

Samsung S9 Tactical

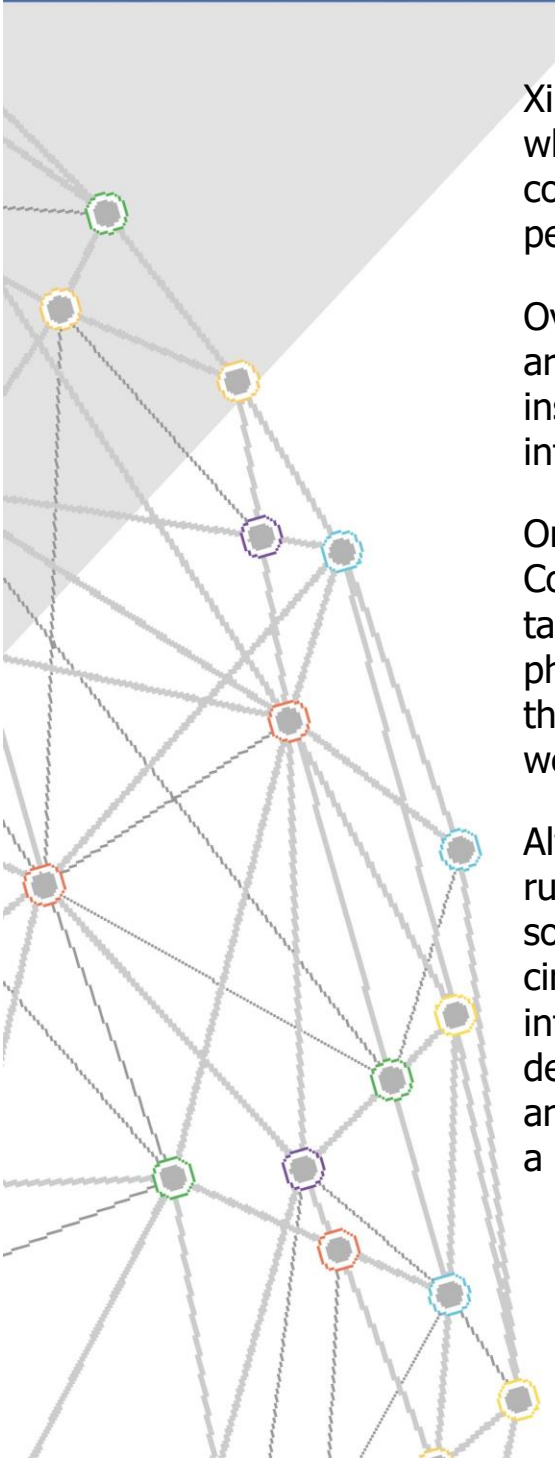


Xi Systems have been working with a variety of customers who have been following the trend of moving toward commercial devices for tactical edge computing and on the person Situational Awareness.

Over recent years these projects have rapidly matured around the use of modified Android devices, requiring the installation of custom drivers and software to allow integration with tactical and military specific peripherals.

One of the major drivers for the adoption of what is termed Commercial-Off-The-Shelf (COTS), is to allow the User to take advantage of the relentless development of mobile phone and tablet markets. This is due to the development of the maximum processing punch for the size of the device as well as ergonomic integration.

Although promising a significant advantage over traditional ruggedised devices, the early days of this development had some significant drawbacks; namely the requirement to circumvent some cyber security controls in order to conduct integration; unpredictable build standards of common devices (hardware and software), along with significant effort and money being required to turn a COTS mobile phone in to a useable tactical End User Device.



Samsung S9 Tactical



Due to the demand (mainly from the US market) for ATAK and related tactical applications, Samsung have developed the S9 Tactical Edition.

Primarily the S9 Tactical Edition provides a consistent hardware build (based on the S9 Enterprise edition) along with an official supported and cryptographically signed operating system image, that includes all of the related drivers and system modules required for tactical use. This means the device has all cyber security controls in place and can meet a significant amount of the controls for formal security accreditation in the US and the UK.

Samsung Knox

The root of the cyber protection mechanisms on the S9 tactical, lay in its use of the Knox system. This is a multi-layered protection mechanism that is backed up with a hardware backed root of trust. Once set up correctly, this ensures that if a device has been tampered with in terms of a compromised operating system, if the kernel has been modified, the system can delete all encryption keys related to sensitive data. This prevents access to the data and applications.

This same mechanism can be used to ensure only applications that are signed with a specific signing key chain are able to be installed and run.

The Knox Hardware backed protection mechanism is coupled with a new Tactical Mode, which allows a user to place the S9 Tactical Edition into a RF Mute mode. This, unlike Airplane mode, places the devices' RF modems to an unpowered state removing the threat of GSM, Bluetooth and WiFi attacks against the device in Airplane mode.

