COMMANDER'S HANDBOOK
DISTRIBUTED COMMON GROUND SYSTEM – ARMY
(DCGS-A)

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EXECUTIVE SUMMARY

Access to the Intelligence Enterprise is through the Distributed Common Ground System-Army (DCGS-A). This Commander's Handbook is an overview of the capabilities DCGS-A is providing to the commander. It addresses the benefits of employment of DCGS-A as a whole, rather than any particular fielded version.

DCGS-A, as a component to the DoD Distributed Common Ground/Surface System Mission Area program, is greatly contributing to the Joint and combined Warfighter needs.

DCGS-A enables the Commander to fight in ways that exceed the historical limitations through the following *three interrelated main ideas*:

1.) Increased situational awareness reduces risk for the Commander when executing missions.

2.) A flattened network enables Commanders greater access to information historically only available to Corps and above echelons.

3.) Providing Commanders with unprecedented access to the Intelligence Enterprise affords the greatest impact at the lowest level.

The *three core functionalities* of DCGS-A are:

1.) It is the ISR component of Battle Command.

2.) It provides analysts a net enabled capability to exploit information with common analyst tools.

3.) It receives direct feeds from multiple sensors.

DCGS-A has *three configurations*, which enable Commanders to tailor the system and its components to fit their mission needs:

1.) Fixed configuration- Primarily it leverages the power and stability of sanctuary for the most complex processing and analytic tasks, and is currently available.

2.) Mobile configuration- Provides tactical, expeditionary, and deployable capabilities to Brigade Command Team (BCT) and other Commanders and is currently a quick reaction capability (QRC).

3.) Embedded software- On battle command systems (BCS) enables access to the intelligence enterprise down to the platform (e.g. Future Combat Systems (FCS)).

This handbook is a living document. Updates will follow as the DCGS-A system progresses. This will allow Commanders a concise reference guide to the capabilities provided to their units and its application to leverage DCGS-A against current and future adversaries.

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Chapter 1

OVERVIEW

"My background is that I am an 11B that re-classed to a 25B, now working as an independent company level S2. Considering no formal training other than a two-day familiarization course and that I don't hold an INTEL MOS, I was able to use these DCGS-A tools to create products that my Commanding Officer commented, "I have not seen anything like this below the division level before." I have extensively used a set of tools from DCGS-A: ArcGIS and PSI Jabber. I was able to use ArcGIS to prepare maps using imagery from the server and imagery I imported from Buckeye and WARP. This allowed us to create products rapidly that were not previously practical for a unit at a low level such as ours, and Infantry Companies. Otherwise, we would need to send out RFI's to outside organizations that would not allow the flexibility or time constraints that our mission required. PSI Jabber allowed me to send large files to lower echelon units."

SGT Charles A. Fair
S2 C co. 1/279 IN (SEP),
300th MP BDE, Iraq

1-1. INTRODUCTION

a. As the Intelligence Surveillance and Reconnaissance (ISR) component of Battle Command, DCGS-A provides the Commander faster and more complete situational awareness enabling better understanding of the operational environment. This increased situational awareness allows the Commander to fight in ways that exceed the historical limitations through the following three interrelated main ideas:

    1.) Increased situational awareness reduces risk for the Commander when executing missions.

    2.) A flattened network enables Commanders greater access to information historically only available to Corps and above echelons.

    3.) Providing Commanders with unprecedented access to the Intelligence Enterprise affords the greatest impact at the lowest level.

b. The capabilities of DCGS-A align the center of gravity shift from the division to the BCT with increased accessibility to critical information to fulfill the mission requirements. The accessibility to previously restricted information provides the Commander at the lowest level the capability to leverage the vast intelligence enterprise

to better assess the current operational environment and to receive actionable intelligence in a timely manner. Previously, collection, processing, and analysis from a stove-piped process restricted critical information from most Commanders, particularly at brigade and below. Consequently, their decisions, often made without the critical information, came with high risk. DCGS-A reduces that high risk and enables the Commanders to better drive combat operations.

