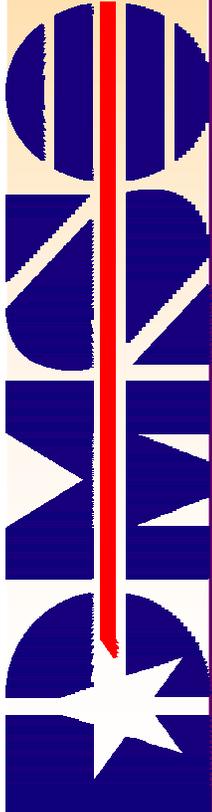




Authoritative Data Sources (ADS) for use in DoD Modeling & Simulation





Authoritative Data Sources (ADS) Project

Jack Sheehan

Director, Data Engineering Division
Defense Modeling & Simulation Office (DMSO)
1901 N. Beauregard Street, Suite 380A
Alexandria, VA 22311
703-998-0660
jsheehan@dmsomil

Mike Hopkins

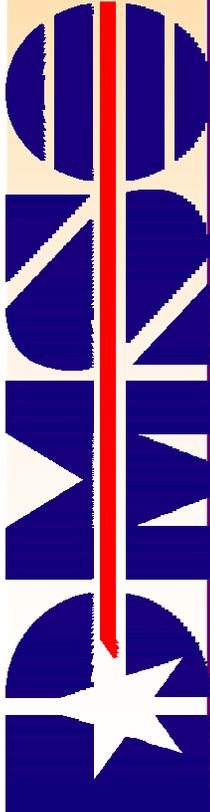
Co-Chair, ADS Working Group
Defense M&S Office (DMSO)
1901 N. Beauregard St, Ste 380A
Alexandria, VA 22311
703-998-0660 ext.431
mhopkins@dmsomil

LtCol Katherine Rowe

Co-Chair, ADS Working Group
HQ USAF/XOCP
1500 Wilson Blvd, Ste 300
Arlington, VA 22202
703-588-5071
katherine.rowe@pentagon.af.mil

Dave Kendrick

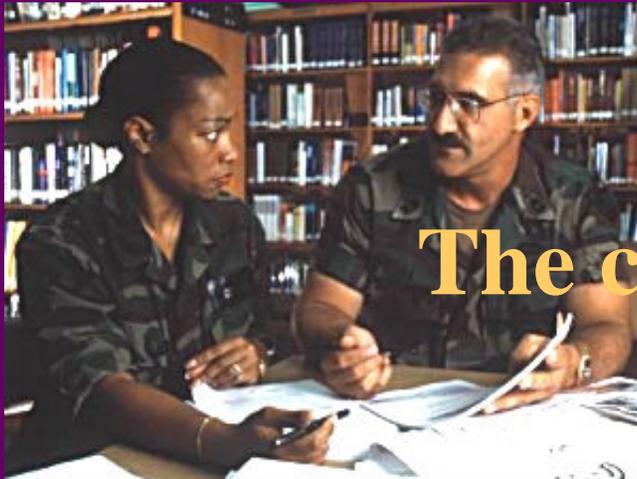
Program Manager, ADS Project
Veridian Engineering
2101 Executive Drive, Tower Box 51
Hampton, VA 23666
757-825-0973 ext. 316
dkendrick@hamp.veridian.com



PREMISE



The ability to locate and acquire...



The correct knowledge...

Data...



Information...

...Is Key to

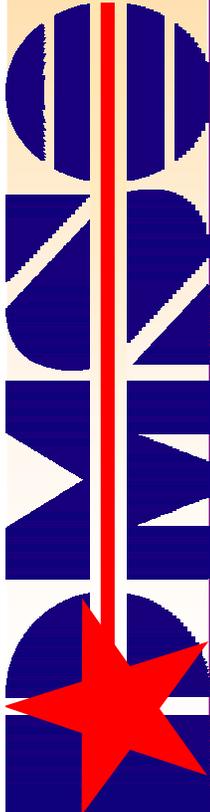


Accurate Representations



The Authoritative Data Sources Project

Provides the Knowledge Acquisition Tool





The Authoritative Data Sources (ADS) Project

Initiated by the Defense Modeling and Simulation Office (DMSO) to provide the Department of Defense (DoD) Modeling and Simulation (M&S) community with a listing of government and commercial data producers and repositories with levels of authority assigned to each



