Concept of Operations (CONOPS)

THE DEFENSE READINESS REPORTING SYSTEM (DRRS)

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Office of the Secretary of Defense,
Personnel & Readiness

DRAFT Ver 5

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EXECUTIVE SUMMARY

The FY 2003–2007 Defense Planning Guidance (DPG) directed the Department of Defense (DoD) components to develop guidelines and procedures for a comprehensive readiness reporting system that evaluates readiness on the basis of the actual missions and capabilities assigned to the forces. DoD Directive 7730.65, "Defense Readiness Reporting System" (DRRS) establishes a capabilities-based, adaptive, near real-time readiness reporting system for the DoD. This system is designed to measure and report the readiness of military forces and supporting infrastructure to meet missions and goals assigned by the Secretary of Defense.

The Secretary of Defense has directed that DRRS reflect a "transformational" response to significant changes in the strategic environment. The Department is increasingly focusing on joint operations, adaptive planning, and rapid tailoring of forces, hierarchies, and organizations to respond to the rapidly changing challenges to our national security. Technological advances enable and demand more responsive, adaptive processes that respond to a changing strategic and operational environment.

DRRS assesses the readiness of forces to carry out actual missions and assigned tasks on an individual and collective plan basis, including the ability to assess the Department's readiness to execute the multiple missions that compose the National Military Strategy (NMS). DRRS is designed to answer the question: "Is your organization ready today to execute it's assigned mission, is it ready to bring the expected capabilities to the joint fight?" DRRS measures an organization's readiness to provide needed capabilities for missions, as expressed by the organization's Mission Essential Tasks (METs) and Mission Essential Task List (METL). The assessment of an organizations ability to execute it's METs and METL to a prescribed standard are at the heart of readiness management in DRRS.

DRRS is a network of interdependent programs, processes, applications, and systems that enable and support readiness-related decision making. DRRS establishes the "framework" of architectures, databases, tools, networks, and information technologies that provide the backbone for the DoD's readiness measurement, assessment, and reporting and readiness-related decision support.

This CONOPS describes the operational concept of DRRS and should be used in conjunction with the DRRS Initial Operating Capability (IOC) Implementation Guidance and the DRRS Users Manual.

1. STRATEGIC CONTEXT

1.1 THE CHALLENGE

The transition from industrial age warfare with it's emphasis on mass, to information age warfare with it's emphasis on the power of distributed network forces and shared situational understanding is transforming warfare. This dramatic transformation of the strategic and operational environment has driven an equally dramatic transformation in how we organize, equip, train, and employ our military forces and DoD organizations. The Secretary of Defense described the outcome we must achieve in the Transformation Planning Guidance: fundamentally Joint, net-work centric, distributed forces capable of rapid decision superiority and massed effects across the battlespace. DoD's overarching transformation provides a unique and timely opportunity, if not a mandate, to transform how the Department measures, assesses, and reports its readiness, and how it uses readiness information in the processes of planning and contingency response. Recent contingency operations have reinforced the urgent need for a modernized readiness management system that can provide accurate, relevant, real-time information for use in responding to crises. Such information is needed not only in the planning of contingencies but also in assessing the risks of multiple simultaneous contingencies in the context of the Defense Strategy.

1.2. FORCE IMPLICATION

DoD has transitioned to a capabilities-based planning process that accounts for greater uncertainty in threats and enemy capabilities. DoD organizations and forces can no longer prepare for known missions against known threats, in the full spectrum environment they must be ready to operate at any point on the Range of Military Operations (ROMO), and transition along the range frequently and quickly. An organization brings the same capabilities to any point on the ROMO, these capabilities are built upon and described by Mission Essential Tasks (METS) and Mission Essential Task Lists (METLs). Net-centric operations and shared situational awareness increase the speed of decision making and operations, and also blur the traditional lines between planning, operations, training, and readiness. The move to Joint interdependence and the expansion of Joint to JIIM (Joint, interagency, Intergovernmental, and Multinational) increases the community involved in planning, training, and readiness assessment.

1.3. READINESS IMPLICATION

Just as DoD has transitioned from deliberate to adaptive planning, we must transition from static readiness snapshots in a stand-alone readiness reporting system to a net-centric, information sharing, readiness management system. This readiness management system must be based on capabilities and METs, and answer the fundamental question: Is your organization ready today to execute it's assigned mission, is it ready to bring the expected capabilities to the joint fight? Readiness management must be seamlessly integrated with the planning, training, and operational execution functions.

2.0. DRRS STRATEGIC CONCEPT

2.1. DRRS MISSION

The mission of DRRS is to provide a mission-focused, capabilities-based, common framework that provides the combatant commanders, military services, Joint Chiefs of Staff (JCS), and other key DoD users a data-driven environment and tools in which to evaluate, in near real-time, the readiness and capability of U.S. Armed Forces to carry out assigned and potential tasks.

2.2. DRRS VISION

DRRS establishes a DoD readiness management system focused on assigned missions and the capabilities the organization is expected to bring to the fight. Fully integrated with and transparent to the planning and operational communities, DRRS enables commanders and planners to look across DoD for desired capabilities and the associated organizations that contain them, assess in near real time the organization's ability, availability, and readiness to provide that capability, then seamlessly integrate with planning and execution. DRRS supports rapid plan assessment, analysis of alternative Courses of Action (COAs), risk assessment, and the ability to drill down into the details of an organization's readiness assessment.

2.3. Key DRRS Attributes

Mission Focus. DRRS assesses the readiness of forces to carry out actual missions and assigned tasks on an individual and collective plan basis, including the ability to assess the Department's readiness to execute the multiple missions that compose the National Military Strategy (NMS). DRRS answers the question; Is your organization ready today to execute it's assigned mission, is it ready to bring the expected capabilities to the joint fight? Readiness assessment in DDRS is unambiguous; the answer to the question is expressed as Yes, Qualified Yes, or No.

Capabilities-Based. Organizations bring the same capabilities to any point on the Range of Military Operations (ROMO). DRRS measures readiness to provide needed capabilities for missions, as expressed by the organization's Mission Essential tasks (METs) and Mission Essential Task List (METL). DRRS allows planners and decision-makers to look across DoD for required capabilities, identify organizations with those capabilities, then determine the readiness of the organizations to provide the capability.

METL Assessment. The assessment of an organization's ability to execute it's METs and METL to a prescribed standard are at the heart of readiness management in DRRS. An organization's METs and METL are linked to and support higher level METs and METL, ultimately linking to the Joint Force Commander's Joint Mission Essential Tasks (JMETs) and Joint Mission Essential Task List (JMETL). METL and JMETL development are based

on tasks drawn from designated authoritative data sources; The Universal Joint Task List (UJTL) and Service authorized universal task lists

Output Orientation. DRRS expresses readiness in output-oriented terms by measuring performance of Mission Essential Tasks (METs) and Joint Mission Essential Tasks (JMETs) under stated conditions and standards.

- **Joint/Total Force Perspective.** DRRS provides readiness management to the DoD Components - Office of Secretary of Defense (OSD) policymakers, JCS staff, the Combatant Commands, Services, Defense Agencies, the DoD Field Activities, and all other organizational entities within the Department of Defense. In the future DRRS will reach out to Interagency, Intergovernmental, and Multinational organizations.
- **Increased Reporting Scope.** DRRS expands the readiness assessment base horizontally and vertically:

  – Horizontally, it includes all forces, agencies, organizations, and infrastructures that impact on readiness of forces to execute missions. Thus, it includes installations, infrastructure, and below-the-line forces that support or sustain a mission-engaged force.

  – Vertically, it extends reporting downward from the current unit definition to a construct called the capability entity—the lowest level at which the collection of personnel and equipment gives the capability to execute one or more tasks that compose an identifiable capability. Most commonly, this would be at the level at which the capability entity would be separately deployed. Examples might be the Air Force Unit Transportation Code (UTC) or the Army derivative unit identification code (UIC). Although all capability entities would be reported, the reporting responsibility would remain at the level of organization that provides sufficient command and control capability to do so.

Role of the Commander. DRRS recognizes the central role that Commanders play in the development of trained and ready forces. Commanders develop METs and METL, commanders assess their organization's ability to execute the METL and provide the required capability to the Joint effort. DRRS processes and technologies will be designed in such a way as to minimize the demands on commanders' time for additional information.

Net-Centric Operations. DRRS enables the broad sharing of information, and provides decision makers common access to the most up-to-date information possible, leading to shared situational awareness. DRRS applications and applicable data sources are Web-service enabled to comply with the National Information Infrastructure (NII) guidance on net-centric operations.

Collaborative Environment. DRRS provides sophisticated collaboration technologies for the viewing, reporting, and management of readiness status reporting, but also the use of readiness information in building forces for response to contingencies.

Near Real-Time. By leveraging leading-edge technologies and methodologies (e.g., service-oriented architecture, Web services, intelligent agents, Common Extensible Markup Language [XML] Data Vocabulary), DRRS provides high-quality readiness information to decision makers on demand, which will provide the time and capability to make more reasoned decisions.

Rapid Plan Assessment. DRRS allows combatant commanders and planners to evaluate the readiness and capabilities of units, individually and collectively, and to identify capability gaps in near real-time. DRRS provides a framework for the development of plans for response to contingencies, independently, and in the context of other ongoing or required missions.

Wargame Analysis. DRRS provides decision makers the capability to conduct sensitivity analyses that test "what if" situations rapidly to help determine the viability of alternative courses of action.

Protection of Bandwidth. DRRS will use leading-edge technology to gather and present information directly from data systems whenever a DRRS process occurs. DRRS design will strive to minimize demands on bandwidth in this net-centric approach.

Leveraging of Existing Capabilities. Much of DRRS process and network already exists in some form. In developing and implementing DRRS, the Department will leverage existing capabilities as it incorporates a more joint and collaborative perspective and augments and enhances them with advanced information technologies.

No Loss of Functionality. The resource display of DRRS will allow users to retain the key functionality currently in the Global Status of Resources and Training system (GSORTS).

2.4. RAPID SPIRAL DEVELOPMENT

DRRS will be developed and implemented using the "build-a-little, test-a-little" approach known as rapid spiral development, an interactive process among users, testers, and developers. A successively building readiness management environment will be established as a means to achieve the full implementation of DRRS. The successively building readiness management environment is marked by three major waypoints: 1) Establishment of a task-based METL assessment construct; 2) Full implementation of ESORTS; and 3) Total Force readiness management transparency with planning and operations.

THE FY 2006-2011 STRATEGIC PLANNING GUIDANCE (SPG) DIRECTS THE SERVICE SECRETARIES, DIRECTORS OF THE COMBAT SUPPORT AGENCIES,

AND THE JOINT COMMUNITY TO BEGIN REPORTING MISSION READINESS AND FORCE MANAGEMENT DATA IN DRRS ACCORDING TO MISSION ESSENTIAL TASKS (METS) BY 30 SEPTEMBER 2004. AS PART OF DRRS DEVELOPMENT AND IMPLEMENTATION GSORTS IS REPLACED BY ESORTS, HOWEVER GSORTS WILL CONTINUE TO SERVE AS THE RESOURCE AND UNIT MONITORING SYSTEM FOR DOD UNTIL DRRS IS FULLY OPERATIONAL IN 2007. DETAILED MILESTONES AND TIMELINES ARE FOUND LATER IN THIS CONOPS AND IN THE DRRS INITIAL OPERATING CAPABILITY (IOC) IMPLEMENTATION GUIDANCE.

2.5. INTEGRATION WITH RELATED PROGRAMS AND EFFORTS

DRRS is a key piece of the broader DoD transformation effort and is integrated with a number of ongoing DoD initiatives that seek to transform processes, data, and tools used for planning, deployment, and force management. Some of these initiatives will be consumers of information found within DRRS, whereas others will generate data for use in the DRRS suite. DRRS is being developed to integrate fully with existing systems and processes such as the Joint training System, Joint Training Information Management System, and the Training Transformation initiative

An ongoing Adaptive Planning initiative led by the Office of the Under Secretary of Defense for Policy and the Joint Staff (J7) seeks to compress the timelines associated with planning and make the process more adaptive or flexible. Adaptive planning will enable the rapid creation or revision of plans to address changing strategy, threats, and capabilities. The planning community will need timely and accurate information about the capabilities of forces in making crisis-planning decisions, such as course of action development. DRRS is designed to be a key enabler to these decisions.

JFCOM is leading a series of initiatives to transform joint deployment, employment and sustainment processes by combining them into a single, joint, continuum of activity. This Joint Deployment, Employment, and Sustainment (JDES) initiative will design a new joint deployment process that streamlines existing processes and creates greater speed, accuracy, visibility, and agility in joint deployment planning and execution. The JDES initiative will also create a database architecture and access key databases to enable these processes. DRRS will not only provide readiness information to support transformed joint deployment, employment, and sustainment processes, but also leverage JDES database architecture development.

The objective of the Global Force Management (GFM) initiative is to create greater visibility of force management data for key decision makers. Critical force data must be maintained in a net-centric environment and be timely, reliable, and authoritative. DRRS will continue to partner with the GFM community of interest to meet mutual objectives.

Joint Command and Control System (JC2) will represent the evolution of DoD's command and control tool (GCCS-J) from its current state of joint and service variants to a single joint C2 architecture. It plans to provide joint mission capability packages and service-unique applications based on global information grid (GIG) enterprise services and an SOA. Readiness is one of

JC2's mission capability packages. DRRS can provide much, if not all, of the readiness capability called for by JC2, as currently defined in its Operational Requirements Document.

3.0 DRRS OPERATIONAL CONCEPT

DRRS is a readiness management system that provides near real-time readiness information and assessments in conjunction with adaptive planning[2] for commanders to use in making their readiness assessments, planning, and operational decisions. DRRS reports readiness of forces from lowest capability entity to high-level aggregations culminating at the COCOM level. A network of tools, applications, and data working in a net-centric environment (Figure 2-1) the DRRS suite is enabled by the same type of tools that support Internet e-commerce. The suite's foundation is a collection authoritative databases that provide users access to current data. These data feed a collection of applications that allow commanders to report mission assessments, conduct sustainability and risk analyses, and carry out adaptive planning.

Basic DRRS applications include:

- A **user-specific homepage** that displays general dashboard-level information about the user's organization and current status, and serves as a point of entry into the rest of the DRRS suite.
- **ESORTS**. ESORTS contains a MET / METL development tool, capability assessments, and access to a wide range of resource information about personnel, equipment, supply, training, ordnance, infrastructure, location, and campaign plan data. This information is critical to an accurate risk assessment by the commander and provides key information to support warfighter decision making. ESORTS will be the Department's primary vehicle for reporting the ability of an organization to execute it's METL, and conduct assigned missions.

DRRS contains a series of force management tools designed to illustrate potential consequences of current force status and assess alternative courses of action including the modification of plans. The analyses and adaptive planning suites will provide context, if not consequence, to readiness deficiencies. DRRS contains three broad categories of management tools:

- A **sustainability analysis suite** that contains a series of models or other simulation-type tools designed to allow users to analyze the limitations of infrastructure, mobility, and critical supplies.
- A **risk assessment suite** containing tools designed to highlight specific operational consequences of capability deficiencies for individual war plans or the security strategy as a whole. These plan assessments use real unit data gathered from ESORTS as well as current feasibility information gleaned from the sustainability analyses described above.
- The **adaptive planning suite** that supports rapid, adaptive planning based on current unit-level information provided by ESORTS. These capabilities are illustrated in the right half of Figure 3-1.