1-2. ARMY TASK (ART) LIST AND DCGS-A APPLICATION

a. In conjunction with the three main ideas, DCGS-A, through system configuration and application, enables the Commander to meet seven of his Army Tasks as depicted below through system configuration and application.

1.) ART 1.0: The DCGS-A primary warfighting function is the intelligence warfighting function (IWF). The IWF is the flexible and adjustable activity to generate knowledge of and products portraying the enemy and the environmental features required to plan, prepare, execute, and assess operations. The personnel and organizations within the IWF conduct four primary tasks that facilitate the Commander's visualization and understanding of the threat and the environment. These tasks are interactive and often take place simultaneously throughout the intelligence process. DCGS-A supports the following Army tasks and mission areas:

a.) ART 1.1: Support to situational understanding (and all sub-tasks).

b.) ART 1.2: Support to strategic responsiveness (and all sub-tasks).

c.) ART 1.3: Conduct Intelligence, Surveillance and Reconnaissance (and all sub-tasks).

d.) ART 1.4: Provide Intelligence Support to Effects (and all sub-tasks).

b. The IWF also conducts multiple tasks associated with the following non-intelligence discipline warfighting functions:

1.) ART 7.2: Manage Tactical Information[1].

a.) Integrate Intelligence Products.

b.) Collect Relevant Information.

c.) Process Relevant Information to Create a Common Operational Picture.

d.) Display a Common Operational Picture (COP) Tailored to user Needs.

e.) Store Relevant Information.

f.) Disseminate Common Operational Picture and Execution Information to Higher, Lower, Adjacent, supported and Supporting Organizations.

g.) Communicate with Non-English Speaking Forces and Agencies.

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[1] Note: Where it includes the processing of sensor data, the interpretation of data into intelligent information, fusion and integration of separate source data, management of the data to include accuracy and data topology, and dissemination of tactical data information.

2.) ART 7.3: Assess Tactical Situation and Operations.

  a.) Monitor the Situation or Progress of Operations.

  b.) Evaluate Situation or Operation.

  c.) Provide Combat Assessment.

3.) ART 7.4: Plan Tactical Operations Using the Military Decision Making Process/Troop Leading Procedures

  a.) Provide Space support.

c. DCGS-A is the centerpiece of the future Army ISR framework and is the enabler for intelligence functions at the brigade combat team (BCT) and battalion (BN). DCGS-A provides unprecedented access to a wealth of information and sources thereby greatly improving situational awareness. Through Congressional and Under Secretary of Defense (Intelligence) (USD (I)) support, the Army accelerated the development and fielding of DCGS-A. Figure 1-1 graphically illustrates the process in which DCGS-A facilitates the requirements outlined in the AUTL.
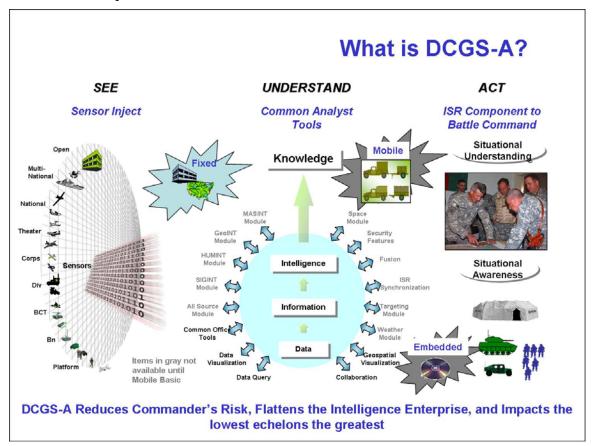