Modeling and Simulation (M&S) Master Plan DoD 5000.59-P

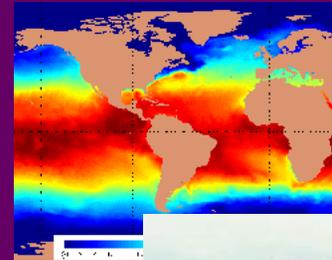
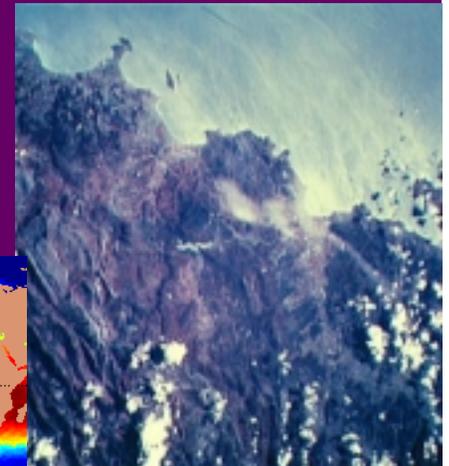
- ❖ **Directs DoD to strengthen the use of M&S in the three functional areas**
 - **Training**
 - **Analysis**
 - **Acquisition**

- ❖ **The ADS project specifically supports the DoD M&S Master Plan goals and objectives in that it deals with:**
 - **Complex data modeling and simulation for scientific and technical application**
 - **Verification and validation (V&V) of data**
 - **Reuse of data**



Objectives

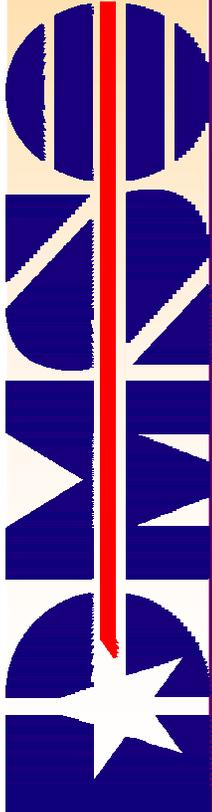
- ❖ Objective 5-3: develop a directory of authoritative data sources
- ❖ Objectives 2, 3, and 4: ADS project scope — authoritative representations of:
 - Natural environments
 - Human behaviors
 - Systems





Supports:

- ❖ Joint training
- ❖ Development of doctrine and tactics
- ❖ Formulation of operational plans
- ❖ Assessment of warfighting situations
- ❖ Technology assessment
- ❖ System upgrade, prototyping, and full-scale development
- ❖ Force structuring





Goals — Defined by DoD M&S Master Plan

- ❖ Improve warfighting capability
- ❖ Support the decision making process that leads to those capabilities

IMPROVED CAPABILITIES
AND
DECISION MAKING





Authoritative Data Sources (ADS) Work Group (WG)

- ❖ **Established by DMSO February 1994**
- ❖ **Consists of**
 - **Service and Agency M&S office representatives**
 - **Executive Agent representatives**
 - **Other prominent personnel interested in M&S data representations**



M&S Data Taxonomy

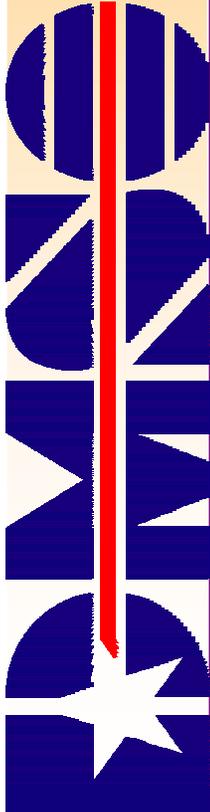


373 Sub-Categories



Initial Population of the ADS Library

- ❖ **Funded by DMSO, contracted to Veridian**
- ❖ **Commenced in April 1996**
- ❖ **Core database of sources completed in FY99**





Four Phases

- ① **Identify the sources**
- ② **Gather a standard set of information**
- ③ **Designate each source with a level of Authority**
- ④ **Make information readily available to the M&S community**