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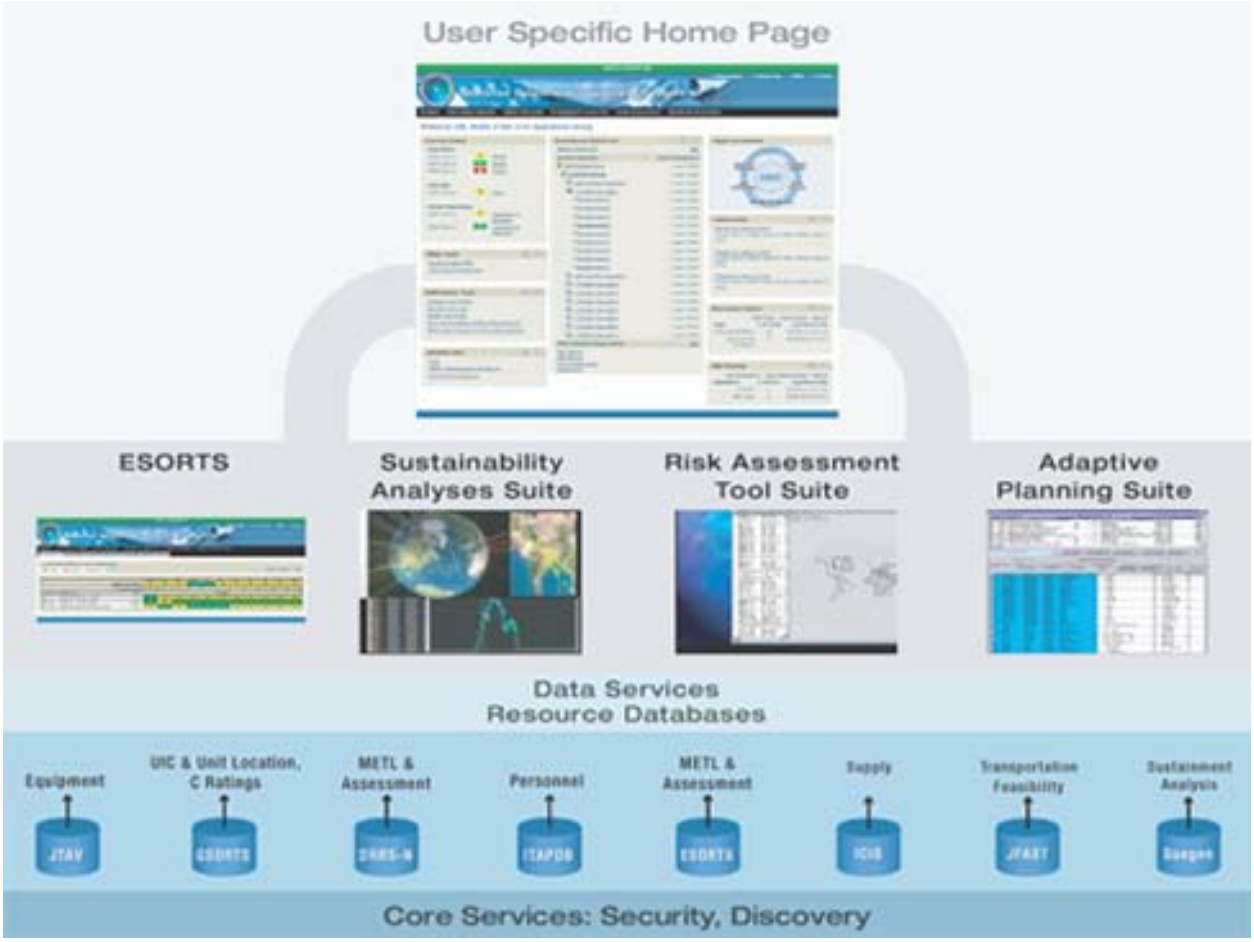
Figure 3-1. DRRS Operational Concept



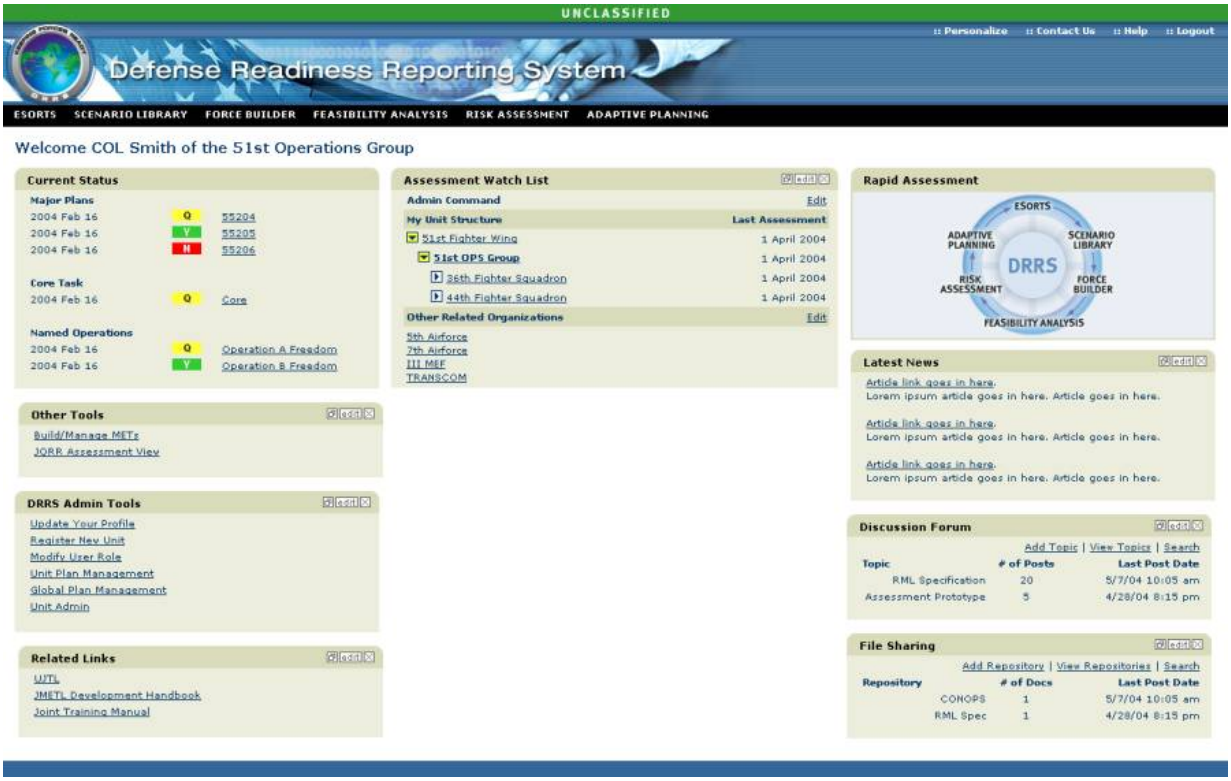
3.1. THE USER SPECIFIC HOMEPAGE

Once logged in to the DRRS system, the commander of each reporting organization enters a homepage specifically tailored to provide summary information for that unit as shown in Figure 3-2. Aside from basic identifying information, this dashboard level view provides the following:

- **The command structure for that organization.** "Family tree" displays serve as a means for accessing the homepages of other organizations in the command structure. Initially, this field will contain a default administrative command chain using information from the Command Forces Data Base (CFDB). Users will be able to modify this structure in the event that it does not accurately reflect their current structure. Future spirals will include similar accommodations for operation-specific command structures.

- **The current location of that unit.** Initially this information will be pulled from GSORTS. Eventually, units will enter their location (latitude and longitude). The periodicity will be tied to the assignment of movement orders. When an organization receives a movement order, they will report their updated location when they arrive at the required destination.
- **Top-level capability assessments of the organization's current assigned mission(s) and core tasks.** Current assigned missions could include either major war plans or other named operations. The user will be able to use these top-level displays to access more detailed assessments through ESORTS. We will describe how these assessments are made in the next section.
- **Access to force management tools.** Many users will have access to tools providing support for sustainment and risk analyses as well as adaptive planning.
- **Notifications and alerts.** Commanders will be able to send notices to other units. For example, a commander could notify subordinate commanders that they need to conduct a new assessment. They will also have the ability to set up automatic alarms when key measures cross defined thresholds. Commanders could program these alarms for their own unit or for subordinate units.

Figure 3-2. DRRS User Specific Home Page



3.2. ESORTS

DoD components will use ESORTS to determine and communicate their organization's status and mission capabilities. The unique integration of missions and resources in ESORTS is designed to assist commanders in assessing their unit's ability to conduct both core tasks and directed operations. Each organization will describe their required capabilities using the construct of METs, the assessment of their ability to execute those METs forms the basis of readiness determination and reporting. In addition to the current assessment, each organization's commander will have the opportunity to warn of an impending change of status (in either direction) and the timeframe when that change might occur. If the commander determines that his organization will have a resource deficiency or important skills are about to expire, he will be able to report his unit capable of performing the mission today, but potentially incapable a month from now.

3.2.1 Developing METL and JMETL

Recent events highlight the uncertainty of the type and duration of missions facing the Department, it is clear that it is as important to assess the possibility of responding to potential missions as it is to understand the ability to conduct assigned missions. To answer the question "Is your organization ready today to execute it's assigned mission, is it ready to bring the expected capabilities to the joint fight?" commanders will focus their reports on their ability to execute Core Tasks, Major War Plans, and Directed Missions. These three categories, expressed as METs form the basis of METL development.

Core tasks. Core tasks are the baseline of METL development, they allow an organization to operate at any point on the range of military operations. Core tasks refer to the basic capabilities or tasks that the organization was designed, equipped and trained to provide. These are called primary mission areas in the Navy, designed operational capabilities in the Air Force and core competencies in the Army. Units below the Joint level will base their assessments on core tasks that support the capabilities that the organization was designed, equipped, and trained to provide. COCOMs and CSAs will base their assessments on those JMETs that support their everyday mission, e.g. Theater Security Cooperation Plans.

- **Major war plans.** These are the most detailed (level IV) plans as described in the *Contingency Planning Guidance*. Any unit assigned or apportioned to level IV plans will assess their ability to conduct the tasks and missions given them in the plan. The commander checks the baseline METL derived from core tasks and adjusts as needed to add additional METs generated by the warplan. Units not assigned or apportioned to a major war plan will not report against one.

Current operations. An organization designated for, or involved in, a current operation other than a level IV plan will assess their ability to conduct their role in those operations. When assigned a mission or deployment that may require specific or additional skills (OIF,OEF,SFOR, homeland security), the commander revises the unit's METL accordingly.

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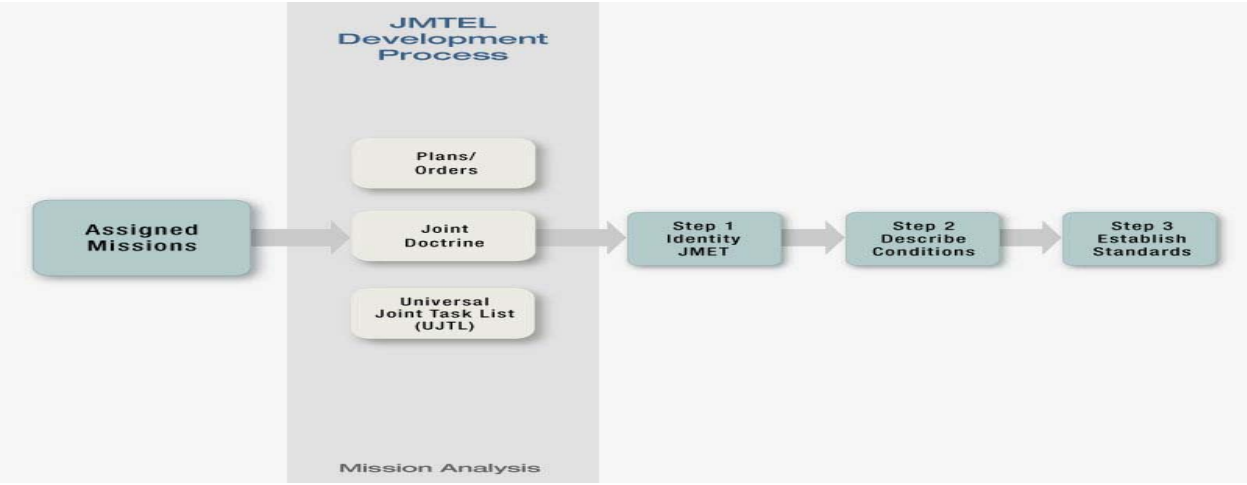
Consider the case of an Army artillery unit not currently apportioned to a major plan or assigned to a named operation. That unit will assess their ability to execute their core tasks centered on providing timely fire support. If apportioned to a warplan that involves tasks outside the core tasks (river crossing, precision fires) the commander would add the appropriate tasks to his METL. If this artillery unit was designated for a named operation involving peacekeeping, where they park the artillery tubes and man check points and conduct convoy security, the METL would change to reflect that mission.

Combatant commanders, their subordinate echelons, and supporting agencies will use ESORTS to develop their JMETL or METL. ESORTS provides an interface to choose a task and define the required supporting tasks, conditions, standards, and command-linked tasks. Figure 3-3 illustrates this process for major war plans and named operations.

- Each subordinate echelon draws on the Universal Joint Task List (UJTL), service METLs, and AMETL constructs to develop the task lists for the operation or plan being developed or assessed. If current approved tasks do not support an organization's requirements, the organization should first determine if modifying the conditions or standards of an existing approved task will enable the task to support their requirements. If a new task is required, J7 and JFCOM have an established process for nominating candidate tasks. ESORTS provides a link to facilitate this process to include receiving feedback on the status of the request.
- Supporting combatant commanders, defense agencies, services, and component commands identify required command supporting tasks and command linked tasks and develop their METLs using ESORTS.

Figure 3-3. JMETL/METL Development Process



TO ASSIST ORGANIZATIONS NEW TO THE METS / METL CONSTRUCT THE ESORTS BUILD-METL FEATURE WILL CONTAIN A TURBOMET TO WALK ORGANIZATIONS THROUGH THE PROCESS OF CREATING THEIR BASIC METL(S). THIS INTERVIEW-BASED APPLICATION WILL CONTAIN A VARIETY OF DROP-DOWN MENUS AND OTHER HELP FEATURES. WHEN USERS COMPLETE THE INTERVIEW, THEY WILL HAVE CREATED A METL THAT THEY CAN CHOSE TO UPLOAD DIRECTLY INTO ESORTS. USERS HAVE THE ABILITY TO UPDATE OR OTHERWISE MODIFY THEIR METLS AS OFTEN AS REQUIRED.

3.2.2 Assessment Process

DRRS assesses the readiness of forces to carry out actual missions and assigned tasks on an individual and collective plan basis. DRRS is designed to answer the question: "Is your organization ready today to execute it's assigned mission, is it ready to bring the expected capabilities to the joint fight?" DRRS measures an organization's readiness to provide needed capabilities for missions, as expressed by the three categories of Mission Essential Tasks (Core tasks, Major War Plans, Directed Missions) that form the basis of the organization's Mission Essential Task List (METL). The commander also makes an overall assessment of the organization's ability to execute the METL. The assessment of an organizations ability to execute it's METs and METL to a prescribed standard are at the heart of readiness management in DRRS. These assessments are not the product of hidden algorithms or resource thresholds, they are based on the commander's knowledge of his organization, and the commander's professional judgment. The commander's assessment is informed by his direct observance of the organization's performance, the current and projected status of resources and training, and the assessment of organizations that are subordinate to or support his mission and METL.

DRRS ESORTS assessments are reported in one of three categories: Yes, Qualified Yes, or No, and are based on the following criteria:

YES: The organization can execute it's MET, METL, or mission to standard. It is ready to bring the expected capabilities to the joint fight.

QUALIFIED YES: Used as a commander's upgrade and reserved for cases where, despite information to the contrary, the commander believes he can successfully execute the MET, mission, or METL. A Qualified Yes is like a Yes in that it sends the message that the organization is prepared to execute the MET / METL / capability.

