

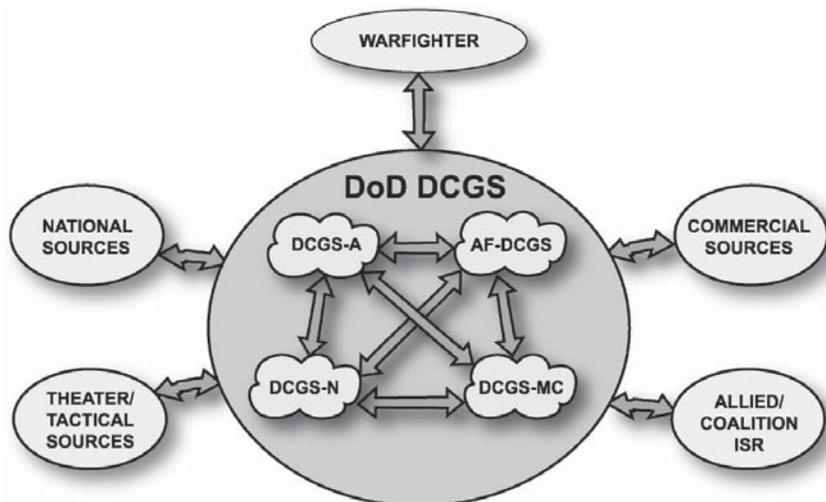
## Distributed Common Ground/Surface Systems (DCGS)

The DCGS is a family of systems capable of receiving, processing, exploiting, and disseminating intelligence in support of a Joint Force Commander. DCGS objectives include receiving imagery at ground and surface systems from national and tactical sensors and exchanging intelligence between ground and surface systems through use of common components and compliance with standards. Architectural requirements for the family of systems are stated in the Joint Chiefs of Staff-approved Capstone Operational Requirements Document. U.S. Joint Forces Command (USJFCOM) is the user representative for the family of systems. The Joint Interoperability Test Command (JITC) is responsible for testing the architecture and certifying interoperability. Operational tests of individual systems are the responsibility of the appropriate Service test agency. The Air Force DCGS (AF DCGS) and Distributed Common Ground System-Army (DCGS-A) are on the OSD test and evaluation oversight list.

The AF DCGS is a worldwide-distributed, network-centric, system-of-systems architecture designed to conduct collaborative intelligence operations and production for the Air Force. The system delivers direct and indirect intelligence, surveillance, and reconnaissance (ISR) information to the Joint Force Air Component Commander in support of ISR management, intelligence preparation of the battlespace, predictive battlespace awareness, indications and warning, current intelligence, assessment of military force and support capabilities, analysis of enemy courses of action, targeting and weaponeering, mission planning, and air combat training mission execution. In addition, both the Army and Navy are considering use of the network infrastructure that is part of the Air Force program. The 46<sup>th</sup> and 605th Test Squadrons are responsible for a field development evaluation of AF DCGS.

The DCGS-A is a single integrated ISR ground processing system. The DCGS-A is the Army's primary system for tasking, processing, correlating, integrating, exploiting, and disseminating ISR assets and information. The DCGS-A enables the ground commander to achieve situation understanding by accessing multiple sources of data, information, and intelligence. Furthermore, the DCGS-A facilitates development of situational understanding by allowing the commander to visualize, analyze, and understand the threat and environment, predict threat intentions, execute targeting, conduct ISR integration, and support information operations. The DCGS-A will also serve as the primary ground station for Army airborne and ground sensor systems defined for the Objective Force (e.g., Aerial Common Sensor, Prophet, UAVs).

There will be three types of DCGS-As: fixed, mobile, and embedded. Fixed DCGS-As will be located in rear, sanctuary locations such as at a home station located in the U.S. or at a theater regional operations center. Mobile DCGS-As will be a single vehicle or multiple vehicles that will operate with forward deployed units. All mobile DCGS-A vehicles will be the same and will be deployed in numbers tailored to meet specific missions. The embedded DCGS will be a software capability hosted on Future Combat System (FCS) vehicles, Aerial Common Sensor aircraft, and other platforms. On FCS vehicles, the embedded DCGS-A will meet the FCS ISR requirements, which include the capability for the synchronization and control of organic sensors, sensor data fusion, corroboration, visualization, and access to the common operating picture (COP).



*The DoD Distributed Common Ground/Surface System is a family of systems capable of receiving, processing, exploiting, and disseminating intelligence in support of a Joint Force Commander.*

# AIR FORCE PROGRAMS

## TEST & EVALUATION ACTIVITY

- JITC completed a working draft of the Capstone Test and Evaluation Master Plan (TEMP).
- JITC is developing plans to evaluate the architecture during USJFCOM Combined Joint Task Force Exercise (CJTFFEX) 04-2 on the East Coast.
- Air Force test agencies are planning for the potential participation of AF DCGS in CJTFFEX 04-2.
- During FY03, the DCGS-A program undertook the development of a test strategy to be published in its TEMP prior to the Milestone B in FY04.

## TEST & EVALUATION ASSESSMENT

JITC has established interoperability certification programs with 23 of the 26 systems that are members of the DCGS family, but only about three of the systems have been granted interoperability certifications. Many of the systems do not have a Joint Chiefs of Staff-approved interoperability key performance parameter that is a prerequisite for interoperability certification testing.

CJTFFEX 04-2 will be the first opportunity to accomplish an operational assessment of a joint network of Service DCGS systems. Participation of individual Service systems is still to be determined. Lack of Service participation may limit the joint nature of the architecture.

Seeing, understanding, and acting are vital to the success of the Army's FCS and Objective Force. Providing and integrating command and control, ISR, and communications connectivity stands out as the most critical challenge and the most vital aspect of developing, fielding, and employing FCS capabilities. As the Army's ISR processing system, the DCGS-A will be a lynchpin of the ISR network that supports FCS. Understanding first will require the DCGS-A to integrate and fuse data from multiple ISR sources. Currently, there is minimal capability to perform automated fusion. Presently, building the COP requires substantial human interface with inadequate assurance that it is current due to latency. Achieving a low-latency COP will require significant technological advances in fusion. A significant portion of DCGS-A will be software, and software development will be the greatest risk to the program.