① Identify the Sources

- ❖ Continuous process
- ❖ Contacting senior Service and Agency M&S offices for prioritized listings of their sources
- ❖ Search expanded by
 - Obtaining inputs from major users
 - Asking identified points of contact to identify other sources
 - Search of U.S. government and military web pages





② Gather a Standard Set of Information

- ❖ Metadata standard developed and approved by the ADSWG
- ❖ Focus is on providing the information required during the knowledge acquisition phase of any model development or employment. Recent expansion supports VV&A
- ❖ Metadata content cross-walked with the Federal Geographic Data Committee and ISO standards for metadata, and the DDDS

AMSAA Performance Estimate Data System

Source Title: AMSAA Performance Estimate Data System

Relevant Categories:

- * Equipment
 - o Equipment Performance
 - Land under Equipment_Performance

Source Type: Data Src

Rating: Authenticative

Rating: Authenticative

Overnight Org: USAMSAA

Designating Ofc: Army Modeling and Simulation Ofc

POC Name: Mr. Pete Rigano

Authority: Army Reg 5-11, USAMSAA-tasked as AMC

Classification: S DED Available?

Dictionary Name: Standard Army Study Agency Norms

User Support: Unlimited Data Model: Yes-othr

Description: Performance data for Army systems (system accuracy, probability of probability of hit, reliability, sensor parameters, etc) including air defense, aviation, infantry, and artillery systems.
Representative/Specific Data Sets:
Accuracy Data
Effects on Personnel for Infantry and Aviation systems

WV&C Accomplished:
Continuous. As new data is developed it undergoes a level of WV&C and that is documented. As a particular formal study focuses on a specific data set, WV&C is again accomplished. Cross functional checks are performed to insure cross

Restrictions: Users require access approval by submission of request with supporting need to know

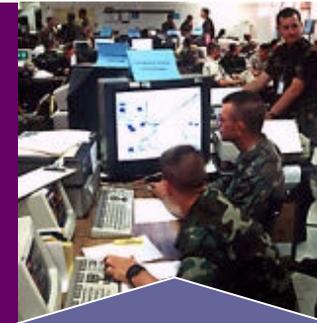
URL: AMSAA home page being developed for future use.

Access: Files are placed in a database accessible via the SIPRNET and are in standard ASCII format.
AMSAA will provide guidance on how data should be used. For Army applications AMSAA develops algorithms that correctly utilize the data



③ Designate Each Source with a Level of Authority

- ❖ Provides the users with the information necessary to confirm appropriateness of the data for the need
- ❖ Assigned by
 - Components responsible for the creation of the information
 - Joint consensus of the ADSWG

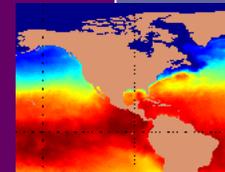


ADS LIBRARY
METADATA ON
1700 SOURCES



DESIGNATION
Category I • Category II
and Category III

PEDIGREE



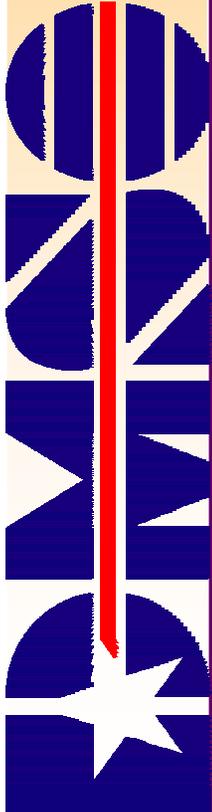
Veridian Engineering



Levels of Authority

Category I

A recognized Service or National data production center with applicable mission statement, industry provider, or source/product that has established and documented production quality control procedures and quality controls on the data produced. These organizations or source/products have a reliable performance history. They have well-defined data metrics and significant metadata information, sufficient to satisfy all priority one Data Quality Template requirements (ADS mandatory metadata fields), available according to a recognized metadata standard.