NO: The organization cannot execute the MET / METL / Capability.

Readiness assessment begins at the lowest echelon of capability entity in a tactical or administrative chain of command. In many cases, these capability entities will be below the traditional unit identifier code (UIC) currently reporting in GSORTS. This includes many derivative units, detachments or unit type codes (UTCs). [3] Each unit (either traditional UICs or capability entities as described above) uses ESORTS to record its ability to accomplish the METs describing its role in each mission. These units also assess their ability to conduct the METL (or mission) as a whole. As each of these lower-level commanders records their

[3] Parent units will not include in their own assessments any of the capabilities or assets possessed by independently deployed "child" entities.

assessment in ESORTS, it is instantly available to each echelon in that unit's chain of command. Agency and supporting command assessments populate supported organizations' displays in the same way.

This general procedure of MET and METL assessment is repeated up the tactical and administrative chains of command. In the case of current operations or major war plans, the assessments will culminate with the Combatant Commander's assessment of his ability to conduct the operation. As changes to the METL task assessments are made, they are immediately updated available to the Combatant Commanders and/or other units affected. ESORTS will not only track changes over time by keeping a change history of the MET descriptions and assessments, but also develop MET and METL assessment trend reports.

3.2.3 The Taxonomy of a MET Assessment

DRRS uses the same taxonomy as the training world to develop measurement: Each task is defined according to the conditions under which it must be performed and the standards that describe satisfactory performance. The standards are composed of measures of effectiveness or performance and associated criteria. Consider the example in Figure 3-4.

This example shows the three mission essential tasks listed for the 51st Operations Group (OP 3.2, OP 3.2.5 and OP 3.2.6). As the 51st drafted their METL, the designated appropriate conditions and standards (including measures and criteria) for each task and for each mission. In this case, the standard is composed of two measures of performance. Periodically or at the completion of an exercise, the 51st will enter either their observed performance or, when that is not an option, the level of performance that the commander believes his unit is capable of. In our example, the 51st's current assessment shows that it is performing slightly below the standard listed for the notional numbered plan 55204.

It is important to record actual unit performance because it creates a record of what the unit *can* do that may be far more telling than the achievement of a predetermined threshold value. Reporting this type of information allows decision makers outside the unit to understand what the unit is currently capable of doing.

Figure 3-4. Mission Task Examples

To conduct the overall task assessment, commanders will also need to understand the ability of other entities to provide needed support. There are three categories of this type of supporting task:

- Staff tasks: Tasks performed and assessed by elements within the structure of the reporting unit that are critical to the performance of a given MET.

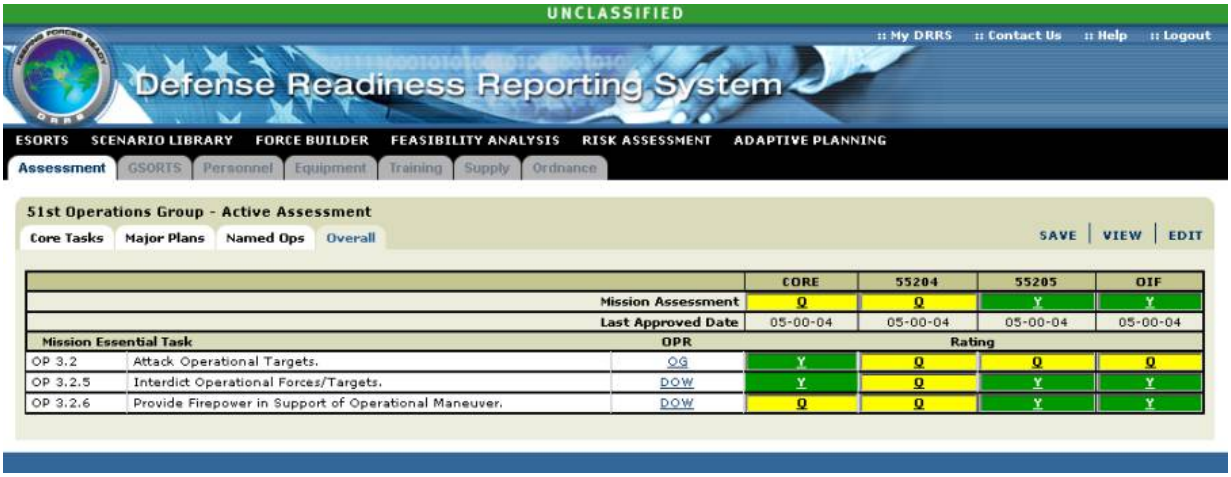
- Subordinate unit tasks: Tasks performed and assessed by subordinate units outside the structure of the reporting unit that are critical to the performance of a given MET. The smaller assessment block in the illustration reflects the “read-only” property of the assessment for our example unit.

- Command linked tasks: Tasks performed and assessed by units outside the command chain of the reporting unit that are critical to the performance of a given MET. The smaller assessment block in the illustration reflects the “read-only” property of the assessment for our example unit.

Figure 3-5 shows a summary assessment view within the ESORTS application. The illustration shows assessments for the unit’s core tasks, two assigned missions, and one on-going operation. The top row shows the unit commanders’ subjective assessment of the ability of their unit to fulfill the responsibilities relevant to each of the listed “missions”. These assessments are, in turn, based on the subjective assessments of each of the mission essential tasks describing these responsibilities and the standards to which they must be performed. Individual task assessments

are based on a variety of information including resource and training status and the units' recent performance relative to standards.

Figure 3-5. ESORTS Mission Assessments



3.2.4 Resource Information To Support Assessment

Commanders use detailed information on the resources available to conduct assigned missions and execute their METL: for example, people, equipment, training status, supplies, and ordnance. Due to the highly complex relationship between resources and capability, ESORTS will not contain resource thresholds or other algorithms that artificially define capability as a function of resource levels. Commanders will use the information provided in ESORTS to determine if their organization can execute required METs and METL. ESORTS contains a variety of resource measures detailing the dimensions of quantity, quality and availability. These measures will not be the familiar GSORTS indexes (C1, C2, etc) although the information to recreate them will reside in the system. Instead, the measures will be just that—measures. Examples include the number of personnel in broad categories such as rank and occupational specialty. Since the measures are constructed at the lowest unit of measurement users will have extensive drill-down capability to narrow their query as desired.

Resource information will be automatically pulled from Service and Joint identified authoritative data sources and presented in the following resource tabs for each unit.

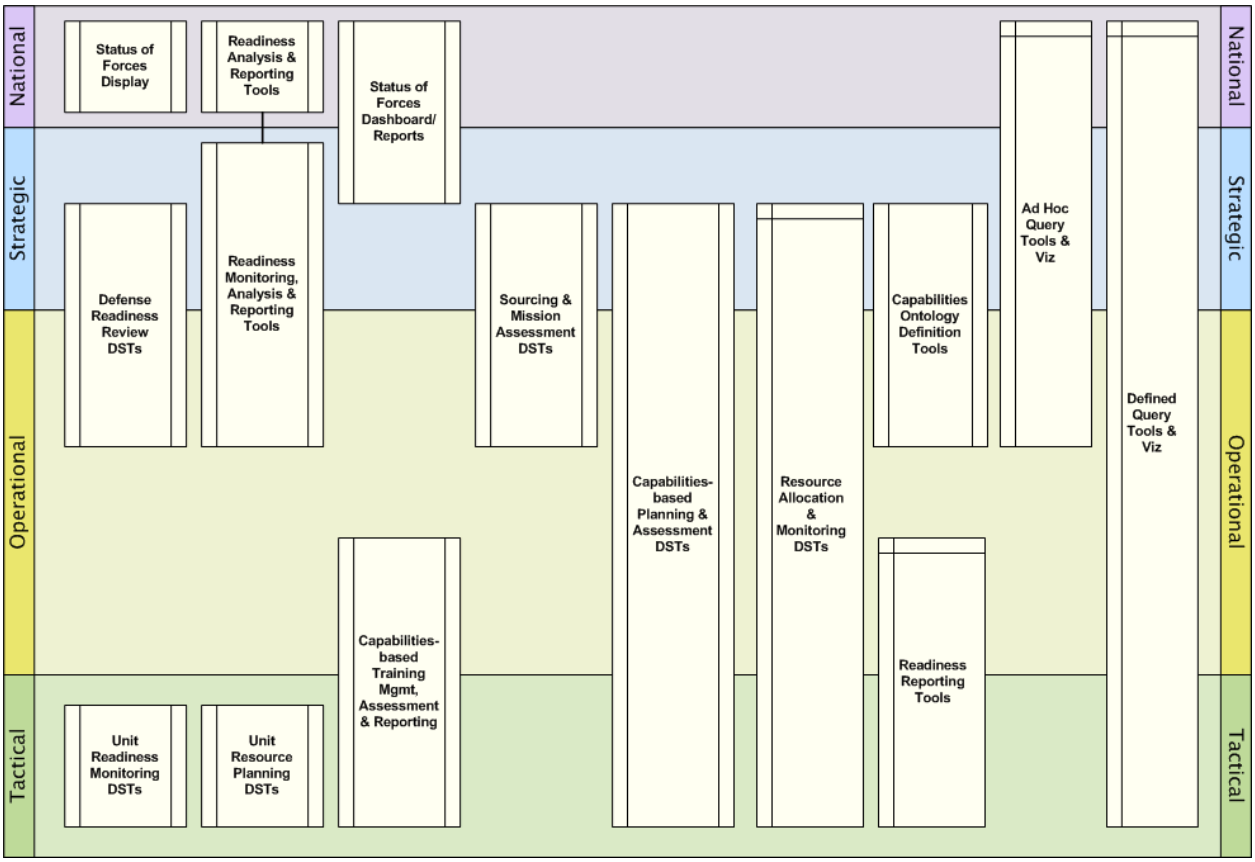
- **Personnel.** Displays include summary information by unit describing required, authorized and on-hand personnel that can be examined in further detail by specific specialty skills, grade, rank, billet, and deployability.
- **Equipment**. Users will see measures describing the status of major items of equipment. Measures include quantities required and authorized, condition, and location. Currently, however, not all services use a common term or data element to identify and report this type of equipment. DRRS is working with other initiatives (e.g. Global Force Management and Enterprise Identifiers) to provide a common means to accomplish this action.

- **GSORTS**. To support the transition to ESORTS, GSORTS data will be viewable for a unit including UIC and unit name, readiness status by each resource area and overall C ratings, and unit location among other GSORTS information.
- **Ordnance**. The required, authorized, condition, and location of mission critical ordnance are displayed in various arrays.
- **Supply.** This category includes readiness-oriented information associated with the classes of supply not explicitly covered in the other categories described here (e.g., fuels, spare parts, and construction materiel). Planners need to be able to combine required missions with availability of fuel and sustainment capabilities to determine feasibility of a potential course of action.
- **Training.** This category provides detailed information on unit training and exercise performance. Users will be able access top-level measures describing who has completed what portion of required training events.

3.3 FORCE MANAGEMENT TOOLS

DRRS will provide or support a variety of visualizations, decision support and reporting tools and assessment capabilities for the readiness community. These tools are expected to service all levels, from National to Tactical Level, though often in very different ways. A high level tool map is provided in figure 3-6. Several of those tools are discussed in greater detail in this section.

Figure 3-6. DRRS High Level Tool Map



DRRS expands the readiness reporting process from simple resource-based reporting to the use of near real-time readiness information and dynamic analysis tools to determine the capability of the DoD to execute one or more operations. This all-encompassing process includes analysis of multiple force apportionment, feasibility analysis, and overall risk analysis (e.g., the impact of a plan's execution on other DoD requirements). DRRS will host existing and developmental analysis tools to support decision makers at all levels. Each of these tools communicates with ESORTS, with primary data sources, and with each other via DRRS' technology architecture.

3.3.1 Sustainability Analysis Tools

Several tools are used throughout the Department to manage potential constraints stemming from limitations in infrastructure, mobility, or critical inventories. These tools will dynamically connect combat support organizations with the capability of units to conduct assigned missions. The DRRS net-centric architecture can give readiness managers easier access to these tools. It also makes it possible to link the tools to authoritative databases creating the ability to conduct analyses with real-time data including those from supporting agency databases.

3.3.2 Risk Assessment Tools

DRRS will also contain tools designed to highlight specific operational consequences of capability deficiencies for individual war plans or for the security strategy as a whole. Again, DRRS's net-centric architecture means that these plan assessments will use real unit data gathered from ESORTS as well as current feasibility information gleaned from the sustainability analyses described above.

The DoD and the JCS conduct periodic assessments by directing combatant commanders, agencies, and services to assess specific plans that support the National Security Strategy.[4] The DRRS risk assessment tools can support these assessments. They are capable of providing detailed, replicable analyses of individual plans or various combinations of plans.

The following describes how these tools work in very general terms:

- The DRRS risk assessment tools begin with an extract from ESORTS describing the current supply of force capability.
- Next, the plan-building phase uses ESORTS and DRRS connectivity to other tools to identify the demand for capabilities.
  - Obviously CPG level IV plans will have more specified capability requirements than lower-order plans. However, these tools are capable of allowing those conducting the analyses (the staff of a Combatant Commander, for example) to build approximations of time-phased force deployment data (TPFDD).
- In simple terms, these tools begin matching the supply and demand for capability described (or implied depending on the level of the plan).
  - Using collaborative tools, those conducting the analyses can choose among units that ESORTS says can supply the required capability for plan assignment.
  - The tools will highlight multiple apportionments, which may cause plan deficiencies.
  - The tools also identify specific risk areas, such as overload of the Defense Transportation System, overuse of low-density/high-demand capabilities and units, and closure profiles.

[4] The security strategy is currently defined as 1/4/2/1: 1=Win Global War on Terrorism; 4=Engagements in four Critical Areas; 2=Swiftly Defeat the Enemy in Two Theaters; 1=Win Decisive in One Theater

- Users can run the tools through multiple iterations to test alternate courses of action, eliminate deficiencies, and build lowest risk solutions. These tools run quickly making multiple iterations a viable strategy.

Assumptions are a natural and unavoidable part of any risk analysis. Any risk tool in the DRRS suite will maintain a log-type file listing all assumptions relevant to each analysis. Users have the ability to re-run the analysis under different assumptions in order to test the sensitivity of their observations.

Users have a variety of options for displaying the products of these assessments. Displays include summary measures such as overall risk ratings, ratings by capability categories, narratives for individual plans. Because the assessments are conducted on extremely disaggregate data, users also have the ability to present detailed graphs of drivers such as high-demand/low-density communities or transportation bottlenecks.

3.3.3 Adaptive Planning Tools

The final suite of tools supports adaptive planning, and, like the other management tools, is fully interactive with all of the other applications in the DRRS suite. The first adaptive planning tool that DRRS will host is Collaborative Force-Building Analysis, Sustainment, and Transportation (CFAST). Other tools will be incorporated as DRRS matures.

CFAST will increase the speed of planning by overlapping planning phases concurrently, enabling parallel planning at all levels, automating calculation and information sharing, and providing for collaboration among different planning organizations. The initial connection of CFAST to ESORTS in DRRS will be the Campaign Plan Interface.

The purpose of the Campaign Plan Interface is to make information available to the Joint Planning and Execution Community (JPEC). The CFAST system will be the source system for this interface. The CFAST system allows joint planners to build and develop a full range of force employment plan options. This level of planning goes beyond the “forces list” that is built within the current Joint Operational Panning and Execution System (JOPES).

Within the CFAST portal, defense planners are presented with sets of specialized software tools that provide collaborative, drag-and-drop interfaces that significantly expedite the process of developing the many aspects of a campaign plan. For example, as users make high-level unit selections, specialized background algorithms analyze the composition and size of the developing force. As appropriate, alert messages are sent to notify planners of emerging problems or new support requirements, or the need to collaborate on an issue. Also, background processes, such as the Plan Balancer, automatically update the campaign plan with airport and seaport assignments and logical delivery dates, taking into account cargo types, geography, transportation, and movement priorities.

