed in firmly. The Argus APs should be turned on first, the status LED will come on, pulse RGB colours while initialising then blue when ready followed by solid green when meshed.

Once the AP's are meshed, power on the cameras via the black power button, the cameras buttons will illuminate red when powered, A clicking noise will be heard as the lens calibrates.

PC Initialisation

Turn on the Tablet PC by pressing the top right hand side button of the tablet. The right hand side of the tablet also contains the cameras.

Log in to the Tablet using the ArgusVTS user and the pin **2580.**

Windows Tablet PIN: 2580

System Set-up

The system is comprised of 3 access points (AP) and 4 remote camera systems (RCS).
One access point AP-1 should be placed in close proximity to the remote trainer. The remote trainer will connect their laptop to the WIFI access point created by AP-1.

Wifi Name: ARGUS-VTS-XXX*

Password: BarmincoVTS

**XXX is the kit number*

AP-2 should be placed on the trainee vehicle handrail along with the CAB-CAM suction mounted inside the vehicle cab and the 3 Magnet Camera systems placed around the vehicle as required. It is recommended that the vehicle AP is placed in a location with good visibility and Radio link back to the other two AP units as well as to all of the vehicle mounted cameras. Additionally, the AP should be placed in a location which will minimise the risk of damage to the system.

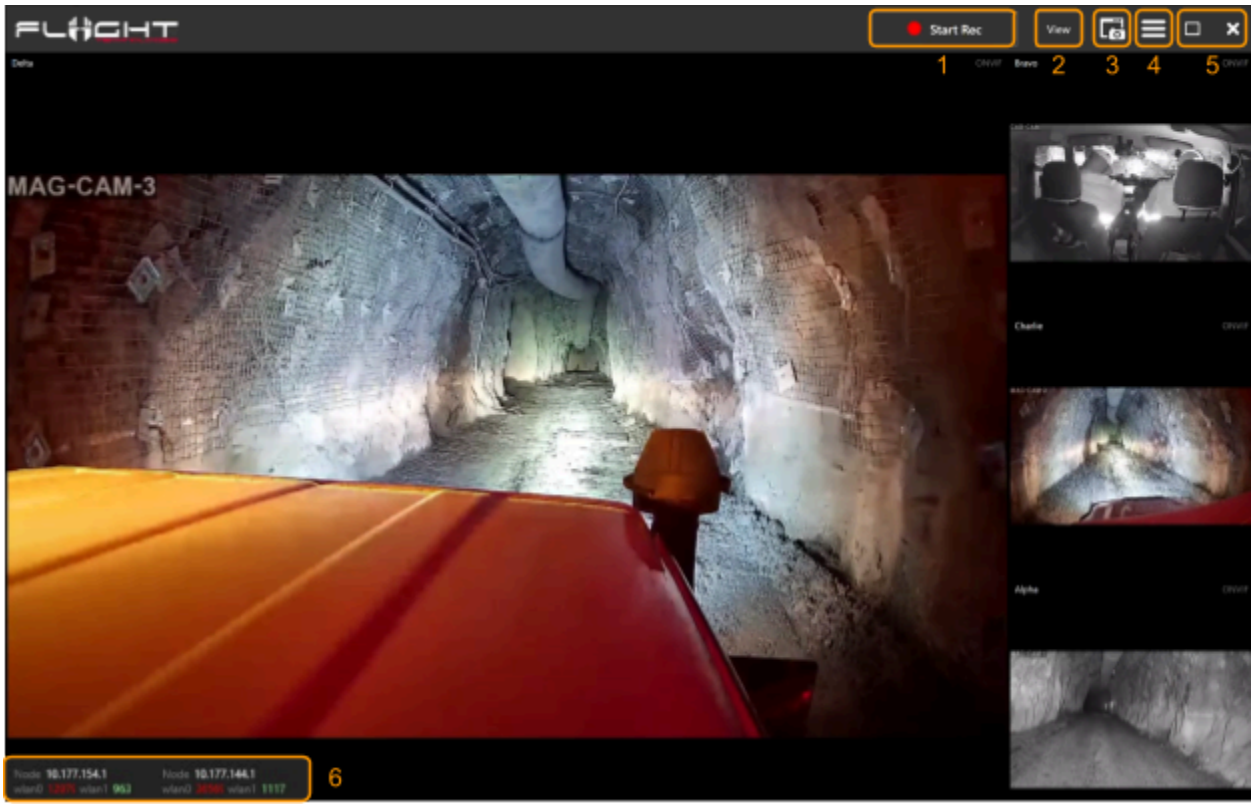
AP-3 should be placed at the midpoint of the operation area in order to extend the network.
The Access points create a dynamic mesh network which will autoconfigure on setup.
If the specific area of operation is not very large, it is not a requirement to use AP-3.