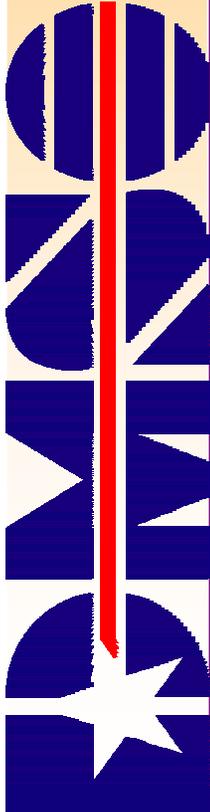
Levels of Authority Continued

Category II

A data producer or source/product designated by a Component. Includes data providers and sources/products that, while not of the Category I stature, have become de facto providers of data or have unique, one-of-a-kind data sets, and employ quality control procedures. This category includes providers of individual data sets that have been accepted or designated as research grade data sets. The category may also include industry providers who establish Component-approved M&S support systems. Their data may or may not have well defined data metrics, and their metadata only partially satisfy the Data Quality Template priority one requirements (ADS mandatory metadata fields).

Category III

A producer, source, or product that is not Category I or Category II but is available for use as deemed appropriate by the user





AMSAA Performance Estimate Data System

Source Title: AMSAA Performance Estimate Data System

Relevant Categories:

- Equipment
 - Equipment Performance
 - Land under Equipment_Performance

Source Type: Data Set

Rating: Authoritative

Rating: Authoritative

Overight Org: USAMSAA

Designating Ofc: Army Modeling and Simulation O&A

POC Name: Lt Peter Rigano

Authority: Army Reg 5-13, USAMSAA tested as AMC

Classification: S EEO Available?

Dictionary Name: Standard Army Study Agency Name

User Support: Unlimited Data Model: Yes-Other

Description: Performance data for Army systems (system accuracy, probability of kill, probability of hit, reliability, sensor parameters, etc) including tanks, air defense, aviation, infantry, and artillery systems.

Representative/Specific Data Sets: accuracy data, Effects on Personnel for Infantry and Aviation systems

VM&C Accomplished: Continuous. As new data is developed it undergoes a level of VM&C and that is documented. In a particular formal study focuses on a specific data set, VM&C is again accomplished. Once functional checks are performed to insure data can be used.

Restrictions: Users require access approval by submission of request with supporting needs to be met.

URL: AMSAA home page being developed for future use.

Files are placed in a database accessible via the SIPNET and are in standard ASCII format.

Access: AMSAA will provide guidance on how data should be used. For Army applications AMSAA develops algorithms that correctly utilize the data in



④ Make Information Readily Available to the M&S Community

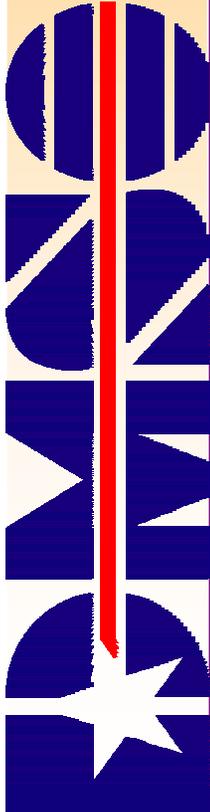
- ❖ Value lies in reduction of knowledge acquisition time
- ❖ Available via the Internet

<http://ads.msrr.dmsso.mil>



ADS “Use-Cases”

The product of the ADS Project can reduce the knowledge acquisition phase during both model development and employment.



Case 1 Scenario

You are a modeler with the task of developing the Conceptual Model of the Mission Space (CMMS) for the Army's involvement in logistics over the shore operations.



❖ Once at the ADS site you start your search for data by clicking on the Search for Data Sources button.



[Home](#) [Back](#) [Search for Data Sources](#) [Data Source Reports](#) [Feedback](#)



An MSRR Resource



Welcome to the **Authoritative Data Sources Library**

DoD Data Sources that can be used to support M&S:

- Metadata Descriptions and Component Designated Knowledge Sources
- Capability to search for data sources in a variety of ways
- Eight different reports
- Easy-to-use navigational menu
- Intuitive screen layouts

[About The ADS Library](#) chronicles our history, objectives, and intents and provides access to supporting documentation.

[ADS Working Group Mission and Purpose](#) describes our aims, aspirations, deliverables and timelines.

[ADS Working Group Membership List](#) contains the names and contact information of our team.

[ADS Definitions and Terminology](#) contains the data source definitions and responsibilities, category definitions and data dictionary.

[ADS Taxonomy Walkthrough](#) contains a Powerpoint presentation of our taxonomy categories.