Once the campaign plan reaches a certain level of development, U.S. Transportation Command (USTRANSCOM) planners capture snapshots of the developing plan into their transportation analysis system, the Joint Flow and Analysis System for Transportation (JFAST) also running

within the CFAST portal.[5] TRANSCOM now begins its in depth analysis of the transportation aspect of campaign planning. The changes that result from this analysis, such as lift assignments, port assignments, and other issues relating to the global transportation infrastructure, are reported back to the members of the collaboration as alerts, messages, or automatic data updates.

As combatant commanders' staff planners develop the various campaign plans for their area of responsibility (AOR), this information needs to be available throughout the JPEC for analysis and support. The Campaign Plan Interface being developed through DRRS is the initial step in providing this capability. Initially, this interface will focus on readiness type information that is of interest to JPEC planners. The concept is for a JPEC planner to call a Web service that accesses campaign plan information within the CFAST system. This access will return critical information concerning specific unit tasking to the calling customer.

The first capability will allow the JPEC customer to request an accounting of a specific UIC's multitasking across a specific list of OPLANs. This Web service will query the CFAST campaign plan database and return a listing, from the OPLAN list submitted, of UTCs, UICs, unit line numbers (ULN), locations, and OPLANs within which they are multitasked. In addition, a base timeline associated with each UIC and OPLAN will be returned.

A second capability will allow the JPEC customer to request an accounting of all multitasked units across a specific list of OPLANs. This Web service will query the CFAST campaign plan database and return a listing, from the OPLAN list submitted, of UTCs, UICs, ULNs, locations, and OPLANs within which they are multitasked. In addition, a base timeline associated with each UIC and OPLAN will be returned.

The JPEC customer will call the Web service and provide the parameters necessary to specify search capabilities as described below:

- **Scenario:** The planner wants to know which UICs are multitasked across several specific OPLANs.
  - The JPEC customer uses software user interface to call a Web service with a list of OPLANs and time offsets as parameters.
  - The Web service triggers an application within CFAST that searches across the OPLANs listed to identify all UICs that are multitasked.

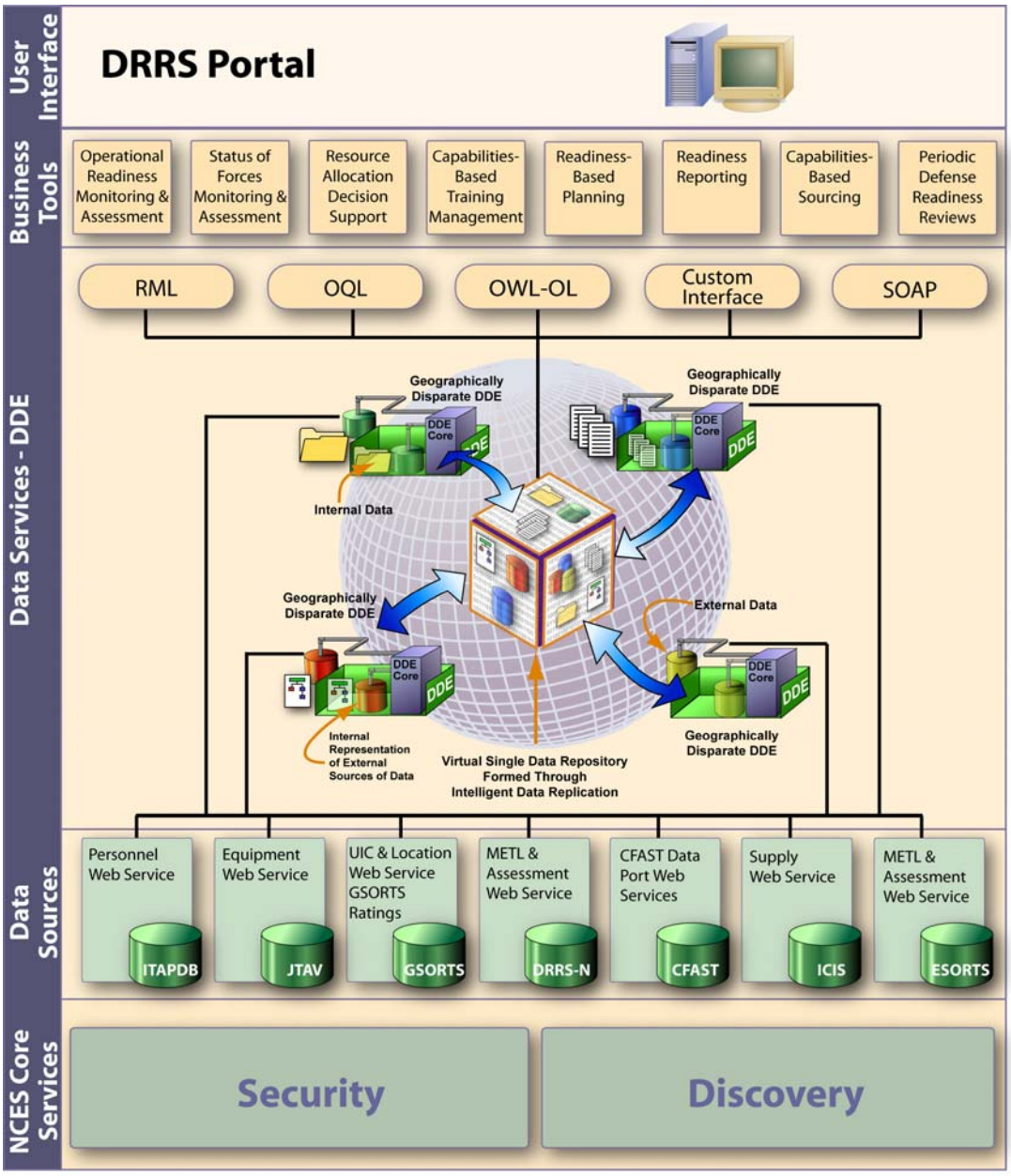
i. The search results are sent back to the JPEC customer in XML format, presented in the software user interface, and consisting of a list of the UICs, UTCs, ULNs, locations, and OPLANs. In addition, a base timeline associated with each UIC and OPLAN is returned.

[5] JFAST will also be available to DRRS users in the sustainment analysis suite.

4.0 DRRS Technical Description

DRRS is designed to adapt with the Department as it moves toward a net-centric operational environment. Initially DRRS will use a combination of net-centric enterprise services and traditional database extracts to access resource information. However, DRRS will transition to the nearly exclusive use of web services as they are phased in by data providers. Net-centricity, in this case, means that DRRS will pull data elements from a myriad of disparate and decentralized data sources to show relevant information in near real-time.

Figure 4.1. DRRS High-Level System Architecture



DRRS will extract data from the actual data source rather than from "extracts" or "copies" of databases. This means that the most current information is then readily available to the commander when making a periodic assessment to execute multiple missions. In order to make net-centricity possible, USD NII (in concert with data consumers such as USD P&R and JS J-8) will ask data owners to provide access to specific data elements using standard mark-up language (such as an XML derivative).

Underlying DRRS is a vision to share data resources and tools across the readiness community using Web Services and Intelligent Agent technology. Web services basically provide non-proprietary access points into systems to acquire data or perform business rules against data. Web services provide a conventional way to access and use data that already exists, in a more uniform and consistent manner. Moreover, Web services can be chained to create dynamic business processes as events require – in accessing data or initiating business rules on disparate systems. Intelligent Agent technology is a key enabler to provide process-based collaboration, intelligent reasoning and analysis and user-centered automation support. Using agents, DRRS can offer key capabilities essential to decreasing operator workload, like automated analysis processes and user-defined situation monitors and triggers. A fundamental key to DRRS success is the Military Services making source data systems available and providing technology to effectively use that data within the DRRS network.

FIGURE 4.1 PRESENTS THE HIGH LEVEL SYSTEM ARCHITECTURE OF DRRS. DRRS OPERATES IN THE ENVIRONMENT OF NCES LEVERAGING THE CORE SERVICES OF NCES, NAMELY SECURITY AND DISCOVERY. WITHIN THAT ENVIRONMENT, A WIDE VARIETY OF DATA SOURCES WILL BE MADE AVAILABLE, SERVING DIFFERENCE COMPONENTS OF THE COMPOSITE READINESS PICTURE. THESE SOURCES WILL BE INCORPORATED THROUGH NATIVE, SQL, SOAP AND XML INTERFACES, WITH THE FUSION OF THAT DATA INTO THE UNIFIED DRRS DATA MODEL HAPPENING WITH THE DISTRIBUTED DATA ENVIRONMENT (DDE). THE DDE WILL THEN PRESENT TO THE APPLICATION SUITE A VIRTUAL FUSED DATA REPRESENTATION WITH SUPPORTING STATUS AND PEDIGREE INFORMATION. THIS INFORMATION WILL BE SERVED UP THROUGH A NUMBER OF INTERFACES, INCLUDING RML, SOAP, OQL, OWL-QL AND XML AS WELL AS CUSTOM INTERFACES AS REQUIRED. THE APPLICATION SUITE WILL INCLUDE A VARIETY OF REPORTING, ANALYSIS, AND VISUALIZATION TOOLS SUPPORTING DIFFERENT LEVELS OF COMMAND. ALL THE TOOLS, AND ACCESS TO THE UNDERLYING INFORMATION, WILL BE FACILITATE THROUGH THE DRRS PORTAL WHICH WILL PROVIDE AN OVERARCHING FRAMEWORK AND SINGLE SIGN ON FOR THE USER COMMUNITY.

4.1 DRRS TECHNICAL ARCHITECTURE

The DRRS Technical Architecture, shown in Figure 4.2, can be viewed as set of 5 concentric rings.

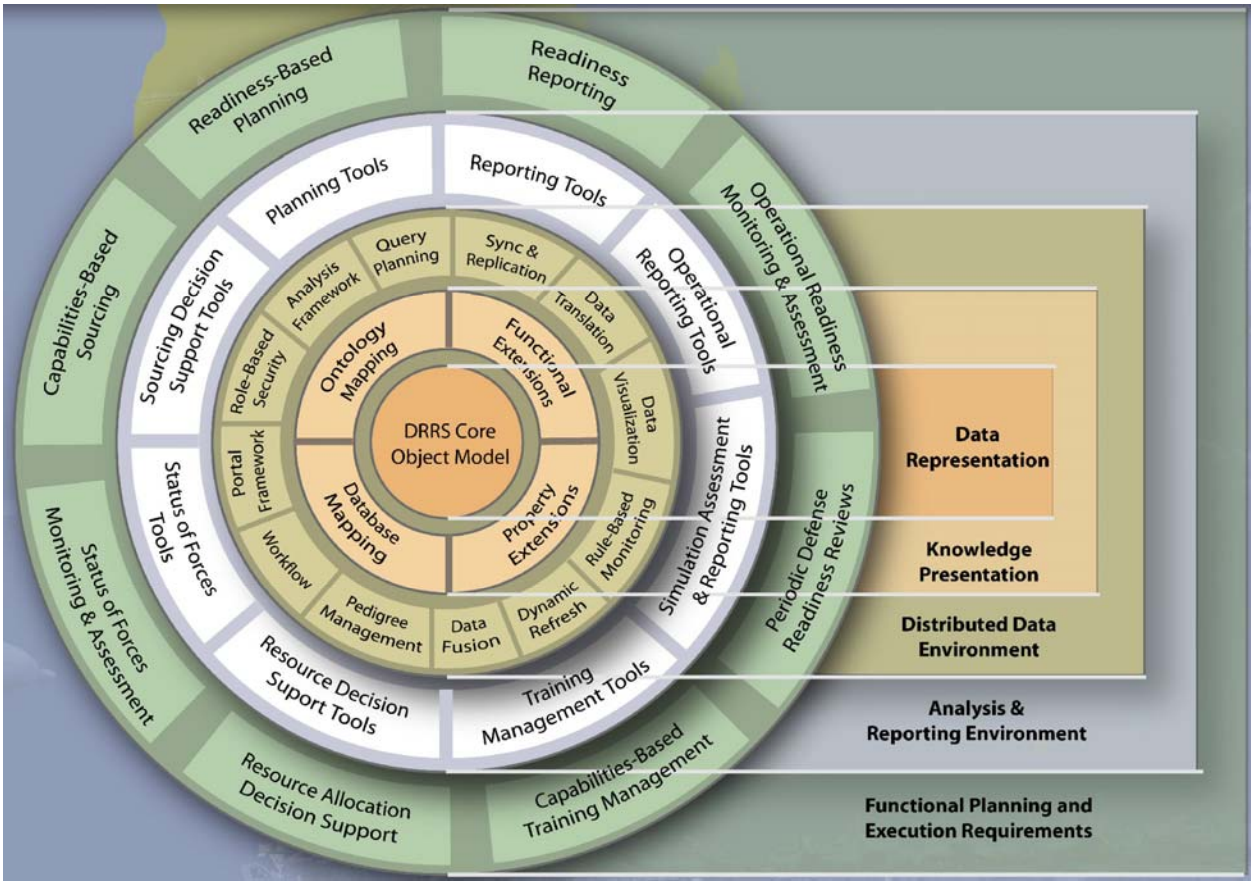
4.1.1 Ring 1: The DRRS Core Object Model

The DRRS Core Object model of DRRS is the core of all readiness reporting, analysis and visualization. The model is composed of three main regions: prototypes, instances and property groups. The prototype and instance hierarchies are virtually mirrors of each other. This feature allows us to reason about abstract types as well as instances when working with the objects themselves. For example, we can perform general reasoning for planning and analysis using the military police unit prototype object, but for a particular event, we may reason very specifically about the available active duty military police units as instance objects.

Both prototypes and instances can be decorated with property groups, time-phased groups of attributes relating to a property of capability for a period of time. Property groups are not only a nice way to package related attributes, they server as a reference for introspection on the capabilities of an object at a specified point in time.

A good object model is the heart of any good system, and essential to an efficient situation representation and an effective reasoning and planning representation.

Figure 4.2. DRRS Technical Architecture



4.1.2 Ring 2: Knowledge Representation Extensions

The second ring of the DRRS technical architecture is the knowledge representation extensions. This ring builds upon the object model to represent knowledge for the domain in various forms, to include mappings to local relational database forms, mapping to an ontology structure to support semantic classification and semantic queries, and specialized mappings to support domain extensions and property extensions as required by the various tools and systems which interface with DRRS. The ontology structure will use the OWL representation standard with query support using the OWL-QL standard query extension. Relational mappings from the object model will be maintained using Hibernate mappings.

4.1.3 Ring 3: Distributed Data Environment

The third ring represents the services and capabilities of the Distributed Data Environment (DDE), which encompasses the first and second ring as well. The DDE is responsible for managing the DRRS fused data and supporting the other DRRS applications. The DDE provides the analysis framework, pedigree management and a host of other key information management services.

The DDE provides the capabilities to readily locate, assimilate, and analyze information from a wide comprehensive variety of distributed data sources and models to perform data-intensive business processes in a secure environment while at the same time provide distributed transaction support for data across the environment. In particular the DDE provides a framework for integrating heterogeneous and homogenous data sources into a single environment with an agreed upon representation of the fused data as a single model representation that is represented within one or more ontology's that can be represented semantically and reasoned about. The DDE provides an extensible data source connectivity interface to implementation specific data sources and provides a powerful and standards-based query language to access data within the system. The DDE provides layered role-based access control to the data within the environment. The DDE provides data synchronization and intelligent data replication between distributed instances of the DDE. The DDE architecture is both robust and scalable and supports the ability to perform data fusion from one or more data sources into one or more representations.