Figure 1-1. What is DCGS-A

1-3. CHALLENGES

a. Historically, operational focus resided at the division; moreover, the enemy fight was conventional. The programs of record (POR) supported the conventional fight at the cost of irregular warfare. Modularity restructuring, reinforced by Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF), generated focus at the BCT level and below, thereby highlighting shortfalls in current and near term intelligence structures and capabilities. This presented new challenges for the commanders. Now, BCT Commanders are responsible for providing operational focus and actionable intelligence that once came from higher. They must ensure the intelligence is accurate and timely to reduce the risk for mission requirements. The challenge became how to provide the unrestricted access to the BCT Commander. QRC provided the solution through DCGS-A (V2).

b. Secondly, U.S. Forces face adversaries that are highly complex and able to quickly adapt to any given situation. They constantly re-evaluate successes versus failures and adjust their operations for the maximum impact on U.S. and Coalition forces. In addition, adversaries possess the capability to acquire and manipulate various types of networks (e.g. electronic, human) to their advantage. This complicates the adversary's profile and challenges the U.S. forces' ability to predict enemy courses of action (COA). This ability to leverage various networks provides adversaries the advantages of unpredictability.

c. Finally, the enemy's ability to leverage the complexity of urban and provincial domains to their advantage allows them to remain camouflaged to collection resources. This presents an ISR challenge to U.S. and Coalition Forces.

d. DCGS-A allows Commanders to mitigate these diverse challenges with essential capabilities (e.g. leverage more collection quickly and counter threat actions). These capabilities enable Commanders to disrupt the adversary decision cycles and shift the operational advantage back to U.S. Forces. The results, listed below, allow three main ideas to meet the commander's needs through DCGS-A:

1.) Reduce Risk to U.S. Forces

2.) Flatten Network Communications

3.) Greatest Impact felt at the lowest level

1-4. MAIN IDEA

a. The Army's transformation from a division centric to a modular, expeditionary, brigade-centric force placed the BCT at the center of current and future combat operations. While operational focus was on the BCT, the level of information access stopped at division.

b. REDUCE RISK: DCGS-A reduces or mitigates risk by providing robust access to information that is of greater volume, variety, and fidelity; therefore facilitating precise and timely decision-making. Effective planning reduces uncertainty when informed by accurate intelligence and allows Commanders to mitigate risk presented by the enemy.

Essentially, as situational awareness increases, the level of risk decreases. The problem is having access to that information.

c. FLATTENED NETWORK: Historically, brigade and battalion Commanders were slow to receive relevant threat information to execute missions. Often times, requests for information (RFI) were left unanswered due to stove piped congestion. Consequently, this left Commanders to rely on their experience to fill the information gaps before and during their decision cycles. With an evolving, proactive, and highly responsive adversary, this created higher risks. Faced with a versatile adversary, Commanders require direct access to processed intelligence data (i.e., threat warning and locational data), as well as a conduit to receive analyzed information to have the advantage in the operational environment. In addition, Commanders may need to redirect ISR assets to fully assess the operational environment. Timely access to critical combat information and intelligence provides Commanders and Soldiers with detailed situational awareness.

1.) The DCGS-A network enabled structure provides access to the multiple databases and near real time (NRT) direct links from collectors. This access provides an unprecedented conduit to ISR sensors and databases. In addition, this access is not only to Army information but also to Joint, National and Coalition forces' information. The improved access empowers Commanders with NRT intelligence at the lowest command level. This capability sharply enhances the lethality, survivability, agility, versatility, and sustainability of the force and enables more timely and precise application of combat power. For example, intelligence analysts simply take the Commanders RFI and query, using the DCGS-A access to database repositories, for answers that previously were left unanswered.

d. GREATEST IMPACT FELT AT LOWEST LEVEL: Commanders plan missions to obtain the advantage in the operational environment. Previously, restricted information and intelligence limited the knowledge base extendable to the Soldiers executing the missions. Consequently, Soldiers executed missions in a disadvantaged state and walked into many lethal situations that were avoidable with more critical and NRT information available.