The netwrok status and preformance can be monitored in the lower right hand side of the Argus Application while in operation.
It is recomended to let the system “settle” for a minute or two before moving the nodes if preformance is poor.

Argus Tablet Operation

The Trainer laptop should be connected to the ARGUS-VTS-XXX wifi network with the credentials above. The Argus software is pre installed and configured on the tablet to auto connect to the 4 supplied cameras. The following information is provided to support debugging or user configuration updates.

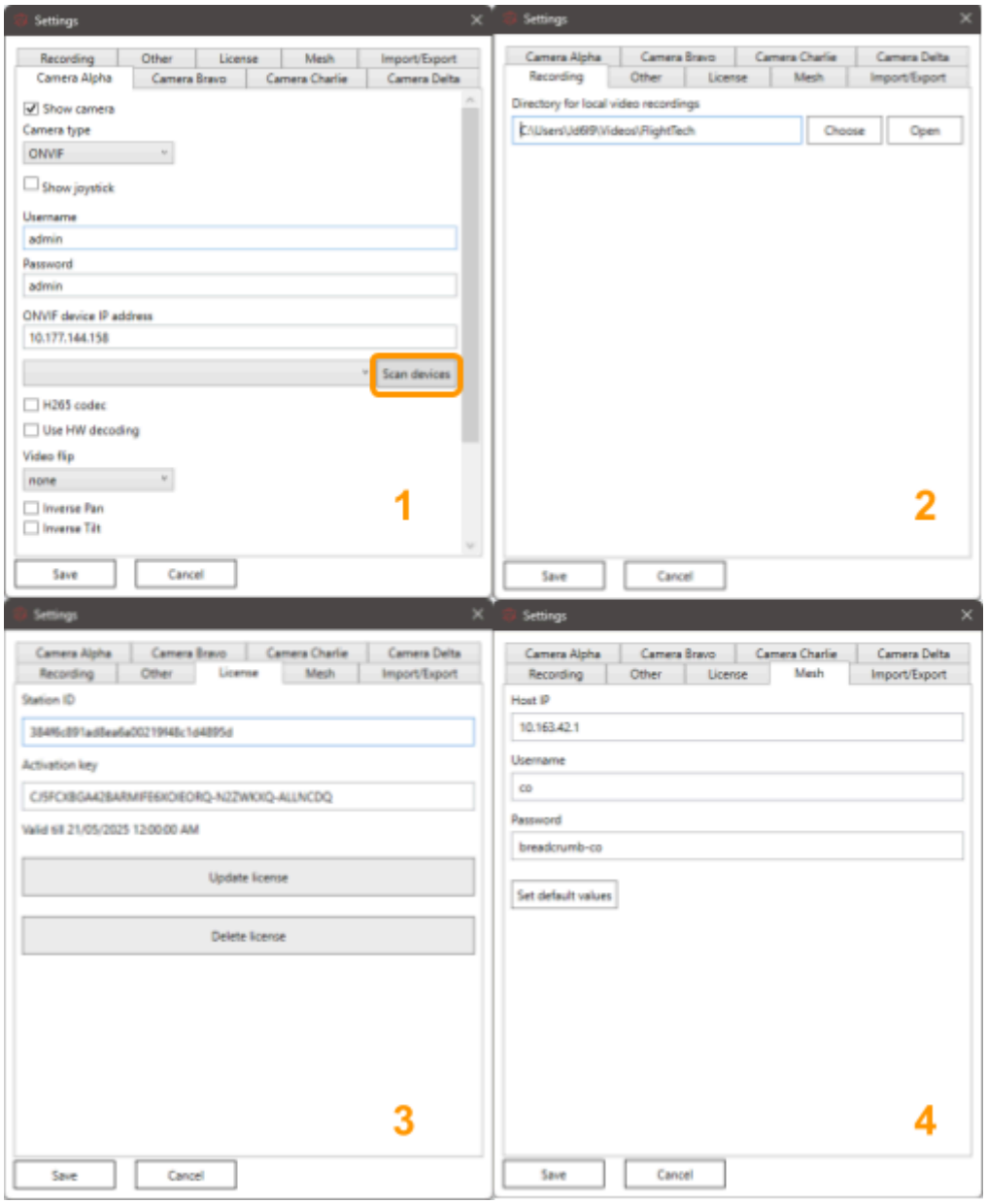
When the laptop is connected to the ArgusVTS network with all of the AP's and Cameras initialised as mentioned above, the four video feeds will auto connect and begin streaming. The operator can double tap on any of the sidebar feeds to switch it to the focus view. The UI of the Argus software is as shown below:



1. Start recording all connected camera feeds to the specified folder (Settings/Recording/Directory);
2. Quick camera view adjustment button;
3. Open the recording directory folder in Explorer;
4. Application Settings;
5. Expand and close application buttons;
6. Network Health Monitoring Panel.

Application Settings

The Argus settings menu provides camera configuration options for four independent IP cameras (1). These settings will be preconfigured for each argus kit but in the event one of the cameras is not being auto detected, you may scan for it on the relevant camera submenu using the “Scan Devices” button. The recording directory may be updated or accessed from the “Recording” sub menu (2). Licence keys may be added under the 'Licence' tab (3) and mesh settings used by the network monitoring tool may be loaded/updated under the “Mesh” submenu (4).



Network Health Monitoring Panel

The network health monitoring panel provides a simple and intuitive means of assessing live network performance. For both network bands (wlan0: 2.4GHz and wlan1: 5GHz) cost values are reported as follows:

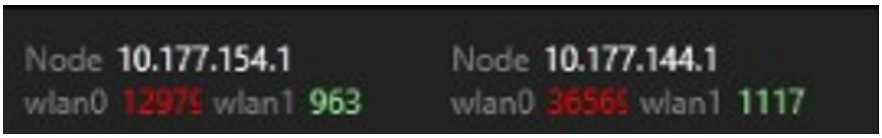
Indicator	State	Cost
Green	Optimal	< 5,000
Orange	Functional	5,000 - 10,000
Red	Poor	> 10,000

Network band naming:

wlan0= 2.4 Ghz transmission

wlan1= 5.8 Ghz transmission

Node= By default will display node IP address [10.177.154.1] of the connected nodes on the mesh network, The “Mesh” tab in the Argus settings menu allows a user to set an Alias for each note to improve usability.



Argus Parts List

Parts list of Argus components.

Part Number	Name	Description
MAG-CAM	VTS Mag mounted camera	Argus VTS Mag Mounted camera (Ready to use, no battery)
CAB-CAM	VTS Cab mounted camera	Argus VTS Custion Mounted camera (Ready to use, no battery)
VTS-T	VTS Trainer Node	Includes Rajant Cardia node in custom enclosure and one pair of antennas (no batteries)
VTS-R	VTS Relay Node	Includes Rajant Cardia node in custom enclosure and one pair of antennas (no batteries)
VTS-M	VTS Machine Node	Includes Rajant Cardia node in custom enclosure and one pair of antennas (no batteries)
SRV-CBL	Service cable for VTS Nodes	Enables ethernet and USB ports on VTS nodes
MIL-M18-5A	Milwaukee 18V 5 ah Battery	Battery for use with VTS Nodes (VTS-T/R/M)
MIL-M12-3A	Milwaukee 12V 3 ah Battery	Battery for use with VTS CAB or MAG Cameras (MAG-CAM/CAM-CAM)
TAB-SURF	Viewing terminal for Argus	Software loaded and configured does not include Argus software licence
M5-TOOL	M5 Hex Tool for use with VTS-M	Tool used to fasten the VTS
MIL-M18M12-CH	Milwaukee battery charger	Charging system for Milwaukee M18 and M12 batteries (one of each simultaneously)

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