The DDE is built using open architectures (Java, Cougaar, Axis, etc.) and leverages existing standards (OQL, OWL, OWL-QL, RPC-XML, SOAP, UDDI, etc.). Since the DDE is developed entirely in Java, the DDE can be distributed onto any platform that supports a Sun Java JVM.

The DDE is comprised of a series of components, which can be instantiated individually or in sets inside agents, which can be located on a single host or distributed across many hosts. As necessary, multiple instances of each type of component can be added to the agent society for scalability purposes. Each DDE exposes data sources (heterogeneous or homogenous) and fuses the data into a virtual single data repository that is located in intelligently replicated data stores distributed throughout a DDE enterprise or accessed directly from the data sources themselves. The architecture of these components enables the fusion of data from previously incompatible data sources (RDMS, text, semi-structured, etc.) into a format compatible with a single data model.

- Active Comm provides the external communication bus with external clients by exposing Active Data Provider components as standard Web Services. These data provider components advertise their capabilities to a standard UDDI server supporting dynamic discovery of DDE services.

- Data Service Components provide a service based proxy to client agents requesting interaction with the DDE environment. Data Service Agents follow a remote service pattern where local agents execute commands or queries on the local Data Service interface and the results are brokered to an appropriate Query Planner Agent with the results asynchronously returned to clients.

- Query Planning Components contain the "brains" of the DDE. The Query Planner is responsible for maintaining a knowledgebase of the DDE's ontology, Security and role policy, Data Source Agent Advertisements, Data Fusion Provider and Object Mapping information. The Query Planner knowledgebase enables the Query Planner Agent to construct a distributed Query Plan by using a series of planning components to construct the plan: Semantic Planner, Role Planner, Decomposition Planner, Allocation Planner, and Optimization Planner. The Query Plan is then executed by a Query Plan Executor who is responsible for sending parts of the plan to Data Source Agents for execution and finding appropriate data fusion providers for fusing data from multiple sources into a single or multiple response(s).

- Data Source Components expose heterogeneous and homogenous data sources to the DDE data model using a two part resource adapter containing a protocol specific component and transformation component. The protocol specific component is responsible for knowing how to talk to a type of data source (SOAP, SQL, I/O, XML). The Transformation Component is responsible for transforming the data representation of the outside source to the internal representation used by the DDE.

- Data Replication and Synchronization components are responsible for replicating and synchronizing data sources as well as interfacing with data sources external to the DDE to extract and fuse updated data into the DDE virtual repository. Data sources that are replicated and synchronized through the DDE have their data segmented into replication and synchronization groups enabling more robust replication and synchronization strategies.

The DDE uses a set of standards-based query language to support accessing the data within the DDE using the Object Query Language (OQL) and OWL Query Language (OWL-QL). OQL is the base query language that all requests to the DDE eventually are resolved into and used for communication with Data Source Agents. OWL-QL enables a user/application to query data semantically in terms of the DDE data ontology allowing users to ask more abstract queries. Since OWL is used to define the DDE ontology, additional ontologies can be introduced into the system that are linked to the original and the DDE agents are still able to reason about the query. These semantic queries are resolved into OQL syntax by the Query Planner Agent.

Layered Security is placed at various portions of the DDE infrastructure including encryption of communication between the agents of the DDE and between the DDE and external clients. The

Layered Security framework supports the pluggable layering of security in front of the components of the DDE such as the authentication of users by certificate, username/password authentication of integration with an external authentication server. A role based security policy is leveraged for access control of the data within the DDE.

4.1.4 Ring 4: Analysis & Reporting Environment

The fourth ring is where the various tools and systems connect into the DRRS framework. Some of the tools will be provided as part of DRRS, others will leverage DRRS as a supporting system utilizing its data and services. There are a variety of tools planned as part of the DRRS system to include analysis, reporting, status of forces, training, planning, simulation and decision support tools.

4.1.5 Ring 5: Functional Planning, Execution and Analysis Tools

The fifth ring is where the various functions and process connect to form capabilities in DRRS network. Most users will operate in a task-centric way against processes and capabilities of DRRS, and not be cognizant of the component tools, services, data and systems incorporated in accomplishing that task.

4.2 SERVICE ORIENTED ARCHITECTURE

DRRS uses an open, flexible, extensible integration framework to provide near-term effectiveness and enduring results. The integration framework approach will deliver benefits based on the following elements:

- **Net-Centric Systems Infrastructure.** Provides DRRS convergence with DoD-mandated concepts for next-generation system development. The infrastructure is a realization of a robust, globally interconnected, networked environment in which data are shared in a timely and seamless manner among users, applications, and platforms. Key elements of the Net-Centric infrastructure include Core Services known as security and discovery services. Security services enable secure data transmissions to ensure trusted data sharing. Discovery services allow users and system developers to locate the Web Services available in the DRRS network. Web service providers register their services in the discovery services directory. Users and system developers can then locate and select a provider for the service that best meets their requirements
- **Reusable Components (e.g., Web Services).** Enables rapid prototyping of applications and new business processes using a foundation of data and business rule processing residing in distributed Web services.
- **Standards-Based, Leading-Edge Technologies.** Maximizes the ability to leverage commercial off-the-shelf (COTS) products or jointly integrate COTS/government off-the-shelf (GOTS) and custom components through emerging technical standards (e.g., Simple Object Access Protocol (SOAP), Web Services Description Language (WSDL), XML).

- **Services-Oriented Architecture (SOA).** Provides a loosely coupled, serviced-based applications architecture that will allow for more agile development of the network (at lower cost) across DoD and non-DoD databases. This loosely based relationship will allow for the collaboration of databases and systems across the network for different purposes. This architecture can be changed, extended, and modified in a technically effective and cost-efficient manner as user or system needs change throughout deployment.
- **Net-Centric Orientation.** DRRS will be designed and implemented using the net-centric capabilities of the DoD in accordance with Management Initiative Decision (MID 905), titled *Net-Centric Business Transformation and eGovernment*. This MID describes the approach DoD will use to transform the process of how information is gathered, processed, and used by decision makers. The DRRS design provides a net-centric infrastructure that meets DoD-mandated concepts for future generation system development, while leveraging and extending current readiness information systems.
- **Intelligent Agent Technology.** More flexible and advanced than basic peer-to-peer or object-oriented computing, agent-based systems represent the next major advancement in network computing architectures. With intelligent agents, we can build larger and more complex systems than are possible with conventional architectures. Agent support dynamic planning, the ability to develop distributed workflows using rules and domain knowledge that is appropriate to the current situation. Agents are adaptable which allow significant business changes to be implemented quickly and dynamically by actual users who can easily manage adjustments to the business rules or policies—without engaging consultants to significantly alter their systems. Agents are collaborative, and can more easily share information and coordinate changes across the user base.

4.3 ENABLING TOOLS

DRRS provides a number of enabling tools in order to provide flexible and customizable capabilities for end users in the readiness community. Among these enabling tools are the DRRS portal, collaboration tools, and business intelligence capabilities.

- **Portal.** The DRRS portal provides a common gateway to access a variety of readiness tools, while also establishing a "dashboard" to monitor the most important information according to the Commander's discretion.
- **Collaboration Tools.** DRRS collaboration tools provide the basic building blocks of file sharing, discussion forums, and event calendar. Using these basic collaborative tools, users in the readiness community can surface ideas and issues, and maintain a space to capture readiness thinking, perspectives, and ideology moving forward.
- **Business intelligence capabilities.** DRRS further provides business intelligence capabilities that include simple queries, event notifications, and intelligent agents. As an example, event notifications represent preliminary capability to automate certain end-user tasks for checking

resource data for changes based on specified individual user preferences. Using the event notification tools in the DRRS portal, a commander sets criteria for being notified of changes in status at the user's discretion (e.g., 10-percent reduction in available quantity of a certain supply class). Event notifications then pulse source data systems at a set frequency for checking on status changes, such as checking every 24 hours or every 7 days. Assuming the appropriate criteria are satisfied, the commander receives an automatically triggered notification of this event. The commander determines if the change in data warrants change to MET assessment and can use ESORTS to further investigate the specific resource data change or related data that would affect an assessment decision.

5.0. DRRS TIMELINE / SPIRAL DEVELOPMENT

DRRS will be developed and implemented through a spiral development process. A key milestone within this spiral development is the DRRS' Initial Operational Capability (IOC), which is discussed here in detail.

5.1. INITIAL OPERATIONAL CAPABILITY

The DRRS IOC is planned for September 2004 at the Pacific Command (PACOM), DRRS' operational sponsor. The demonstration will be based on at least nine battalion/ship/squadron level units (three each in three PACOM OPLANs), and their upward traces through to PACOM.

At IOC, DRRS will have the following capabilities and features.

1. Enhanced Status of Resources and Training System (ESORTS):

a. *DRRS User Specific Home Page*. A homepage specifically tailored for a unit commander to provide summary information of each reporting organization.

b. *METL Development and MET Assessment Tabs.* These tabs provide a capability for developing, recording, and assessing organizational METLs/JMETLs based on COCOM assigned missions; including the capability for each echelon to drill down to view command supporting tasks and command linked tasks.

c. *Personnel Tab.* This functioning resource tab will display sample personnel resource information. This tab will be populated from a minimum of one service (e.g., Army, Navy, Air Force, or Marine Corps) authoritative personnel data source for IOC (with an objective of obtaining all four service personnel data sources by January 2005). The Personnel Tab will provide a menu of well-constructed metrics and the ability to drill up or down.

d. *Major Equipment Tab.* This tab will describe the quantity and condition of major pieces of warfighting equipment. Specifically, the tab will desrcibe the number of items authorized, posessed, and operational for every unit. For IOC the information will be limited to those data found in JTAV.

e. *GSORTS Tab.* This tab displays the following unit information:

- Organization Information (UIC, unit name, component, major command, administrative command, operational command, unit type, unit descriptor, unit level)
- Location data (current activity, percent effective, current location, home location)
- Commander's comments
- Forecast Level
- Forecast Date
- Overall C-rating, reason code, explanation, and comments
- P—Personnel rating, reason code, explanation, and comments
- S—Equipment on hand rating, reason code, explanation, and comments
- R—Equipment repair rating, reason code, explanation, and comments
- T—Training rating, reason code, explanation, and comments

f. Mock views of other ESORTS tabs (Supply, Ordnance, and Training).

g. Established and accredited on the Secret Internet Protocol Router Network (SIPRNET); accessed through the DRRS portal.

h. Information Assurance Cross-Domain Solution with an automated security guard.

2. Force Management Tools:

a. CFAST Sourcing Engine consuming unit readiness data from ESORTS to allow the most current readiness data for use in the force selection portion of the campaign plan building process.

b. CFAST providing sustainability analysis web services such as Transportation and Supply sustainability to analyze a plan.

c. Web services connectivity to DLA's ICIS database to provide Class IC (Combat Rations) information for the Sustainment Generator (SUSGEN) to evaluate supply feasibility of plans.

3. A functional DRRS portal established and accredited on the SIPRNET, including the following features:

a. User Registration and Management
b. Discussion Forums
c. Document Sharing
d. Event Calendar
e. Online Help Functionality.

4. A foundation Web services architecture established and accredited on the SIPRNET with a minimum of two core services:

a. *Security Services*, which control Web services access policies and authentication.

b. *Discovery Services*, which indicate which Web services are available, by what provider, and mechanisms of access.

5.2. DRRS FUNCTIONALITY ROADMAP

Figure 5-1 is a high-level roadmap of DRRS functionality and fielding. As the illustration suggests, DRRS is a spirally developed network of applications using leading edge technology. This roadmap is a "living" document that serves as the basis to guide DRRS development and implementation through Final Operational Capability (FOC).

Figure 5-1. DRRS Functionality Roadmap

Spiral 1	Spiral 2	
May 2004	**September 2004 (IOC)**	**May 2005**
- GSORTS still resource readiness system of record - ESORTS version 1.0 operational - Functional Build and Assess METL Tabs - Static resource tabs - CFAST enabled to operate within SOA - Flow data over SOA (data sources to ESORTS; data sources and ESORTS to CFAST) - Demonstrate DRRS (ESORTS-CFAST) using three PACOM scenarios - Continue identification of all readiness data sources and continue Web service enabling Information Assurance: - Develop security CONOPS	- Web-service enable data sources using Service Oriented Architecture (SOA) SIPRNET (GSORTS, JTAV, ICIS, DRRS-N, TBD service personnel data sources) - ESORTS version 1.X operational - Build and Assess METL Tabs - Personnel and Equipment Tabs - GSORTS Tab - Mock views of other resource tabs - Accredited on the SIPRNET - Initial adaptive planning tools, focusing on enhanced CFAST functionality - Functional DRRS Portal - Security, Discovery, Notification core services - Selected PACOM units begin reporting readiness using DRRS - Add access to PACOM OPLANs through CFAST and use as baseline for collaborative and adaptive planning - ID COTS reporting package for ESORTS Information Assurance: - Investigate high assurance guard (HAG) options to support cross-domain security (CDS)	- GSORTS still resource readiness system of record - Identify other (TBD) Sustainment Models to Plan Assessment Tool Suite (PATS) - Develop GSORTS to ESORTS Transition Plan - Complete Web service enabling readiness data for equipment, personnel, training, and unit data sources - Continue Web service enabling other logistics data sources (e.g., ordnance) - All PACOM units reporting readiness via DRRS - Begin ESORTS deployment to other COCOMs, service HQs, and agencies as functionality permits - Access additional OPLANs through PATS, and add to baseline for collaborative and adaptive planning - Develop DRRS User Training Products Information Assurance - Identify guarding solution for CDS and initiate process for integrating into DRRS architecture

Spiral 3	Spiral 4	FOC
May 2006	**May 2007**	**October 2007**
- Begin transition from GSORTS reporting to ESORTS - Continue ESORTS deployment to other COCOMs, service HQs, and agencies - Add additional classes of supply for sustainment processing - Additional COCOMs (TBD) begin reporting readiness via DRRS - Add other (TBD) force management tools - Access additional OPLANs for use with the force management tools	- Continue transition from GSORTS reporting to ESORTS - Complete Web service enabling all logistics data sources - Continue ESORTS deployment to other COCOMs, service HQs, and agencies - Additional COCOMs (TBD) begin reporting readiness via DRRS - Add other force management tools - Access additional OPLANs for use with the force management tools	- All reporting units using ESORTS - All data sources are Web service enabled (unclassified and SIPRNET) - All planning assessment tools are Web service enabled - All OPLANs are accessible for collaborative and adaptive planning using DRRS - Information assurance validated - Begin Installation readiness reporting

- Identify and Web service enable Installation readiness data sources Information Assurance - Implement automated CDS HAG solution in all DRRS environments requiring cross-domain service - Implement selected authentication option	- Continue to identify and Web service enable Installation readiness data sources	

6.0. INFORMATION ASSURANCE

DRRS incorporates multiple data sources from across service boundaries and organizations and relies on data transiting across network boundaries of different classification and sensitivity levels. The system processes data to form a fused picture of operational readiness that will require robust defense against loss or unauthorized disclosure. Therefore, it is crucial to ensure that the component applications and data, as well as the paths over which data flow, are secure and that the interoperability of DRRS with other networks does not jeopardize those network's security accreditation. Information assurance (IA) support to DRRS consists of processes that protect and defend the system by ensuring data availability, integrity, authentication, confidentiality, and nonrepudiation. To ensure that DRRS complies with IA requirements outlined in DoDD 8500.1 and DoDI 8500.2, and certification and accreditation (C&A) requirements contained in DoDI 5200.40 and DoD 8510.1M, security development, implementation, and deployment will focus on the following three task areas: Security Architecture Engineering, C&A, and Cross-Domain Security (CDS).