1.) DCGS-A provides commanders, including those at BCT and lower levels, an unprecedented access to this critical information, thus extending the flow of information and knowledge down to the Soldier. This enhanced information, knowledge, affords the Soldier to have a greater situational awareness. More importantly, Soldiers lives are saved and risk greatly reduced by this access, because Commanders now can plan the mission down to the most critical probable change in enemy activity.

2.) The Operational View One (OV1) illustrates how DCGS-A incorporates these three main ideas described above in creating a network-enabled capability to the Future Force. DCGS-A allows combat information and intelligence to be available on the same network and linked to the lowest tactical level.
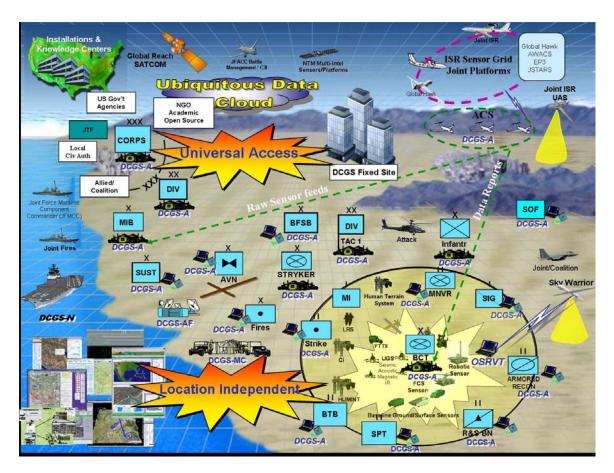
Figure 1-1. DCGS-A OV-1 and Future Force.

Chapter 2

FUNCTIONALITY

2-1. ISR COMPONENT OF BATTLE COMMAND

a. DCGS-A is the ISR component of the modular and future force BCS and the Army's primary system for ISR tasking of sensors, processing of data, exploitation of data, and dissemination of intelligence (TPED) information. DCGS-A provides critical battle information about the threat, weather, and terrain at all echelons. DCGS-A will provide the capabilities necessary for Commanders to access information, task organic sensors, and synchronize non-organic sensor assets with their organic assets. These services will be shared by Commanders across an enterprise (provided by the Network-Centric Enterprise Services (NCES)) using the DCGS Integration Backbone (DIB) to enhance interoperability of ISR information.

b. DCGS-A will provide continuous acquisition and synthesis of data and information from Joint, Interagency, Intergovernmental, and Multi-national (JIIM) sources that will permit Commanders to have an updated and accurate picture of the operational environment. This will allow Commanders to maximize their combat power and enhance their ability to operate in an unpredictable and changing environment throughout the operational spectrum.

c. DCGS-A will provide critical accessibility to combat information as the ISR component of Battle Command. By providing a two-way information flow from the BCS to the intelligence enterprise, DCGS-A will enable the intelligence enterprise the accessibility to surveillance and reconnaissance obtained through non-military intelligence collections.

2-2. COMMON ANALYST TOOLS

a. Providing unrestricted access to intelligence information to the Brigade Commander has always been a challenging process. Historically, the ability to provide critical NRT intelligence took 30 military intelligence vehicles manned with over 100 Soldiers to produce the situational awareness and resided at the division level. The composition of a brigade could not handle such an increase in footprint. However, DCGS-A has reduced this footprint to approximately seven vehicles. By incorporating various programs of record (POR) into one system, this allows Commanders to equip the analyst, instead of manning the equipment. One of the ways this occurs is by reducing duplicate functionality and providing common analyst tools.

b. Formerly, analysts were required to have specialized training on specific operating systems to maximize the full effect of an operational intelligence community. The common tasks of analyzing, mapping, and disseminating finished products were

accomplished in completely different ways. An example of this is the process it would take to provide actionable intelligence to the BCT. The Human Intelligence (HUMINT) collector would input his data into a HUMINT system. He would use his own mapping and analytical tools to produce a product. Analysts would attempt to pass the product through a different communication support system. Unfortunately, his products were not compatible with the All Source Analyst's system and would often be unactionable or lost due to data incompatibility. Unless the All Source Analyst directly spoke to the HUMINT teams, this information was not included in the COP. For example, critical information about the pattern of life or social tendencies was not included in the actionable intelligence and would leave patrols or tactical HUMINT teams (THT) exposed.

