ARNG AFATDS Sustainment Training on RCAS

By Sergeant First Class (Retired)
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The Army National Guard (ARNG) now can conduct sustainment training on the advanced FA tactical data system (AFATDS) via an automated network and save travel and training set-up/tear down time plus costs. ARNG units can use the Reserve Component automated system (RCAS) and wide-area network (WAN) and current unit-level scenario devices to conduct the training. The devices are simulate and stimulate (SISTIM) and the digital systems test and training simulator (DSTATS). The combination of the RCAS and the devices maximize training time by providing realistic multi-echelon digital training.

Using RCAS, units can have an AFATDS lab so soldiers can fall in on their workstations immediately after the first formation. Minutes later, after communications checks are completed, AFATDS sustainment training can be in full swing, all during the average two-day guard drill.

Units in multiple states can participate in the training. Without leaving their home stations, Redlegs from the 45th Field Artillery Brigade can connect via RCAS for AFATDS training: the 2d Battalion, 222d Field Artillery (2-222 FA) from Cedar City, Utah; and units in Oklahoma, including 1-158 FA, Lawton; 1-171 FA, Altus; and Headquarters and Headquarters Battery (HHB), 45th Field Artillery Brigade, Enid.

Setting Up the Network. Network connectivity is the crucial piece of this program and can be a challenge to set up. See the steps in the figure.

First, we at headquarters connected inside our duty station facility using RCAS. We positioned two AFATDS workstations in separate parts of the facility and connected them without a problem.

Next, we reached out to one of our in-state battalions about 140 miles away; the connection immediately failed. As it turns out, Internet protocol addresses are specific to the domain. The tactical Internet protocols from our AFATDS standing operating procedures (SOP) were not compatible. The connection only can be achieved with the support of the domain system administrator.

We needed the administrator to issue some static Internet protocols for each AFATDS. Most domains use a protocol called DHCP. Simply put, the primary domain controller (PDC) server automatically establishes an Internet protocol address for network hardware. The problem was we asked the administrator to manually do what is normally automated.

We also had to find out from the AFATDS community what security accreditation the AFATDS operating system carries so our system administrator could ensure the security of his network while incorporating AFATDS.

Next we needed to communicate via the local area network (LAN) that has a router that serves as the gateway in and out of each facility. AFATDS uses a router; you get the router Internet protocol from your network administrator. With the help of the network administrator, we were up and running in Oklahoma.

But we still had one more battalion to connect with in Utah. We got the battalion's Internet protocols and began to try to transmit.

Firewalls are a critical piece of network security, and they worked so well that we couldn't connect with the Redlegs in Utah. More phone calls later, we convinced the firewall managers to open a doorway for our specific Internet protocols to pass through.

SISTM and DSTATS. Two invaluable devices are the SISTIM and DSTATS scenario drivers. These two systems complement each other—what one can't do, the other can.

Both systems have more options than I can discuss in this article, so I will limit my discussion to the most important.

DSTATS simulates Version 10 devices and PK11 FA tactical data systems (FATDS) devices, whereas SISTIM simulates only PK11. SISTIM communicates on a LAN or 188220A protocols, whereas DSTATS only accepts tactical fire direction two-wire or FM radio networks. (The Army is working on a DSTATS 188220A modem, but it hasn't been fielded yet.)

SISTIM can communicate across the WAN while DSTATS communicates with a local workstation. DSTATS can communicate on a two-wire net using a

standard telephone line—that is if commercial long distance fees are not a problem. Your unit SISTIM or DSTATS operator should know the proper settings to operate them.

The scenario-building process requires a well-developed mission events list (MEL). For fire mission processing, SISTIM has a target generator that saves many hours of inputting fire missions and target intelligence messages to simulate radar acquisitions.

DSTATS offers the flexibility of running up to 20 scenarios simultaneously. This is critical when training events are triggered by an action rather than by time. An example would be when the scenario calls for enemy counterfire after a multiple-launch rocket system (MLRS) raid. The MLRS raid often has operational hurtles that can cause the timeline to be modified. If limited by a time-driven scenario, the enemy counterfire could be out of sync with the training. DSTATS scenarios can be suspended and then activated by the operator when the trigger event occurs.