6.1. SECURITY ARCHITECTURE AND ENGINEERING

This process encompasses a series of measures to ensure that DRRS hardware and software, and interfaces to any connected systems, are designed and implemented to conform to the system's security requirements. Although the bulk of this effort occurs during system development, maintenance of the security architecture continues through all phases of the system's life cycle. The first step is to perform a security requirements analysis in which security requirements for DRRS are identified and specific architecture and engineering actions defined based on the system's IA level, derived from criteria outlined in DoDI 8500.2. DRRS IA level has been identified as a Mission Assurance Category (MAC) III/Classified system, meaning that the system processes classified data and that data integrity and availability, although they must be protected, need not be as stringent as for those systems supporting deployed forces engaged in front-line operations. Architecture engineering also includes the following:

- **Security Requirements Traceability Matrix (SRTM).** A list of specific security requirements for the system based on IA level and matched to actions that must be taken to ensure that the system design implements the security requirements.
- **Baseline Identification.** Identification of the exact hardware and software configuration of the system as it will be certified and accredited.
- **Security Architecture Design.** A detailed description of the security features of the entire DRRS system, including detailed descriptions of interconnections with other systems.
- **Security Lockdown.** Removal of vulnerabilities from the operating system and applications using special utility scripts or patches. Because lockdowns target specific software and operating system versions, it is essential that all code has been frozen and a baseline established before beginning this step.

- **Vulnerability Scans.** The examination of the system for known vulnerabilities performed using a set of industry-standard code analysis tools, scanning tools such as ISS™ Internet Security Scanner, or freeware tools such as Nmap™ or Nessus™.

6.2. CERTIFICATION AND ACCREDITATION

C&A is a two-phased process. In the first phase, Certification, an independent entity called a Certification Authority (CA) tests the DRRS application for compliance with its security requirements and recommends for or against accreditation based on the results of the certification process. In the second phase, Accreditation, a second independent entity called a Designated Accrediting Authority (DAA) either accepts or rejects the residual risk associated with the application based on the CA's recommendation and grants the system either an interim or final Authority to Operate (ATO).

The first phase of C&A consists of documenting the DRRS mission, environment, and architecture; identifying threats and vulnerabilities; defining levels of effort; identifying the CA and DAA; and documenting the necessary security requirements for the C&A process. The Definition phase culminates with a System Security Authorization Agreement (SSAA) among the program manager, DAA, CA, and DRRS user representative. This document, used as the "master" security document for the system, includes information and appendices documenting any information related to the system C&A process.

The second phase of C&A consists of processes that verify DRRS compliance with system security requirements. For each life-cycle development activity, a corresponding set of security activities will verify compliance with the security requirements and evaluate vulnerabilities. Action items are as follows:

- System architecture analysis
- Software analysis
- Connection requirements identification
- Analysis of integrated products
- Risk analysis
- Vulnerability assessment.

The third phase of C&A encompasses activities that evaluate the fully integrated system to validate DRRS operation in each specified computing environment with an acceptable level of residual risk. The Validation phase culminates in the issuance of an interim approval to operate (IATO) from a DAA. Major action items are completion of the certification of the integrated system (including security testing and evaluation, penetration testing, communications security [COMSEC] compliance, site management analysis, site accreditation survey, contingency plan evaluation and risk-based management review by a CA) and DAA accreditation.

Finally, the fourth phase of C&A takes place after accreditation. This phase includes monitoring system management and operation to ensure that an acceptable level of residual risk is preserved as well as security management, change management, and periodic compliance validation reviews.

6.3. CROSS-DOMAIN SECURITY

CDS involves the use of either a manual transfer process or an automated security guard (ASG) to examine data movement between classified and unclassified networks to prevent spread of malicious code or movement of unauthorized data from a classified to an unclassified environment. Because of the requirement for DRRS to access unclassified or sensitive data sources and move these from an unclassified (NIPRNET) to a classified (SIPRNET) environment, a cross-domain solution must be implemented that is capable of secure processing of data and meets current accreditation criteria. The ideal solution is to incorporate an ASG capable of processing Web services data transparently across domains; however, no accredited solution with this capability currently exists. In the interim, and until prototype Web guards currently under development successfully complete the C&A process; DRRS will approach the CDS issues in two phases.

For IOC, will implement a Command and Control Guard (C2G) to automatically transfer XML data rendered in flat-text from the NIPRNET to SIPRNET, and then reassemble it into XML for distribution to the SIPRNET aggregation point. This solution not only allows system data to be processed and filtered for content and malicious code, but also ensures continuous data availability in near real-time. The long-term solution is to implement an accredited CDS that will allow seamless real-time transfer of unclassified Web services data to the SIPRNET enclave for subsequent processing and analysis with the DRRS tool suite.

2. 7.0. CONTINUITY OF OPERATIONS

The Continuity of Operations for DRRS includes disaster recovery, business recovery, contingency planning, and crisis management. DRRS will establish a plan to define relevant procedures as to how readiness operations using the DRRS network can continue or recover critical functions in the event of disaster or disruption. To supplement the continuity of operations plan, DRRS will exercise and maintain the plan to ensure its readiness and will develop training and awareness information to build greater awareness. Ultimately, the DRRS network will minimize disruptions to readiness-based business processes that will rely on DRRS environments and data.

The DRRS network will provide Continuity of Operations by using a distributed set of Web services, systems, and data sources in the event of a disruption or disaster. The underlying architecture of DRRS leverages service-oriented architecture to provide distributed redundancy for geographically dispersed systems. First, DRRS leverages Core Enterprise Services (CES) based on federated data sharing technology. CES provides federated Web service discovery and security to enable multiple locations to share data about the location of Web services and to enable distributed security credentials between readiness systems. Moreover, multiple instances of the Core Enterprise Services will be able to coexist across the DRRS network to help support key system redundancy. Second, the DRRS network anticipates that multiple data sources will provide similar data requirements. These redundant data providers play an integral role in the DRRS network by providing community-based data failover. In other words, systems intended

for different purposes may expose similar data and effectively fail over to one another as data peers. This dynamic data failover will allow data source providers to increase their redundancy by partnering with other systems in “data grids” to better maintain critical data for readiness users. Finally, DRRS will provide physical system redundancy by leveraging replicated hardware for mission-critical DRRS systems to support high availability in the event of increased user request volume and hardware failure.

APPENDIX A: REFERENCES

- FY 2003–2007 Defense Planning Guidance (DPG)
- DoD Transformation Planning Guidance April 2003
- Defense Readiness Reporting System (DRRS), DoD Directive 7730.65, June 3, 2002
- Military Training, DoD Directive 1322.18, September 3, 2004.
- Training Transformation Implementation Plan, June 9, 2004.
- DRRS Users Guide
- DRRS Initial Operating Capability Implementation Guidance, 2 NOV 2004.
- 10 U.S.C. Subtitle A, Part I Chapter 2, Sec. 117 Readiness Reporting System: Establishment; Reporting to Congressional Committees
- 10 U.S.C Subtitle A, Part I, Chapter 5, Sec. 153 (a)(3)(C) and (D)—Joint Chiefs of Staff–Chairman: Functions
- 10 U.S.C Subtitle A, Part I, Chapter 6, Sec. 167 (e)(3) - Combatant Commands—Unified Combatant Command for Special Operations Forces
- 10 U.S.C Subtitle B, Part I, Chapter 305, Sec. 3032 (b)(1)(2)(3)—The Army Staff: General Duties
- 10 U.S.C Subtitle C, Part I, Chapter 505, Sec. 5032 (b)(1)(2)(3)—Office of the Chief of Naval Operations: General Duties
- 10 U.S.C Subtitle D, Part I, Chapter 805, Sec. 8032 (b)(1)(2)(3)—The Air Staff: General Duties
- 10 U.S.C Subtitle E, Part I, Chapter 1003, Sec. 10102—Purpose of Reserve Components
- 10 U.S.C Subtitle A, Part I, Chapter 8, Sec. 193 (a) and (c)—Defense Agencies and Department of Defense Field Activities—Combat Support Agencies: Oversight
- Chairman's Readiness System, Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3401.01C, 1 October 2002
- Management Initiative Decision 905, Net-Centric Business and eGovernment
- Global Status of Resources and Training System (GSORTS), CJCSM 3150.02, 15 April 2000
- Undersecretary of Defense Memo: Tools to Support the Defense Readiness Reporting System (DRRS), 4 August 2003
- Information Assurance (IA), Department of Defense Directive (DoDD) 8500.1, 24 October 2002
- Information Assurance (IA) Implementation, Department of Defense Instruction (DoDI) 8500.2, 6 February 2003

APPENDIX B: CURRENT READINESS REPORTING SYSTEM - GSORTS

The Global Status of Resources and Training System (GSORTS) is the current internal management tool for use by the Chairman (Joint Staff), services, unified commands, and combat support agencies (CSA). GSORTS is the single automated reporting system within the DoD that is the central registry of all operational units of the U.S. Armed Forces and certain foreign organizations.[6]

As a resource and unit monitoring system, GSORTS indicates the level of selected resources and training status required to undertake the mission(s) for which a unit was organized or designed. GSORTS provides this information on measured units at a specific point in time. This information supports, in priority order, crisis response planning; deliberate or peacetime planning; and management responsibilities to organize, train, and equip combat-ready forces for the unified commands. GSORTS provides the Chairman with an assessment of unit information to achieve adequate and feasible military responses to crisis situations. GSORTS also provides information to the joint planning and execution process associated with deliberate planning. In addition, GSORTS is a mission application of the Global Command and Control System (GCCS) and provides data to other automated systems.

Each service (i.e., Army, Navy and Coast Guard, Air Force, and Marine Corps) has a process by which readiness data are collected and fed to GSORTS. Though the process flows are unique for each service, the output remains the same: provide the commander with information about the readiness of a unit at a particular time. Appendix B includes the service processes described in the GSORTS manual. In addition, there are emerging systems that support or augment GSORTS reporting. For example, the Marines have begun using the Readiness Assessment System (RAS) and the Air Force has developed the Aerospace Expeditionary Forces (AEF) Reporting Tool (ART).

Services (units) provide reports to a central site where data is processed, stored in a database of record, and then distributed to decision makers. By contrast, the future Enhanced Status of Resources and Training System (ESORTS) uses the Net-Centric Enterprise Services (NCES) to access near real-time information concerning unit and supporting organization resources and also applies this information to JMETL/METL information.

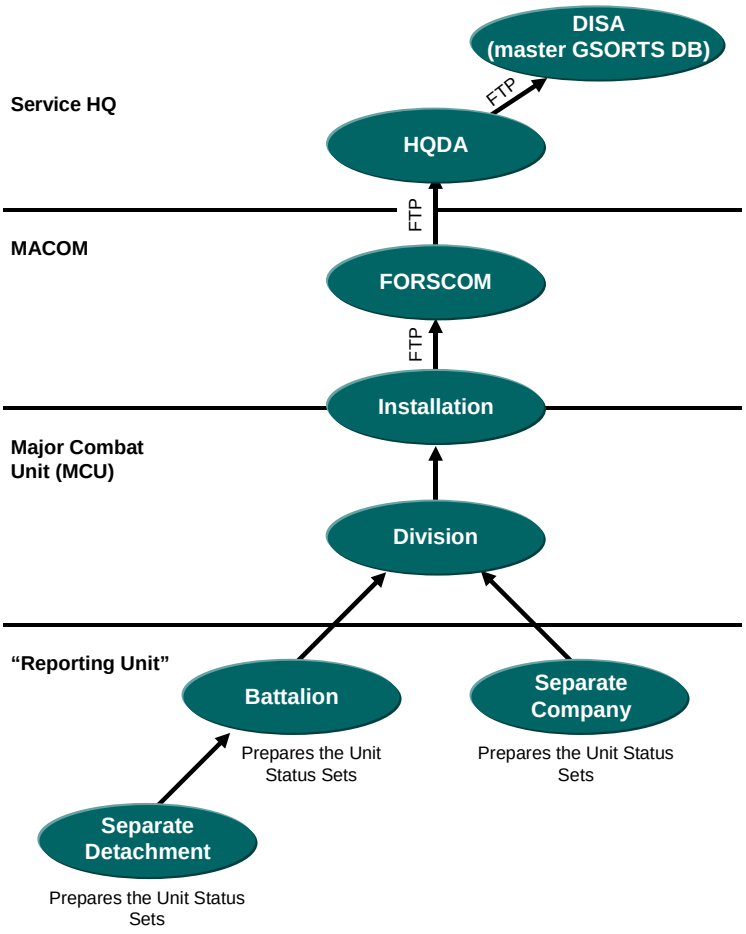
Although suited to provide resource readiness status for a snapshot in time, GSORTS is not a predictive management tool to help determine whether a unit is prepared to conduct operations. By contrast, ESORTS provides timely integration of information to support decision-making requirements from the smallest capability entity to the Joint Staff. It includes objective (resource) information and commander's assessments (subjective) to arrive at a useful readiness picture.

6 Global Status of Resources and Training System (GSORTS), CJCSM 3150.02, 15 April 2000.

B.1. Existing Army GSORTS Process Flow

The commander of a reporting unit determines when changes to the unit's GSORTS data are required. The changes are prepared using the PC-ASORTS and forwarded as a USMTF message through the major subordinate command to the appropriate U.S. Army major command or U.S. Army component command. The major or component command processes the report, reformats it into a U.S. Army GSORTS report (SORTSREPAR) and provides GCCS File Transfer Protocol (FTP) distribution to Headquarters, Department of the U.S. Army (HQDA). The report may be dual routed to the Joint Staff or unified command when appropriate. HQDA distributes the report to the Joint Staff for further distribution to GSORTS sites (see Figure B-3).

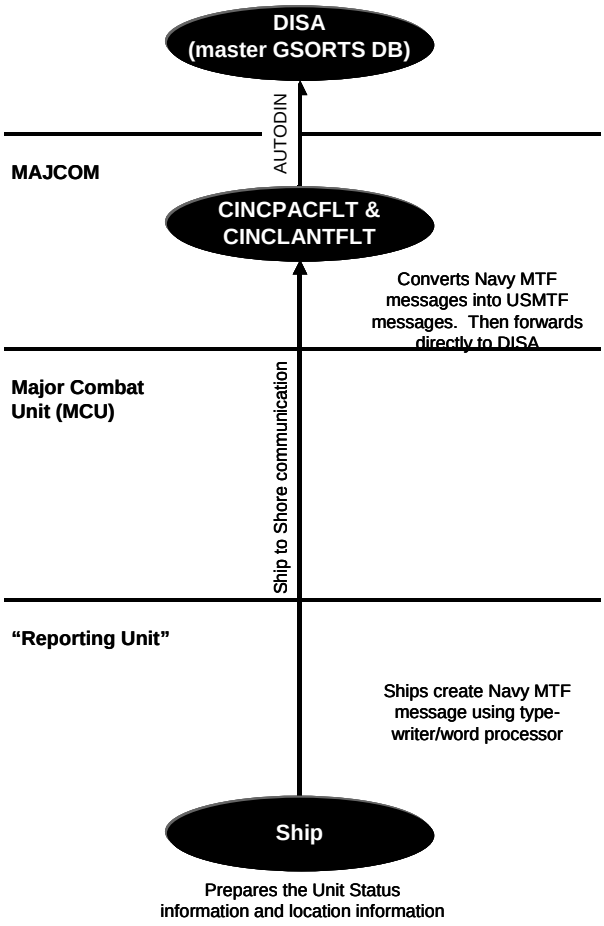
Figure B-1. Army GSORTS Process Flow



B.2. Existing Navy and Coast Guard GSORTS Process Flow

The GSORTS monitor of a reporting unit prepares a U.S. Navy GSORTS report (SORTSREPNV) message using service-developed worksheets or an automated message formatting system. The message is forwarded to the appropriate fleet commander-in-chief headquarters where the Global Command and Control System—Maritime (GCCS-M) processes it. The report is also forwarded to the appropriate type commander and other U.S. Navy-specified addresses. GCCS-M distributes transactions to the Chief of Naval Operations, Joint Staff, and other interested commands. The Joint Staff processes the transactions and distributes data to GSORTS sites (see Figure B-2).