c. DCGS-A provides common tools to assist in providing all analysts a greater understanding of each discipline and enables cross training. Common tools enhance analyst's ability to share data and information and to collaborate on answering the Commander's PIR. These tools support a central DCGS-A concept of teaming to solve problem sets vice depending on the current discipline-centric approach. This increases awareness within the operating cell and leads to more precise collection plans, and situational development.

2-3. SENSOR INJECTS

a. DCGS-A replaces multiple stove-piped sensor catcher mitts for intelligence, surveillance and reconnaissance with a single ground station capability that is tailorable to the mission. DCGS-A provides a central information point by incorporating various POR into one system allowing for ground base operating stations for sensors to deposit information into one central location.

b. While serving as the central inject point DCGS-A also provides the tools for the unique intelligence processing techniques while simultaneously enabling collaboration with other specific intelligence end products.   DCGS-A allows for various sensor data injects to be readily crossed referenced with other sources in NRT. Through use of one intelligence system, DCGS-A, Commanders can now equip their analysts at the lower echelons, with common tool sets, without increasing the footprint.   Therefore, an unprecedented amount of information and knowledge is available to them. Analysts can provide a more defined operational picture for the Commander and the Commander can quickly identify gaps and redirect the sensors to collect in those areas where his knowledge may be limited.

Chapter 3

DESCRIPTION

3-1. DCGS-A CONFIGURATIONS

a. The DCGS-A fielding of various configurations extends across BCT, fires, maneuver enhancement, Battlefield Surveillance Brigade (BFSB), aviation and sustainment organizations. The fixed, mobile, and embedded configurations allow Commanders to have a better awareness and enable understanding of the operational environments in NRT. Figure 3-1 illustrates various configurations.

Figure 3-1. DCGS-A Configurations

b. <u>FIXED</u>: The fixed configuration leverages the power and stability of sanctuary for the most complex processing and analytic tasks. Additionally, it provides the greatest historical data repository. Aligned geographically, INSCOM Theater Brigades host these fixed sites. Additional sites exist primarily for redundancy and accessibility. The fixed DCGS-A configurations facilitate reach and split-based operations by providing the "heavy lifting" intelligence analysis and strategic planning from stationary locations.

Regionally focused, fixed DCGS-A performs a dedicated overwatch function for operationally engaged units. The fixed configuration connects other variations of DCGS System of Systems, and National Sources through provided communications.

c. MOBILE: The mobile configuration of DCGS-A provides a tactical, deployable capability to deliver responsive, forward support to Commanders from BN through operational headquarters. Analytical tools, sensor inject, data storage, and integration with other BCS are the highlights of the Mobile configuration. The configuration is the "access" point or intelligence service provider for ISR data and information in theater. DCGS-A via its analysts will provide the Commander with timely and accurate targeting information, intelligence products and predictions on probable enemy COA. Mobile DCGS-A provides a wide range of ISR capabilities including direct downlink of select DCGS baseline sensors, robust tasking, posting, processing, using (TPPU) tools, and advance ISR analysis capabilities directly support tactical and force protection operations. Mobile DCGS-A is scalable and tailorable based on mission, enemy, terrain and weather, troops, time available and civilian considerations (METT-TC). Lastly, DCGS-A Mobile has the capability of receiving "plug" augmentation for increased capability while remaining connected to various networks through provided communications.

d. EMBEDDED: The embedded DCGS-A software on BCS enables the connection of the intelligence enterprise with the battle command network (e.g. FCS). Embedded software provides battalion and company intelligence efforts unprecedented access to data never before available. Historically, surveillance and reconnaissance collected from non military intelligence sources was not available to the intelligence enterprise. The embedded software provides the shared access to both battle command and the intelligence enterprise. This ability enables a more complete picture of the operational environment to the commander. Embedded software capabilities provide commonality and standardization to improve interoperability, reduce training time, and increase sustainability across the Future Force. It resides on local workstations and is available through the network. The network secures the embedded software through user access and permissions.