DSTATS also allows the active scenario to pause, waiting for the appropriate response from the AFATDS operator.

SISTIM's target generator allows the operator to build a list of 100 targets in less than 30 seconds. However, it has some drawbacks. The targets will appear in equal times between each message unless the operator manually edits each line of the scenario.

DSTATS allows the operator to globally adjust scenario times, either shorter or longer, with only a few keystrokes. To be able to adjust the operational tempo (OPTEMPO), DSTATS is the preferred tool.

To get the best of both devices, AFATDS allows units to use the target list from SISTIM in DSTATS.

AFATDS has a function called intervention points (IP). By turning the AFATDS IPs off, you can receive a call-for-fire from SISTIM and automatically transmit it to DSTATS. DSTATS then allows the operator to save the message. With some simple edits, you can have a ready-made fire mission in DSTATS.

Both devices have an option to set up auto processing for fire missions. In other words, when subordinate fire direction centers (FDCs) or the weapon is being simulated, the simulator processes message-to-observer (MTOs) or mission fired reports (MFRs) and transmits them back to the device of the original message.

DSTATS will process fire missions from AFATDS A98 software but only from a simulated battery-sized element. SISTIM will process messages from the simulated weapon for AFATDS A99 software. Units with A99 will want to use SISTIM, and units still waiting for A99 will want to use DSTATS.

Training Versatility. We used DSTATS and SISTIM to drive training during a two-day drill in late 2001. The 45th Brigade tactical operating center (TOC) manned its AFATDS in the Enid Battle Lab. The 2-222 FA manned its AFATDS in Cedar City. The 2-222 FA used graphics for its local training area, and the 45th TOC used graphics for Fort Sill and the Utah training area.

The 2-222 FA used LAN communication to talk to the brigade TOC, wire networks to talk to subordinate FDCs and single-channel ground and airborne radio system (SINCGARS) FM digital networks to talk to their firing elements (Ml09A6 howitzers).

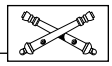
In addition, we used RCAS workstations with NetMetting to replicate our voice nets. At the same time, SISTIM simulated a Q-37 radar and DSTATS simulated the higher headquarters providing additional calls-for-fire and operational input.

In the future, RC units can use this process for larger home station training, such as participating in "ramp-up" training for Warfighter exercises at Fort Leavenworth, Kansas. In most cases, ARNG units aren't budgeted to attend both the ramp-up and actual Warfighter.

We are just beginning to explore using RCAS to provide AFATDS sustainment training. If units have questions about using RCAS for AFATDS training, they can call the 45th FA Brigade Headquarters, Enid, at (580) 213-3000.

1. The domain system administrator assigns the static Internet protocols. The Internet protocol addresses must be compatible with your domain.
2. The AFATDS communication set up uses a HOP count of "2" in the "Edit Routes" window for all operational facilities outside of the local domain. The HOP count affects the number of router/gateways the communications configuration will cross. All other network settings come from your AFATDS standing operating procedures (SOP), except for Internet protocol addresses.
3. Establish local router addresses.
   a. The first method is go to the "Common Operating Environment" (COE) desktop in the external LAN and use the "2" button to select "Set Router Address." At the prompt, enter your local router address. You will need to repeat this step each time you boot AFATDS in your facility. After you enter the initial router Internet protocol, the LAN will prompt you to either enter a new Internet protocol or enter "P" for the previous Internet protocol.
   b. The second method to establish a local router address is to select "Set Default' in the network window. You enter the router Internet protocol in the appropriate field and select "OK" in the window.
4. When communicating outside of state boundaries, you must coordinate with all firewall managers. A rule enabling the assigned Internet protocols to pass freely between states will be required for the firewall. Firewall managers need a list of Internet protocols and which port they will use. AFATDS uses a web page type of port. The firewall manager will understand the technical digits you tell him.

Steps in Connecting the Reserve Component Automated System (RCAS) with Multi-State Local Area Networks (LANs) for Advanced FA Tactical Data System (AFATDS) Sustainment Training. The steps assume network hardware is in place (i.e., the network drops are installed) and require a fundamental understanding of AFATDS. Coordination between agencies is the most crucial part of communicating successfully on RCAS.



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