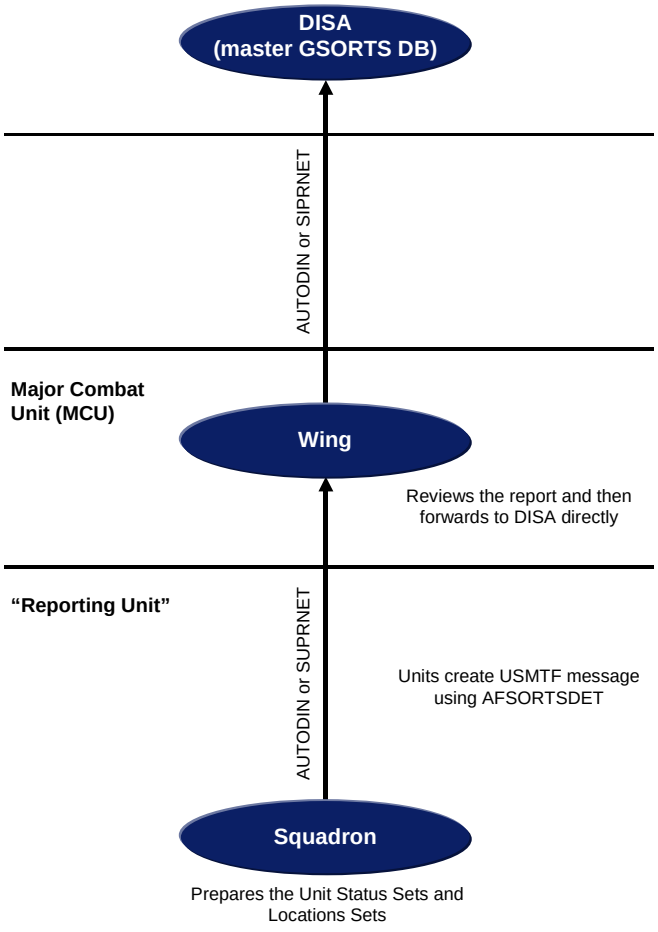
Figure B-2. Navy and Coast Guard GSORTS Process Flow



B.3. Existing Air Force GSORTS Process Flow

The GSORTS' monitor of a reporting unit determines when changes to the unit's GSORTS data are required. The monitor either prepares the U.S. Air Force GSORTS Report (GSORTSREPAF) using AFSORTSDET or enters the changes on a major command-developed worksheet. If using a worksheet, the monitor delivers it to the wing command post or base SORTS manager where a SORTSREPAF is prepared using AFSORTSDET. The monitor or the command post controller then forwards the SORTSREPAF, via the Automatic Digital Network (AUTODIN) or GCCS FTP, to the processor designated by the Joint Staff (see Figure B-3).

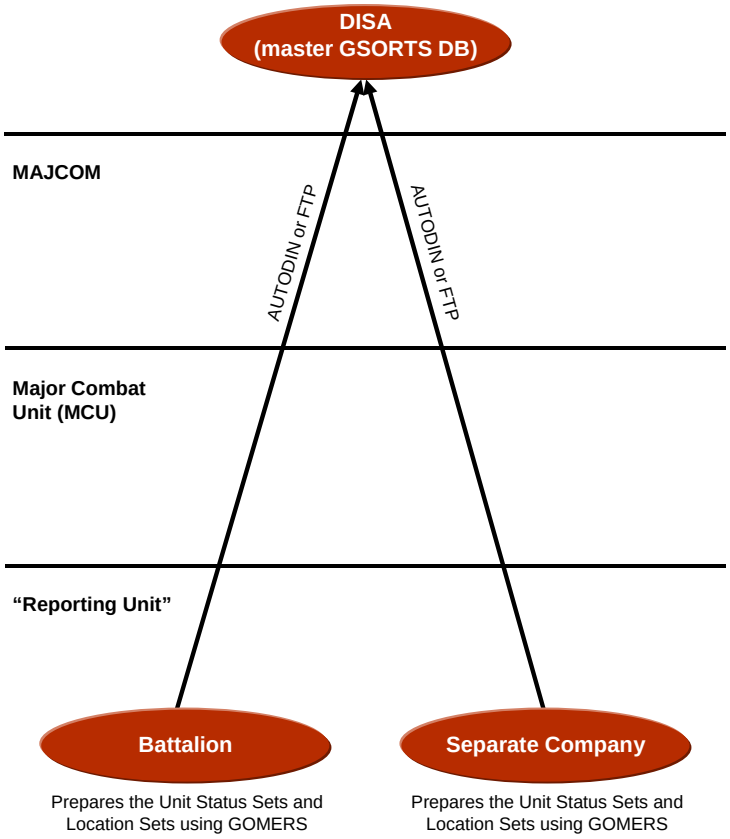
Figure B-3. Air Force GSORTS Process Flow



B.4. Existing Marine Corps GSORTS Process Flow

The commander of a reporting unit determines when changes to the unit's GSORTS data are required. The unit GSORTS officer or NCO then prepares a GSORTS report (SORTSREP) using GOMERS. The commanding officer then forwards the SORTSREP, via AUTODIN or FTP, to the processor designated by the Joint Staff (see Figure B-4).

Figure B-4. Marine Corps GSORTS Process Flow



APPENDIX C: CURRENT SYSTEM LIMITATIONS

Limitations to GSORTS (and its predecessor system, Status of Resources and Training System [SORTS]) have been well documented for many years by various audit and oversight organizations, including the DoD Inspector General (IG) and the General Accounting Office (GAO). An overwhelming majority of these reports discussed systematic limitations to readiness reporting. Following is a partial list of limitations identified by the DoD Inspector General and the GAO in 1998:[7]

- Data are not standardized among the services.
- Data may be out-of-date or nonexistent for some units registered in the database.
- Data are maintained in multiple databases located at combatant commands, major commands, and service headquarters and are not synchronized across the databases.
- Data represent a snapshot in time and do not signal impending changes in readiness.
- Ratings may be misleading because they are based on broad measurements that can mask underlying problems.
- Joint users cannot rely on the system to obtain authoritative unit status or location information, plan deployments, assess the execution of operations plans, or assist in making time-sensitive decisions.
- DoD's quarterly readiness reports do not fulfill 10 United States Code (U.S.C.) 482 legislative reporting requirements because of a lack of detail at the individual command or unit level.

In short, GSORTS is resource, input-based using a set of defined rules on availability of resources to measure readiness. Although commanders can override those rules, the focus is on units and the availability of resources—not on the wartime missions assigned.

GSORTS will continue to serve as the resource and unit monitoring system for DoD until DRRS is fully operational in 2007. The enhanced readiness reporting capabilities in DRRS will address the following current readiness information shortfalls:

- **One-Way Readiness Information Flow.** Unit reporting is the foundation of the current reporting system, often in a semi automated, input-only manner. The output of the system today is provided to the next higher level in the organizational structure. DRRS will provide the first opportunity to provide inputs *and* outputs to a variety of command levels: information providers can also be consumers of the readiness information through standard reports and ad hoc queries. Units can see not only their own information, but also that of supporting organizations.

[7] GAO/NSIAD-98-68 Military Readiness: Reports to Congress Provide Few Details on Deficiencies and Solutions.

- **Readiness Across the Range of Military Operations (ROMO).** DRRS will facilitate deliberate planning efforts in peacetime and will assist in deployment preparations through major contingency operations and Operational Plan execution.
- **Limited Resource Information**. DRRS will go beyond personnel, equipment, and training resource information; all classes of supply with a major emphasis on energy and ordnance, and infrastructure information will be included.
- **Sustainment Information Beyond the Individual Unit Level**. Resource reporting by unit is a building block, but the aggregation of sustainment information from the building of force packages, and supporting units and agencies will provide a realistic picture of capabilities to execute a mission or plan.
- **Status Reporting Limited to Unit Level (UIC).** Deployment and employment of forces is no longer limited to the UIC level. For example, the AEF doctrine requires the ability to measure the readiness by UTC. Other task forces will need to track by "team" or "capability entity"; DRRS will assist in developing a common language to be able to address these new doctrinal requirements (e.g., Global Force Management [GFM]).
- **Disassociation Between Resource Status Reports and Planning**. With resource and MET assessment tied to approved plans, DRRS will close this gap by providing a single source for integrated readiness assessment for crisis and deliberate (and future adaptive) planning. It will provide the Chairman's Readiness System (CJCSI 3401.01C) with input at several levels under the current system. As a tool for assessing current readiness, the Joint Quarterly Readiness Review (JQRR) requires reporting from both combatant commanders and services on specific requirement shortfalls, including the operational impact, risk exposure, mitigation actions, and deficiency solution sets. DRRS will provide the capability to identify risks tied to specific resources by mission in near real-time. For example, by examining the array of potential units, capabilities, and sustainment posture, alternatives can be examined to address deficiencies. Key to this is the use of net-centric technology to achieve near real-time or "useful" time in identifying risk and mitigation strategies.

APPENDIX D: Readiness Reporting PROCESS Flows

High-Level Readiness Reporting Flows—GSORTS and DRRS

Figures D-1 and D-2 illustrate existing and to-be readiness process chains.

Figure D-1. Existing GSOPRTS Readiness Reporting Process Flow

	Input Unit/UIC Readiness	Readiness Reports move up Echelon Chain	Service Command Headquarters: Unit to MET Assessment	Command, Combatant Commander: Sign off & Assess Mission(s)	Joint Staff: Mission Decisions, What if Analysis
Process Description	▸ Query data sources for raw resource data ▸ Determine percentage of "have on hand" divided by required → P,S,R,T ratings → overall C rating ▸ Input quantities/percentages, P,S,R,T, and C ratings into local SORTS input tool ▸ Save file to floppy disk, send over AUTODIN, or FTP	▸ Report moves up echelon chain to Division/MAJCOM ▸ Report file sent via person on floppy disk (airplane, car), AUTODIN or FTP ▸ Report is edited, combined with other reports, ratings reviewed ▸ Data sources may be queried to review raw resource data quantities	▸ Recommend which Units should fulfill which missions ▸ Decide which resource requests can be met ▸ Attend JQRRs ▸ Risk Assessment	▸ Evaluate & assess unit's C rating to missions, may make rating modification suggestions ▸ May query resource data sources ▸ Sign off on Executive Summary ▸ Input data into GSORTS Oracle database via RAS or other input tool ▸ Attend JQRRs	▸ Decide which Units will fulfill which Missions ▸ Analyze What if Scenarios ▸ Crisis planning, Deliberate planning ▸ Host JQRRs ▸ Risk Assessment
Value-Add	▸ Create unit status report: translate percentages into P, S, R, T ratings, then into overall C rating	▸ Higher echelons scrutinize P,S,R,T and C ratings ▸ Action Officer: ensure C ratings are consistent with P, S, R, T ratings; input data into SIPRNET hosted software via US Message Text Format (USMTF)	▸ Compare Unit assessments to determine which Unit s are appropriate for which Missions ▸ May move resources among Units to form a Unit that can meet a Mission	▸ Assessment of Unit readiness to mission ▸ Sign off on Unit's C rating	▸ Decide on Missions and which Units will fulfill them ▸ Determine if there are enough Units to meet possible What If scenarios
Existing Inefficiency	▸ Resource data quantities are not reported in consistent data fields ▸ Readiness rating does not express what type of MET for which the Unit is ready ▸ The data is 1-2 months old by the time it reaches the JQRR ▸ USR takes approx. 5-7 days, 3 people	▸ Labor and time intensive ▸ Echelons may query data sources or call Reporting Units to understand reasons for a rating	▸ Data is not real time, around 1-2 months old	▸ METs criteria to be assessed is not expressed in the same measures as the C rating; the C rating is based on unit's ability to execute the mission for which the unit was organized or designed, not the current mission in question	▸ Data is not real time, around 1-2 months old
Software/ Tools Used	▸ SORTS tool, example PC ASORTS for Army, or word processor for Navy,	▸ ASORTS for Army, GOMERS/RAS for Marine Corps, TRMS for Navy (SIPRNET based)	▸ GSORTS, JOPES, and other assessment tools	▸ ASORTS for Army, GOMERS/RAS for Marine Corps (SIPRNET based), GSORTS	▸ GSORTS, JOPES, and other assessment tools

Figure D-2. DRRS Readiness Reporting Process Flow

	Input Unit/UIC Readiness into DRRS	Echelon Chain uses DRRS to Review Readiness Report	Combatant Commander: Sign off & Assess Mission(s) using DRRS	Service Command Headquarters: Unit to Mission Assessment	Joint Staff: Mission Decisions, What if Analysis
New Process Description	▸ Query data sources ▸ Reporting Unit populates ESORTS with METL and METL assessments	▸ Ad hoc input queries ▸ Battalion, Brigade, Division/MAJCOM all access Readiness Report via DRRS network, ESORTS tool ▸ Review METL for each Un ▸ Query data sources via DRRS network	▸ Ad hoc input queries ▸ Evaluate & Assess Units to mission tasks, may make modification suggestions ▸ May query data sources via DRRS network ▸ Sign off on Executive Summary ▸ Attend JQRRs	▸ Ad hoc input queries ▸ Recommend which Units should fulfill which mission ▸ Decide which resource requests from Units can be met ▸ Attend JQRRs ▸ Risk Assessment	▸ Ad hoc input queries ▸ Decide which Units will fulfill which Missions ▸ Analyze What if Scenarios ▸ Crisis planning, Deliberate planning ▸ Host JQRRs ▸ Risk Assessment
Benefits	▸ Raw resource data is organized to support METL assessment ▸ METs with conditions and standards focus decomposed to determine resources quantities	▸ All Units access Readiness Report and data sources from one point, ESORTS interface ▸ Metrics reviewed directly correspond to METs measures	▸ Unit readiness measures (accessed using ESORTS directly correspond to Mission task readiness measures ▸ Less subjectivity, more direct logic from measures to mission assessment	▸ Data is near real time ▸ Can access all data involved in process via DRRS network, ESORTS tool as navigation point ▸ Combatant Commander can receive automatic notification when report is being reviewed	▸ Data is near real time ▸ Can access all data involved in process via DRRS network, using ESORTS tool as navigation point
Challenges	▸ Access to DRRS network fro Unit location ▸ Creating METL and assessments with conditions and standards will initially tak time ▸ Big process change ▸ ESORTS must meet specific needs of each Service	▸ Access to DRRS network from each Unit location ▸ New process must meet the unique needs of every Service	▸ It will take time to generate METL and assessments for each supported plan ▸ Buy in to change current process	▸ Buy in to change current process ▸ Training on accessing and using tools via DRRS network	▸ Buy in to change current process ▸ Training on accessing and using tools via DRRS network
Software/ Tools Used	▸ DRRS network to access dat sources and ESORTS	▸ DRRS network to access data sources and ESORTS	▸ DRRS network to access data sources, ESORTS	▸ DRRS network to access data sources ESORTS, and assessment tools (CFAST)	▸ DRRS network to access data sources, ESORTS, and assessment tools (CFAST)

APPENDIX E: DRRS Vignette—Flexible Deterrent Option

1. This vignette lays out a use of the Defense Readiness Reporting System (DRRS) as the United States Pacific Command (USPACOM) reacts to a crisis on the Korean peninsula. The general situation is as follows:

    a. U.S. forces remain engaged in Iraq and Afghanistan, leading to continued deployments of U.S. forces in Southwest Asia.

    b. In late 2004, the ongoing rotation of forces in Iraq leads to the commitment of the *USS Kitty Hawk* Strike Group from Japan to the Arabian Gulf.

    c. Operations IRAQI FREEDOM (OIF) and ENDURING FREEDOM (OEF) continue at current tasking levels.

    d. The current declaration of national emergency and Presidential Selective Reserve Call-up continue at current levels.