3-2. WHERE WE ARE AT IN DEVELOPMENT

a. DCGS-A follows an evolutionary acquisition strategy to develop and field capability incrementally throughout its life cycle.

1.) The initial DCGS-A effort improved on interoperability between current force systems and related modifications to POR. Initial DCGS-A efforts also included the integration of the Joint Intelligence Operations Capability-Iraq (JIOC-I) QRC. This product, renamed DCGS-A Version 2 (V2), was fielded to OIF/OEF units in FY 06-07 and provided access to over 200 data sources. The next DCGS-A step was the development and fielding of Version 3.0 hardware and software, which added the DCGS Integration Backbone (DIB) as well as two-way Battle Command interoperability. DCGS-A Version 3.1 (V3.1) adds Joint interfaces, will be fielded worldwide beginning in FY 09, and will displace ASAS-Light. The initial DCGS-A effort also included

standing up a fixed facility capability at each of the Army Military Intelligence Brigades (MIB).

2.) The current DCGS-A effort develops, produces and fields a DCGS-A Mobile (vehicle mounted and deployable) capability in two increments: the Mobile Basic and the Mobile Extended. The Army's rational for separating the developmental efforts is to provide a mobile BCT focused capability to the force as early as possible while reducing risk associated with achieving specific attributes where technology readiness levels (TRL) would delay fielding of the capability of the Force.

3.) The follow-on DCGS-A Mobile Extended effort will integrate capabilities provided by other Office of the Secretary of Defense (OSD) programs, will provide the embedded ISR capability to Army Battle Command and FCS; the ground station capability for the Aerial Common Sensor; and a DCGS-A capability throughout the force. The Army anticipates a milestone B decision for the DCGS-A Mobile Extended in FY12.

Chapter 4

CONCLUSION

4-1. CONCLUSION

a. Access to the Intelligence Enterprise is through the DCGS-A. Commanders, at all echelons, focus on achieving precise situational understanding. This places increased emphasis on dynamic updates of the situation to support on-going operations, contingency planning, development of force packages, and knowledge or awareness to the Commander and staff. DCGS-A provides the Commander the linkage to the three Main Ideas of this Handbook: Reduced Risk, Flattened Network, and the Greatest Impact at the Lowest Level. Commanders depend on the ability of the ISR system to surge/focus collection and analysis efforts leading towards increased situational awareness thus **Reducing Risk**. DCGS-A through a **Flattened Network** provides the capability to all Commanders, especially the **Lowest Level**, to drive the intelligence process and to better articulate their PIR. The ISR cycle can focus on these PIR and answers them in less time through DCGS-As access to NRT information. DCGS-A provides the access to more information, provides improved analytical tools, and leverages communications, which lead to increased knowledge and awareness.

b. DCGS-A, the Army's Intelligence Flagship system, is in the hands of Soldiers today and is relied upon by Commanders to help them in receiving timely, accurate actionable intelligence thus enabling them to meet combat objectives. DCGS-A, knowledge based, Commander driven, Intelligence for the Warfighter.

c. This Commander's Handbook for DCGS-A is a living document. It will continue to evolve as the system continues to grow. This particular handbook is an overview of the DCGS-A capabilities it provides primarily to the commander. It does not address any particular version of DCGS-A, rather it address the benefits of employment of DCGS-A as a whole.

d. The proponent of this publication is the U.S. Army Intelligence Center and Fort Huachuca. We welcome your comments and recommended changes at any time. You may email them directly to the proponent at james.harper@us.army.mil or mail them to: Commander, U.S. Army Intelligence Center and Fort Huachuca (ATZS-CDI-S), Fort Huachuca, Arizona 85613-6000.