



# COLORADO

## Center of Excellence for Advanced Technology Aerial Firefighting

Department of Public Safety

### 2018 Country Jam TAK Deployment Report CoE-18-004.1

#### Purpose

This report briefly describes the Team Awareness Kit (TAK) support provided by the Center of Excellence for Advanced Technology Aerial Firefighting (CoE) to first responders at the 2018 Country Jam Music Festival.

#### Overview

In early 2018, deputies at the Mesa County Sheriff's Office became aware of the TAK app and expressed interest in receiving a demonstration of this app at Country Jam, a large country music festival with a 24/7 first responder presence. The CoE agreed to help provide a demonstration through procurement of smartphones, the TAK app, and TAK server access. The goals of the demonstration were to facilitate location tracking of first responders, enable the real-time sharing of 911 calls and other calls for service through integration with incident dispatchers, and stream live video from security cameras to first responders through the app. Finally, the ability to achieve these goals during a large public event subject to cellular network congestion was tested.

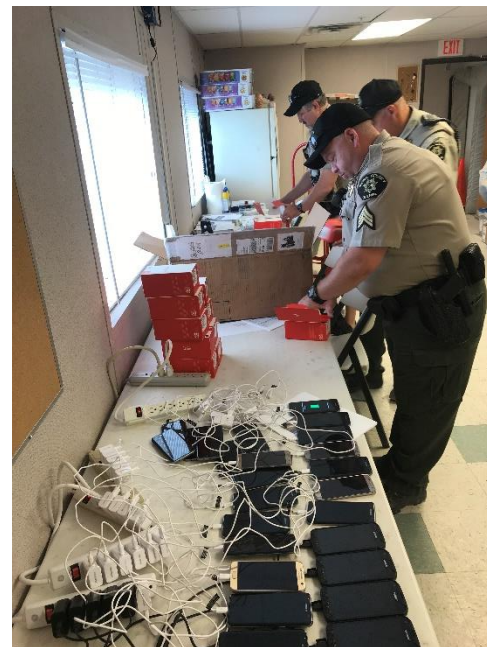


Figure 1—TAK phones receiving initial setup

#### CoE Response

Approximately 90 smartphones were provisioned with the Android version of TAK and were issued to each shift of first responders at Country Jam. Prior to the event, CoE personnel provided onsite training on the TAK app to Mesa County Sheriff's Office deputies, Lower Valley Fire District firefighters, and private security officers. Regional communications center 911 dispatchers were given the Windows version of TAK (WinTAK) and trained on that program. The

CoE developed a pocket reference guide on TAK for first responders to utilize during the event. GIS personnel created a custom basemap of the festival using design documents provided by the promoters. This map was used on all TAK devices and by dispatchers.



Figure 2—Deputies utilizing TAK during a briefing

were cleared of points dropped during previous shifts, the TAK callsign was set for the responder’s agency and radio number, and the color team was set to establish their law enforcement or medical role at Country Jam.

The TAK server used to network all app users together was provided by PAR Government. Initially, their Team Connect product was utilized, with a traditional TAK server used later in the event. Video streaming was enabled through a partnership with Homeland Security Investigations, who set up and operated the camera system, and PAR Government, who utilized a cloud-based Wowza server to relay video streams into TAK. A fixed-wing aircraft with a FLIR camera and microwave downlink was utilized during peak periods at the festival and the video feed from this aircraft was encoded on the ground and made available to TAK users. An Automatic Dependent Surveillance-Broadcast receiver feeding into TAK was set up at the command post to provide the location of this aircraft and any other nearby aircraft.

Utah Army National Guard troops from a civil support team were deployed at Country Jam to scan the area for hazardous materials and weapons of mass destruction. The locations of sensors deployed by these teams were marked in

The Country Jam festival ran from June 14–17. CoE personnel—supplemented by contractors from PAR Government and volunteers—staffed a desk at a command post from 10:00 a.m. to 1:00 a.m. each day to issue phones to first responders as they came on shift, rehab and charge phones as they were turned in, and provide technical support to first responders. During checkout, phones



Figure 3—Video stream viewed in TAK

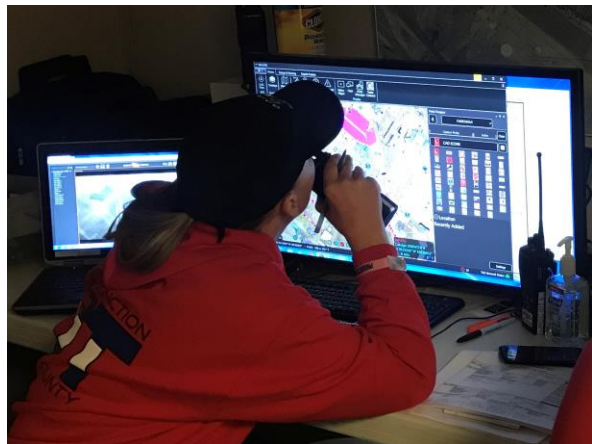
**Table 1—Number of first responders using TAK**

Date	Time	# of TAK Users Online
6/15	2100	45 Users
6/15	0000	39 Users
6/16	2300	43 Users
6/17	2040	41 Users
6/17	2200	49 users

TAK and communicated to all responders to help avoid confusion regarding whether the objects were official detection equipment or unauthorized and potentially dangerous items.

Each day, the operational tempo remained fairly slow during the workday, with activity increasing into the evening hours. Significant network congestion was encountered on the phones that utilized the Verizon network, leading to some TAK users being unable to connect to the TAK server. This issue

was partially alleviated by June 16 through switching from a Team Connect server to a backup TAK server. An additional issue was encountered wherein phones running Android 8 would periodically lose GPS when their screens were turned off. Once this issue was identified, CoE personnel began issuing phones running Android 7 first, and by Sunday most of the responders were not experiencing this issue.



**Figure 4—Dispatchers utilizing WinTAK**

As first responders ended their shifts, CoE personnel invited them to fill out a web-based survey on their perceptions of the TAK app. A handful of first responders were interviewed and media was captured to document the usage of the app. Feedback was also collected by the contractors from PAR Government, as well as by observers from the Colorado Governor’s Office of Information Technology and the National Institute of Standards and Technology Public Safety Communications Research Division.

**Conclusion**

Despite significant challenges related to network connectivity and the initial TAK configuration, the system was—by the last day of the festival—able to provide location tracking, call mapping, and video streaming to the vast majority of responders who participated in the deployment.



**Figure 5—A busy night for the TAK system at Country Jam**