2. Two months after the deployment of the Kitty Hawk Strike Group, tensions begin to rise on the Korean peninsula. In response to this, a decision is made to deploy U.S. forces to the region to provide a deterrent to possible North Korean aggression. As a result of this decision, USPACOM looks at Flexible Deterrent Options (FDO) in the USPACOM area of responsibility (AOR) and the Korean theater. A timely analysis of available resources and capabilities is required.

    a. This force package replicates the capabilities that the Kitty Hawk Strike Group normally provides USPACOM and provides additional combat power to U.S. Forces Korea (USFK).

    b. These capabilities include close air support, air interdiction, deep attack, air defense, and ground combat. These FDOs must be sourced from forces that are available worldwide and not engaged in other contingencies.

3. The USPACOM Commander, in concert with the Joint Staff and the Secretary of Defense, determines that deployment of an FDO is required.

    a. The leading edge of DRRS technology is used to provide decision makers at the Office of the Secretary of Defense, the Joint Staff, USTRANSCOM, USPACOM, USFK, Pacific Air Forces (PACAF), U.S. Army, Pacific (USARPAC) (and others) with detailed and near real-time knowledge related to unit readiness that—

i. Enables planners to examine and determine capabilities to meet the commander's requirements to meet this mission.

ii. Allows for effective and rapid sourcing decisions and an analysis of deployment timelines.

b. The USPACOM Commander directs subordinate commanders to conduct a special readiness update.

c. Subordinate commanders ***review resource information in ESORTS*** for their respective organizations and ***update readiness assessments in the Assess METL tab. Echelons review subordinate unit status***.

d. The USPACOM Future Operations staff (USPACOM J35) works with the USFK CJ3 and CJ5 staff to develop Courses of Action for FDOs for the commander by assessing force requirements. In constructing the FDO packages, ***unit readiness as reported in ESORTS*** is taken into consideration.

ESORTS is used to conduct readiness assessments in support of the execution of an OPLAN:

- Preplanned readiness data reports and ad hoc queries (including personnel, training, logistics, and infrastructure information) assist planners in determining and refining capabilities that are available to meet command requirements. Planners and staff officers review resource data to evaluate readiness.
- Commanders at COCOM, subunified command, component and unit level assess units by assigned METL that relate to the mission to be executed.
- Commanders use DRRS to assist in deciding which forces can accomplish the assigned operational missions based on data and METL assessment.
- Commander drills down on equipment data in ESORTS to identify quantity, quality, and availability of equipment to evaluate readiness.

e. These FDO package Courses of Action are briefed to the commander for approval. The commander reviews the FDO options and selects the most appropriate based on mission criteria and force match (FDO XX). A Request for Forces (RFF) is prepared for the Joint Staff and the Secretary of Defense as a result of the commander's decision.

f. USPACOM J35 then checks ***DRRS ESORTS to determine the current status of FDO XX identified unit readiness status based on unit sourcing, availability, and assessment value (yes, qualified yes or no).***

g. USPACOM J35 tasks USPACOM J54 and PACOM J46 to perform a feasibility analysis of FDO XX.

i. USPACOM J54 and PACOM J46 use ***CFAST, which consumes readiness data of FDO XX units from ESORTS via Web services. They use CFAST to view unit readiness ratings and analyze proposed units for multiple apportionment across multiple OPLANs***.

ii. USPACOM J35, USPACOM J54, and USPACOM J46 staff officers ***use ESORTS and CFAST to identify one unit that is not ready and two that are unavailable because of a commitment to other operations. Via ESORTS over Web services, USPACOM identifies alternative like units that are ready and are available.***

Commanders and planners determine which units and equipment support METL requirements. The DRRS data then allows commanders and planners at all levels to perform the following actions:

- Analyze forces from all Services and components required to support the assigned FDO mission based on accurate and near real-time readiness reporting.
- Evaluate forces not in acceptable readiness state.
- Evaluate lack of support constraints.
- Thoroughly evaluate the complexities of deployment phasing capability and force protection capabilities as they are deployed.
- Provide sound and feasible recommendations where appropriate for alternative and substitute units; adjustments to time phasing or deployment order; addition of support (below-the-line) units.

h. USPACOM J54 reports shortfalls and possible alternatives to USPACOM J35. USPACOM J35 directs (or requests from J3 Joint Staff) assignment of alternative units. Approval given.

i. USPACOM J35 tasks USPACOM J54 to run feasibility analysis of new force list.

ii. ***CFAST consumes ESORTS information and performs CFAST cycle of feasibility analysis, including JFAST and SUSGEN. SUSGEN consumes DLA data to validate sustainability.***

iii. USPACOM J54 reports operation is feasible.

i. Commander USPACOM directs the deployment of the FDO package and ***task force commanders report readiness changes via ESORTS***.

j. Once deployment has commenced, USPACOM, Joint Staff, and OSD staff officers ***monitor the readiness and location of forces deployed in this FDO***.

Once selected for the mission, DRRS enables unit commanders to accomplish the following:

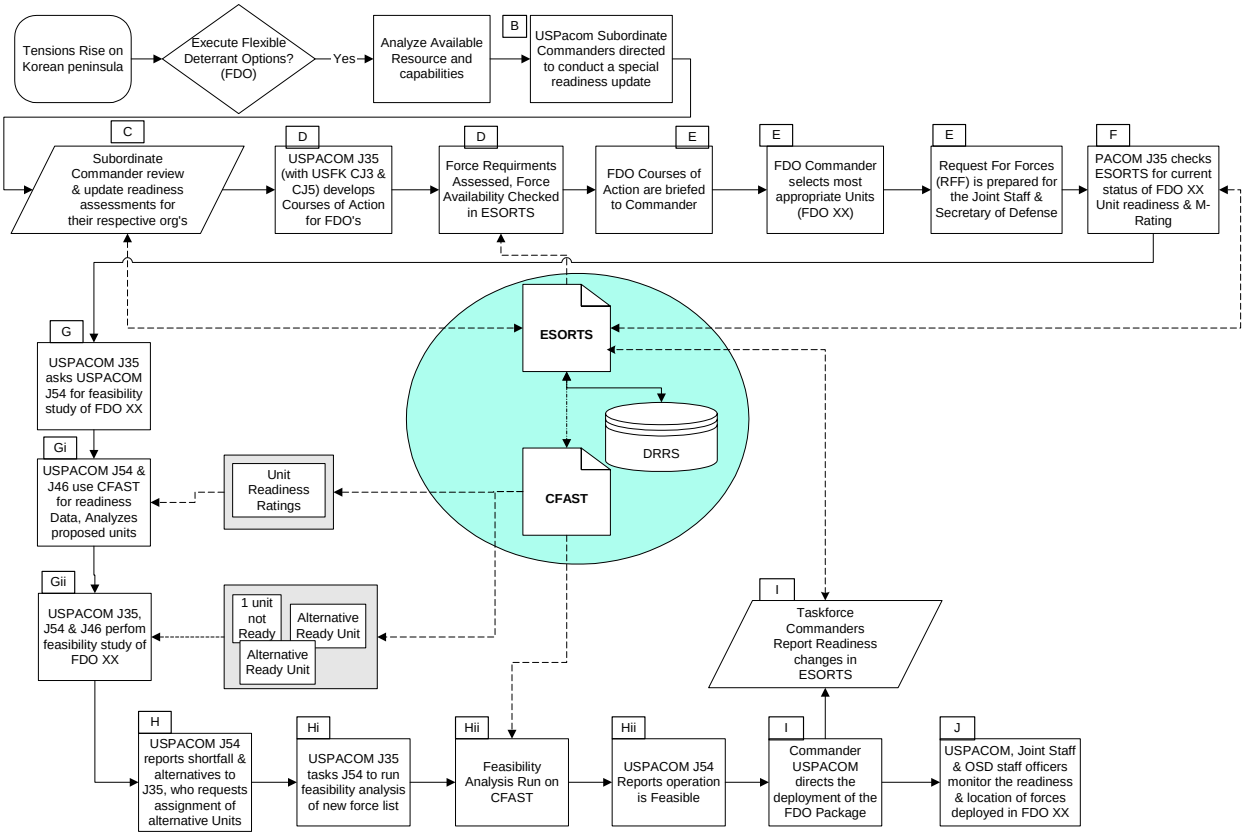
- Monitor subordinate readiness.
- Update readiness reporting in support of the METL.
- Use the DRRS to create an agent to monitor subordinate readiness.
  - Subordinate units are responsible for critical supporting tasks.
  - Subordinate units will report “not ready” status (which may often fluctuate in status as readiness factors change–e.g., unit equipment readiness postures changes as a result of maintenance, or personnel fill numbers change).
  - Subordinate’s readiness changes; commanders are notified via e-mail, and can modify his own readiness status; an event management system based on business rules established by the commander.

4. Summary: As a result of the capabilities and information DRRS provides, commanders and planners at all levels were able to use objective, measurable, and near real-time data to make their readiness assessments and operational

decisions. By linking to broader planning and sustainment tools, the DRRS network of processes and applications used leading edge, net-centric technology to facilitate rapid plan assessment and analysis to test the feasibility of alternative courses of action.

Figure E-1 illustrates the process flow for this vignette.

Figure E-1. DRRS Vignette Process Flow



APPENDIX F: DEFINITIONS

Capability. The ability to execute a specified course of action. (A capability may or may not be accompanied by an intention.)

Capability Entity. The lowest level at which the collection of personnel and equipment gives the capability to execute one or more tasks that compose an identifiable capability. Most commonly, this would be at the level at which the capability entity would be separately deployed

Workgroup Collaboration Tools. Software tools that provide a means of data sharing and synthesis. Typically, collaboration tools are divided into (1) asynchronous tools, such as discussion forums, document management, and shared calendar, and (2) synchronous tools, such as instant messaging, real-time application sharing, and online white boarding.

Readiness Collaboration Tools. Readiness collaboration tools provide a mechanism for members of the readiness community to exchange data between readiness applications such as mission-essential task data, resource data, and campaign plan data. Readiness collaboration tools afford users the ability to use readiness data from different systems throughout the activity life cycle of readiness planning and assessment processes.

Combatant Commander. The senior military leader of a unified combatant command as established in the Unified Command Plan.

Defense Readiness Reporting System (DRRS). DRRS is the means to monitor the readiness of the DoD components to provide capabilities to support the NMS as specified in the defense and contingency planning guidance, Theater Security Cooperation Guidance, and Unified Command Plan.

Enhanced Status of Resources and Training System (ESORTS). Automated, near real-time readiness reporting system that provides performance output standards and current readiness status for operational forces and defense support organizations in terms of their ability to perform their mission essential tasks. Establishes a relationship between resource and training inputs and readiness to perform a specific MET based on standards established by the parent DoD component.

Initial Operational Capability (IOC). The first attainment of the capability to employ effectively a weapon, item of equipment, or system of approved specific characteristics that is manned or operated by an adequately trained, equipped, and supported military unit or force.

Joint Mission Essential Task (JMET). Mission task, selected by a joint force commander that is deemed essential to mission accomplishment and defined using the common language of the universal joint task list in terms of task, condition, and standard.

Measured Unit. Any entity that is registered and measured in ESORTS as a reportable unit by the military departments or defense agencies. Combatant commands will identify and report CINC headquarters and Joint Staff Forces not already reporting. It may be a military or civilian organization.

Mission Essential Task (MET). Task based on mission analysis and approved by the commander that is absolutely necessary, indispensable, or critical to the success of a mission.

Net-Centricity. The realization of a networked environment (including infrastructure, systems, processes, and people) that enables a completely different approach to warfighting and business operations. DRRS applications and applicable data sources are Web-service enabled to comply with the NII guidance on net-centric operations.

Readiness (Department of Defense). A measure of the Department of Defense's ability to provide the capabilities needed to execute the missions specified in the National Military Strategy. Readiness is the synthesis of two distinct but interrelated levels:

- **Unit Readiness.** The ability to provide capabilities required by the combatant commanders to execute their assigned missions. This is derived from the ability of each unit to deliver the outputs for which it was designed.
- **Joint Readiness.** The combatant commander's ability to integrate and synchronize ready combat and support forces to execute assigned missions.

APPENDIX G: ACRONYMS

AEF	Aerospace Expeditionary Forces
AMETL	Agency Mission Essential Task List
AOR	Area of Responsibility
ART	AEF Reporting Tool
ASG	Automated Security Guard
ATO	Authority to Operate
AUTODIN	Automatic Digital Network
C&A	Certification and Accreditation
C2G	Command and Control Guard
CA	Certification Authority
CFAST	Collaborative Force-Building Analysis, Sustainment and Transportation
CDS	Cross-Domain Security
CES	Core Enterprise Services
CJCSI	Chairman of the Joint Chiefs of Staff Instruction
COCOM	Combatant Command
COMSEC	Communications Security
CONOPS	Concept of Operations
COTS	Commercial Off-the-Shelf
CSA	Combat Support Agency
DAA	Designated Accrediting Authority
DoD	Department of Defense
DoDD	Department of Defense Directive
DPG	Defense Planning Guidance
DRRS	Defense Readiness Reporting System
DTS	Defense Transportation System
DUIC	Derivative Unit Identification Code
ESORTS	Enhanced Status of Resources and Training System
FDO	Flexible Deterrent Options
FOC	Final Operating Capability
FTP	File Transfer Protocol
GAO	General Accounting Office
GCCS	Global Command and Control System
GEOCODE	Geolocation Code
GFM	Global Force Management
GIG	Global Information Grid
GOTS	Government Off-the-Shelf
GSORTS	Global Status of Resources and Training System
HAG	High Assurance Guard
HQDA	Department of the U.S. Army (Headquarters)
IA	Information Assurance
IATO	Interim Approval to Operate
IOC	Initial Operational Capability
JC2	Joint Command and Control System
JCS	Joint Chiefs of Staff

JDES	Joint Deployment, Employment, and Sustainment
JFAST	Joint Flow and Analysis System for Transportation
JFCOM	Joint Forces Command
JIT	Joint Interoperability Task
JMET	Joint Mission Essential Task
JMETL	Joint Mission Essential Task List
JOPES	Joint Operational Panning and Execution System
JPEC	Joint Planning and Execution Community
JQRR	Joint Quarterly Readiness Review
JTAV	Joint Total Asset Visibility
MAC	Mission Assurance Category
MET	Mission Essential Task
METL	Mission Essential Task List
MID	Management Initiative Decision
NCES	Net-Centric Enterprise Services
NII	National Information Infrastructure
NMS	National Military Strategy
OEF	Operations ENDURING FREEDOM
OIF	Operations IRAQI FREEDOM
OPLAN	Operational Plan
OSD	Office of the Secretary of Defense
PACAF	Pacific Air Forces
PACOM	Pacific Command
PATS	Plan Assessment Tool Suite
RAS	Readiness Assessment System
RML	Readiness Markup Language
ROMO	Range of Military Operations
SIPRNET	Secret Internet Protocol Router Network
SOA	Service-Oriented Architecture
SOAP	Simple Object Access Protocol
SROC	Senior Readiness Oversight Council
SRTM	Security Requirements Traceability Matrix
SSAA	System Security Authorization Agreement
SUSGEN	Sustainment Generator
TPFDD	Time Phased Force Deployment Data
UIC	Unit Identification Code
UJTL	Universal Joint Task List
ULN	Unit Line Number
USARPAC	U.S. Army, Pacific
U.S.C.	United States Code
USFK	United States Forces Korea
USTRANSCOM	U.S. Transportation Command
UTC	Unit Transportation Code
WSDL	Web Services Description Language
XML	Extensible Markup Language