

# Protecting Data-At-Rest with NSA CSfC Approved Encryption on a UAV

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**DEFENSE SOLUTIONS**

## Challenge

- SWaP constrained UAV
- NSA approved encryption
- Network attached storage needed for different functions

## Solution

- SWaP optimized design
- NSA CSfC approved 2-layer encryption
- Network-attached storage solution

## Results

- Increased mission efficiency
- Protected sensitive data-at-rest
- Reduced cost and schedule

## Challenge

As unmanned system technology advances, unmanned aerial vehicles (UAVs) linger in the battle field for long periods of time. This presents UAV system designers with a number of unique challenges when designing the onboard network attached storage (NAS) required to securely store the massive amounts of data the UAV is collecting. With the increase in mission length and functionality, the number of systems onboard put pressure on every device to be size, weight, and power (SWaP) optimized. As well, a UAV's data network is often segregated into different functions such as mission, sensor, and maintenance subsystems. In such deployed vehicles, the data-at-rest (DAR) must be protected to established standards.

A large integrator came to Curtiss-Wright with such a set of challenges. Due to the sensitive nature of the mission

data on the unmanned vehicle, the program required a DAR encryption solution that was National Security Agency (NSA) approved. The NSA is the national-level intelligence agency of the United States Department of Defense and is in charge of ensuring the security of government communications and systems through the development of encryption technology and standards. Using an NSA approved encryption solution was essential to protect the top secret DAR being stored during missions.

The vehicle's system required multiple NAS devices which could provide mission and map data to network clients and allow those clients to store collected data and other sensor information during the mission. The solution's SWaP was a major concern as the aircraft would often be required to travel long distances while carrying an abundance of

**DTS1 Data Transport System**

equipment. Using smaller and lighter devices would mean the vehicle missions can be extended. With networks at varied classification levels, multiple NAS devices were required, putting additional pressure on cost, SWaP and encryption certification.

Also, the vehicle was needed as soon as possible, so the integrator sought a commercial off-the-shelf (COTS) solution instead of developing one from the ground up.

## Solution

With the unique program challenges in mind, the customer chose Curtiss-Wright to provide the Data Transport Systems (DTS1), the industry's first COTS DAR NAS solution that supports two layers of full disk encryption in a single device. The DTS1 is a small form factor file server that weighs just three pounds, occupies less than 50 cubic inches, and provides scalable storage of up to 4 TB on a single removable memory cartridge (RMC).

The DTS1 provides two layers of Commercial Solutions for Classified (CSfC) approved encryption (hardware and software). CSfC is an NSA-approved approach for protecting classified National Security Systems (NSS) information. The two DTS1 encryption layers have been certified by National Information Assurance Partnership (NIAP) under the Common Criteria (CC) program and are also listed as approved NSA CSfC components. Because the DTS1 is NSA CSfC approved, the customer could securely store up to Top Secret data onboard the UAV. The RMC on the DTS1 is considered unclassified when in transport between the carrier ground station and aircraft.

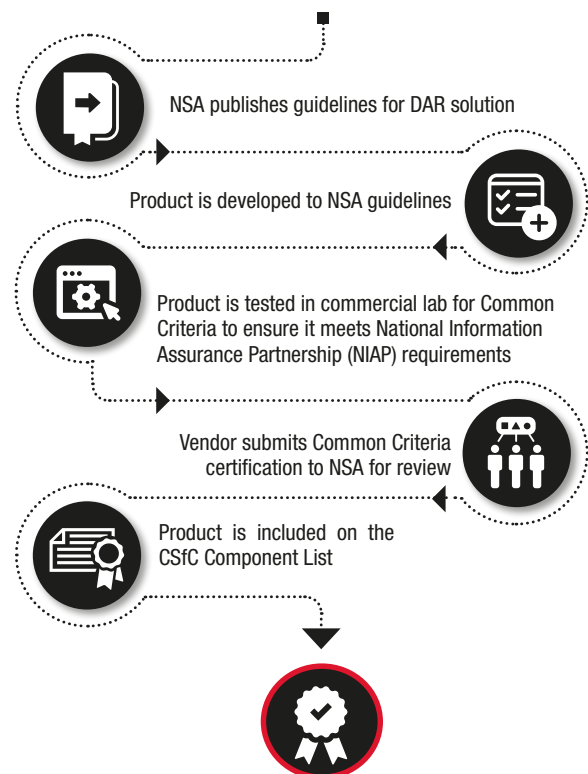
## Results

Choosing the DTS1 meant that the customer could reduce their program costs and schedule. Because the DTS1 is a NSA CSfC approved solution, the customer avoided the

timely and costly process of developing an alternative NSA approved solution. Curtiss-Wright invested time and IRAD funds to take the DTS1 through the NSA CSfC approval process, so that similar customers do not have to. The DTS1 is NIAP certified and NSA approved today.

By using an approved NSA CSfC solution like the DTS1, assurance was provided that the sensitive data collected on the unmanned missions would be protected to national standards. The customer was also able to increase their mission efficiency by using the small form factor DTS1.

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Photo: U.S. Air Force photo/Senior Airman Nichelle Anderson