[ADS Upcoming Events and Future Plans](#)

Main Contacts for the ADS Library:

Working Group Co-Chair: [Mike Hopkins](#)

Working Group Co-Chair: [Lana McGlynn](#)



Note this page also provides for access to ADS general information.



Veridian Engineering



- ❖ You have heard the common acronym for Logistics Over the Shore is LOTS, so you decide to use the Main Search (All words) to search the entire Library for that term. You enter “LOTS” and submit. Tips and examples are available for each search type.

A screenshot of a web search interface titled "An MSRR Resource". At the top, there are navigation buttons: "Home", "Back", "Search for Data Sources", "Data Source Reports", and "Feedback". A circular logo on the right says "ADJUTANT GENERAL DATA SOURCES" and shows a bookshelf. Below the title, "Search Types:" are listed as "Main Search", "Category Search", "List All", "Title Find", and "Word Search". A link for "General Search Tips" is visible. The "Main Search" section has a text input field containing "LOTS". Below the input field are radio buttons for "All words" (selected), "Any words", and "This phrase". A "Submit Search" button is below the radio buttons, with a hand cursor pointing at it. At the bottom left, there are links for "Search Tips and Examples" and "Top of Page".



- ❖ The result of your search could contain subject matter experts (SMEs), Organizations, Documents, or Databases. You scroll through the list, finding Joint Pub 4-01.6. That looks like a good starting point, so you click on it.

A screenshot of a web page titled "An MSRR Resource". The page has a navigation bar with buttons for "Home", "Back", "Search for Data Sources", "Data Source Reports", and "Feedback". A circular logo on the right side of the page reads "AUTHORITATIVE DATA SOURCES" around a central image of a book and a computer monitor. Below the navigation bar, the page displays "Search Results" and "Your request returned 9 Records:". A list of search results is shown, including "Atlas of Surface Marine Data 1994 (Non-Designated)", "Coastal Engineering Defense Information Analysis Center (CEIAC) (Non-Designated)", "FORCEM - Force Evaluation Model (Authoritative)", "Global Historical Fields (GHE) - Vers 1.0. (Non-Designated)", "Joint Pub 3-09.3 Joint Tactics, Techniques, and Procedures for Close Air Support (CAS) (Authoritative)", "Joint Pub 4-01.6 Joint Tactics, Techniques, and Procedures for Joint Logistics over the Shore (JLOTS) (Authoritative)", "Ozone Data (Non-Designated)", "Radio Physical Optics (RPO) Model (Non-Designated)", and "Terrain Parabolic Equation Model (TPEM) (Non-Designated)". A hand cursor icon is positioned over the "Joint Pub 4-01.6" link.



- ❖ **The Library returns the metadata on the selected source. You see that it is an authoritative source.**

[Home](#) [Back](#) [Search for Data Sources](#) [Data Source Reports](#) [Feedback](#)

An MSRR Resource

Datasource Details

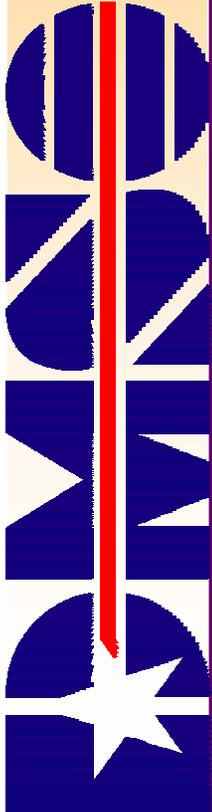
Title:	Joint Pub 4-01.6 Joint Tactics, Techniques, and Procedures for Jo		
Type:	Document	Rating:	Authoritative
Oversight Org:	JWFC Doctrine Division	Classification:	U
POC:	JWFC Doctrine Division	Category:	Doctrine and Operations -Tactics -Joint tactics
Designating Office:	OSD PA&E		
Authority:	JCS Pub 2 (Feb 95), DoD d		
Data Model:	No		
Data Elem Dict:	<input type="checkbox"/>		
Dictionary Name:	Joint Pub 1-02 Dictionar		
Designating Component:	JCS		

Note: More information on the Oversight Org. and POC can be viewed by clicking the appropriate button.



