Sotas
The world class multi-media vehicle system
As your requirements continue to evolve, so do our solutions. With Sotas Vehicle Systems fielded in more than 30 countries, Thales is committed to the continuous development of new capabilities to increase mission effectiveness.

The proliferation of C4I components, sensors, effectors and peripherals is bringing new capabilities to the highly mobile vehicle domain. The new generation of Sotas Vehicle Systems is designed to turn these added capabilities into a real operational advantage by supporting the integration and interworking of the vehicle-borne systems. Sotas offers an advanced Vehicle Electronic Architecture, that support the capture, processing and sharing of voice, data and video information. In doing do, Sotas provides the means to quickly and efficiently disseminate information in vehicles, between vehicles and to other elements within the Network-Enabled Operations environment.

For many years, Sotas is the benchmark for vehicle communication systems, providing high quality voice and data services. Now, Thales raises the bar with the latest evolution of the family of Sotas Vehicle Systems. Based on high-bandwidth backbones and IP Multimedia Subsystems the Sotas Vehicle Systems offer powerful Command and Control solutions and a rich set of C4I supporting services and interfaces.

“Operational benefits in a changing environment.”
Architecture

Sotas systems are based on a high performance open architecture that is modular, scalable and future-proof.

Sotas consists of a family of modular user stations and network nodes that can be configured and scaled for all types of vehicle configurations and missions.

Sotas configurations for light vehicles consist of a single user station or multiple user stations that are connected over Gigabit Ethernet. The programmable user station interfaces provide connectivity for a range of equipment, including headsets, radios and workstations.

For larger and/or more complex vehicles the Sotas systems comprise a Tactical Network Node (TNN) and a selection of user station types. The highly scalable TNN is configured with optional building blocks to provide the capabilities and interfaces required. The TNN capability can range from Intercom services to complete Vehicle Electronic Architecture services.

Sotas Vehicle Systems are based on a layered, open architecture with high-bandwidth IP multimedia Subsystems that facilitates application hosting, information sharing and offers a powerful infrastructure for a rich set of services and interfaces. Designed for the tactical domain, Sotas supports security architectures through the integration of rigorous integrity and confidentiality enforcing mechanisms.

The futureproof open architecture is designed to support integration of Thales and third party hardware and software products. This scalable and manageable architecture makes Sotas the platform of choice not only for end-users but also for C2/C4I solution vendors and system integrators.
System capabilities

Sotas VEA
Sotas Vehicle Systems are at the core of a Vehicle’s Electronic Architecture (VEA). Sotas interfaces with on-board systems using industry standard interfaces, such as Ethernet, Video, CAN, USB, Serial Data. The distribution of data between the on-board systems and the software applications hosted by Sotas is performed by the open standards real-time middleware (OMG DDS). This results in an efficient system for sharing data within the vehicle, processing data (data fusion) and communicating data with other vehicles/nodes.

The Sotas VEA is the infrastructure for a comprehensive set of applications and capabilities. This set includes Thales applications such as the Sotas tactical voice services, but also third party applications like Health and Usage Management Systems and Platform Management System applications thus allowing full control of the platform capabilities by the user.

Sotas Tactical Networking Services
The Sotas Tactical Networking applications support the exchange of multimedia data in highly mobile platforms and with other elements in the Network-Enabled Operations environment, including deployed networks. The Tactical Networking Services provide a comprehensive set of routing protocols (e.g. MANET), and supporting services (e.g. QoS and IPsec). Sotas provides seamless integration of wireless transmission systems with wildly different characteristics and offers mobility support and automated routing over these systems. Customer-specific capabilities are offered by integrating third party applications (e.g. Delay Tolerant Networking).

Sotas Security
The Sotas design incorporates security measures that enable the system to work in a multi-level security environment.

“The new generation of Sotas Vehicle Systems is designed to bring real operational advantages to the highly mobile vehicle domain.”
A Sotas System for a Battalion Commander’s IFV, providing voice, data, IP, video, HUMS and platform management services to 5 users.

A Sotas system for a light vehicle, providing voice, data and IP services to 4 users.
User Stations

The Tactical User Stations (TUS) provide the user interface (HMI) to system services and a basic set of external interfaces. Each User Station can serve up to two independent users with simultaneous direct access.

The TUS HMI module offers rotary switches for quick access to pre-defined services, usually intercom and radio services.

The Tactical Advanced User Station (TAUS) offers an intuitive menu driven full colour Graphical HMI for access to all Sotas services including telephony and operational management.

User Stations provide two independent audio interfaces for the connection of monaural/binaural headsets, other audio ancillaries and Combat Net Radios (CNR), in addition to two serial data interfaces for data terminals and CNRs.

User Nodes

When a large number of interfaces are required at an operator position the User Station is configured with additional interface modules. In addition to the basic User Station interfaces, the Tactical User Nodes (TUN) and TAUN can offer e.g. 2 (10/100) Mbps Ethernet (PoE+) and USB 2.0 interfaces.

Light Vehicle Systems

A TUN or TAUN become a single unit vehicle system when configured with a MIL-STD 1275 power supply module. These User Nodes are typically used as single-box Vehicle Systems for light vehicles. To form larger light systems additional User Stations (all types) are connected to the User Node.