With an official operating system image and device, the S9 Tactical Edition has supported updates for the operating system from Google and Samsung, this allows the device to be patched against emerging Cyber Vulnerabilities. This can either be delivered via the Enterprise Firmware Over The Air service, or via re-loading of a new firmware image upon issue of the patches.

Galaxy S9 Tactical Edition



Samsung S9 Tactical



Protocols Supported	
RNDIS	Enable Ethernet Over USB, Provide a virtual Ethernet link
ASIX	Enable USB to Serial applications
CDC ECM	Ethernet Control Model (ECM) – Ethernet driver
CDC EEM	Ethernet Emulation Model (EMM) – Ethernet driver
CDC NCM	Network Control Model for Ethernet-over-USB applications, Integrate with L3 WPAN
Multiple Ethernet Interface	Connect to Ethernet devices such as TacLink 3300 and SIR 2.5 either using RNDIS/ASIX
Support PPPD	Enable connection to Harris 152A/Harris SA



At the heart of the S9 Tactical Edition, is the inclusion of various network and kernel drivers that allow the integration of Tactical Equipment.

Allowing any form of connectivity, from the PPPD protocol for legacy Harris radios, through to ASIX and CDC Ethernet over USB, whatever the peripheral the S9 Tactical Edition will not require side loading of drivers. Out of the box the kernel supports the integration of multiple concurrent Ethernet interfaces, allowing the User to concurrently join different radio networks and devices.

For example, this would allow an operator to stream video from and control an Unmanned Ground/Air Vehicle via one radio network and participate in Battle Management and networked situational awareness via another radio.

Supporting the use of the S9 Tactical Edition is an ecosystem of peripherals from ruggedization cases through to tactical USB hubs and software.

When placed at the heart of an open system, the S9 Tactical Edition can allow the user to take advantage of this ecosystem to add to their integrated system. Likewise, this allows equipment suppliers to provide interoperable solutions into the rapidly expanding Soldier System market place.

Although targeted at the Integrated Soldier System, the S9 TE could be employed in various roles, including Electronic Flight Bag and Security & Policing.

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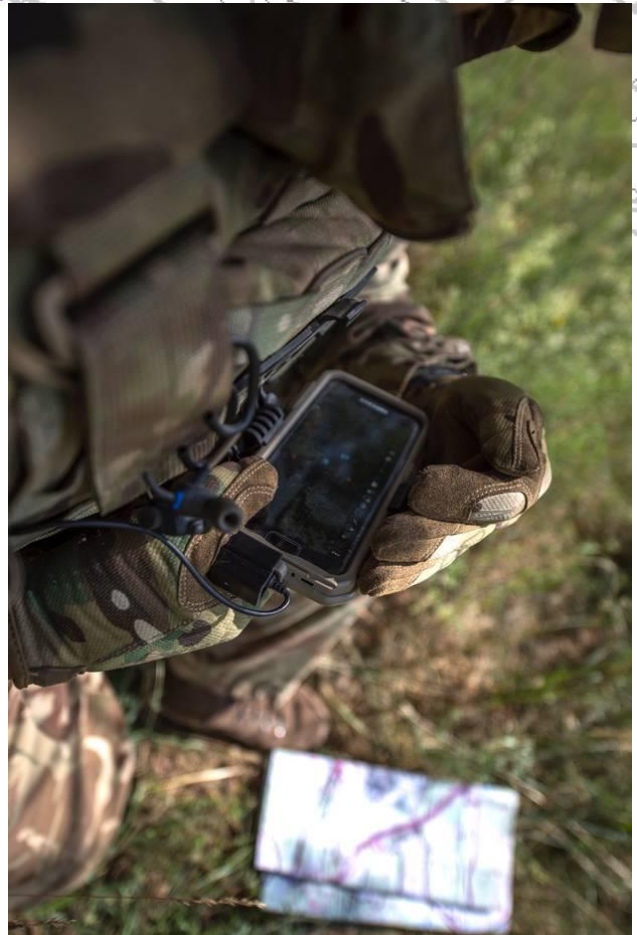
Xi Systems can supply and support the S9 Tactical Edition to the UK and European Markets. Due to our wide-ranging experience we are well placed to support integration projects for soldier systems as well as wider C4I projects.

We are well connected with the accessories market and can supply cases, cables and ancillaries from Kagwerks and other manufacturers as required.

As a specialist we have been working with smart phone centre Soldier Systems for the past 7 years. In that time, we have learnt many lessons from hands-on use, experimentation and feedback from operational deployment.

Having worked with many different radio systems, including Trellisware, Persistent Systems and others we can support bearer integration and network planning.

COTS based devices will not meet the needs of some niche areas such as underwater, extreme cold/heat, however from our experience and from first hand testimony, these cases are few and far between and for those cases where survivability is everything, it necessitates a fully rugged military specific device.



Please get in contact; with our experience we can answer your questions or assist with your project.

Please drop us an email on info@xisystems.co.uk