Network Nodes

The Tactical Network Node (TNN) provides connectivity for high numbers of User Stations, User Nodes and external equipment. The various building blocks of the TNN each offer a different range of capabilities and interfaces.

The TNN is highly scalable. Small TNN configurations are used for Sotas systems with a limited number of User Stations and external interfaces. For more demanding vehicle fits, the TNN is scaled up with optional building blocks, including additional Ethernet switching and high performance IP routing capability, an additional router (e.g. Cisco 5915 ESR) and a Tactical Server Platform (TSP).

The TSP is an integrated ruggedized PC platform that hosts applications (both Thales and third party). The TSP runs multiple operating systems (MS Windows, LINUX and/or a customer specific operating system). The TSP has industry standard extension slots for the integration of optional modules.

The TNN can be configured to offer a wide range of interface types, including 10/100/1000 Mbps Electrical Ethernet (up to 25, of which 12 provide Power over Ethernet), Gigabit Optical Ethernet, Serial data RS232/422/485 USB 2.0 host, Analogue Audio (e.g. programmed as CNR interface), General Purpose I/O (e.g. programmed as Alarm, control or latch), POTS FXS, GPS PPS I/O, CAN bus, Analogue Video (PAL/NTSC) with MPEG, JPEG and H264, Sotas management interface, Sotas Console interface (USB 1.1/2.0 for keyboard, mouse and/or storage device, and High Definition Digital interface for display), Serial Data Cisco Console interface (provided by integrated Cisco 5915 ESR), Power Supply MIL-STD 1275.

The no-HMI TNN design allows the unit to be installed in low value space in the vehicle, to reduce C2 clutter in the high-value space.
The best value solution

From voice intercom to Vehicle Electronic Architecture: The Non-ITAR Sotas family of Vehicle Systems offers cost-effective and futureproof solutions for all vehicle types and missions.

• One scalable system for the whole fleet
Sotas consists of a family of modular components that can be assembled and scaled to create perfectly fitting configurations for all vehicle types and missions. A light vehicle intercom only requires a single Sotas unit. Larger and more complex systems are created by adding User Stations, Network Nodes, software packages and hardware option modules. This unique building block approach provides great flexibility and logistical advantages for supporting the broad spectrum of wheeled and tracked military tactical vehicles.

• Open Architecture and Future Growth
Sotas is designed to be futureproof by facilitating technology insertions with minimal development effort and risk. The Open Architecture of Sotas supports the integration of industry leading products, including C4ISR applications, Situational Awareness sensor interfaces, industry standard (IP) protocol software and third party capabilities (e.g. CISCO router).

• Crystal clear communications
Thales has continuously improved the Dynamic Noise Reduction (DNR) system since we pioneered the introduction of this technology over a decade ago. The Sotas DNR significantly reduces battle fatigue and noise-induced hearing loss by eliminating the noise and offering amazing speech clarity. Intelligibility is further enhanced by the 3D presentation of audio, especially when listening to multiple audio sources simultaneously.

• Interoperability
From day one Sotas Vehicle Systems are designed with interoperability in mind. Sotas supports many open standards physical interfaces and protocols, including industry standard dual stack IPv4/IPv6 protocol software and VoIP services. The Sotas CODEC framework supports a range of industry standards and performs dynamic transcoding for public/infrastructure networks and bandwidth constrained tactical networks. Sotas support the sharing of data between systems and applications by means of the open standards middleware (OMG DDS). Any number of (authorized) applications can make use of all the available information.

• Size, Weight and Power
The Sotas family of Vehicle Systems offers cost-effective solutions within the Size, Weight and Power constraints of all types of platforms. With a very high density of services and interfaces in compact, rugged system units, Sotas reduces the number of boxes for any given level of functionality.
Thales is a world leader in designing and building mission-critical information systems for defence and security, aerospace and transportation.

Operational in 50 countries, Thales employs 68,000 people all over the world. Thales steps up to the security challenges of its customers in an increasingly complex world: utilizing expertise in the most sophisticated technologies and large scale software systems, and aided by a global network of 22,500 high level researchers. The company has earned particular recognition for its ability to develop and deploy dual civil and military techniques, leveraging international operations to provide an end to end supply chain, from equipment manufacture to systems and services.

Thales Nederland employs about 2,000 staff members. The company, established in 1922, is one of the leading companies in integrated systems for surveillance, weapon control, combat management and system integration worldwide.

Thales has a comprehensive range of C4ISR products and solutions for air, land and naval forces, joint structures, special forces and homeland security services to achieve full situation awareness and information superiority. The Sotas family of products is just one of an outstanding range of military and civil communications products and services that Thales has to offer. Sotas is a mature, combat-proven system, with 21,000 systems deployed in over 50 vehicle types in 34 countries throughout the world, demonstrating the systems diversity and flexibility. As a leading defense supplier, the products are compliant with the most stringent military requirements. Thales has the highest AQAP and ISO9000 military standards accreditation.

“With battle-proven Sotas Vehicle Systems fielded in more than 30 countries, connected to more than 40 radios types and installed in over 50 vehicle types, Thales is committed to the continuous development of new capabilities to increase mission effectiveness.”