- ❖ **The metadata tells you the publication does contain the information you need. A URL to the information is available, so you click it.**

Description:	22 Aug 1991. Provides guidance, policy, and doctrine on the organization, coordination, planning, and command and control of JLOTS operations.
URL:	http://www.dtic.mil/doctrine
VVC Accomplished:	N/A Staff  h Services and CINCs IAW Joint Pub Process
Restriction:	None
Access:	Available for download via Web at Joint Electronic Library
Support:	Unlimited to DoD





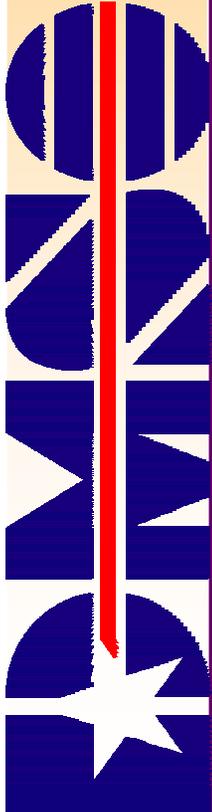
- ❖ You are taken to the Joint Electronic Library where you can select the publication and display or print it. Reading the publication raises questions, so you go back to the metadata to find source POC information.



- ❖ You can contact the POC to answer your questions or perhaps point you to operational subject matter experts. Or you can go back to the original query list and select other sources to expand your knowledge.



Organization Form		ID: 461
POC Name:	JWFC Doctrine Division	
POC Type:	Organization	
First Name:		M.I.:
Last Name:		
Address:	Chairman Joint Chiefs of Staff - J7 Joint Warfighting Center - Doctrine Division	
Address1:		
Address2:	Fenwick Road Bldg. 96	
Mail Stop:		
City:	Fort Monroe	Postal ID: 23651-5000
State:	VA	Country: USA
Phone:	8047256403	POC DSN:
Fax:		
POC EMail:		





Case 2 Scenario

You are an analyst developing a database for a model run. You need instance data on force structure and consumption rates for the equipment involved in a LOTS operation.



❖ The ADS Taxonomy has a category “Force Description,” so you decide to do a Search using Current Category. Highlight the appropriate category and search.

Home Back Search for Data Sources Data Source Reports Feedback

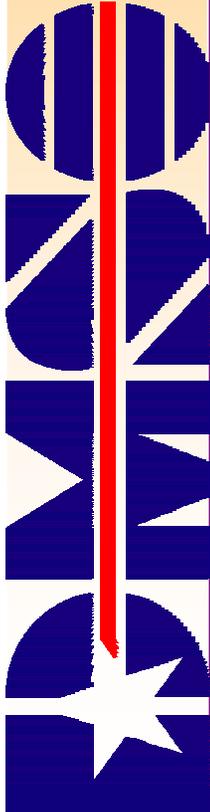
An MSRR Resource

Category Search

Search using Category and Sub-Cat Search using Current Category or Show Resource Detail

Selected Category = Force Description Showing = 14 Show All Categories

- ADS Categories
 - Doctrine and Operation
 - Environment
 - Scenario
 - Force Description**
 - Equipment
 - Service Support
 - Unit Performance
 - Test Results
 - Human Factors
 - Political





- ❖ You select CFDB as a possible source and click on it.

Home Back Search for Data Sources Data Source Reports Feedback

An MSRR Resource

Category Search

Search using Category and Sub-Category Search using Current Category or Show Resource Detail

Selected Resource = Conventional Force Data Base Total Resources = 5 Show All Categories

<ul style="list-style-type: none">ADS Categories<ul style="list-style-type: none">Doctrine and OperatorEnvironmentScenarioForce DescriptionEquipmentService SupportUnit PerformanceTest ResultsHuman FactorsPolitical	<ul style="list-style-type: none">Battalion/Brigade Battle Simulation (BBS) BaseLine DatabaseBillet Master FileBlue Force StructureCALL DataBasesCATT Task RCI/PM CATT Data RepositoryCombat Service Support Training Simulation SystemConventional Force Data Base (CFDB) - Data CenterCorps Battle Simulation (CBS) BaseLine DatabaseFM 100-13, Battlefield Coordination Detachment (BCD)Functional Description of Battlespace (FDB)Future Years Defense Plan (FYDP)Jane's Air-Launched Weapons, Missiles and RocketJane's Aircraft and Aircraft Components Defense YearJane's Armies Weapons, Mines and Ammunition Def
---	---



- ❖ The Library returns the metadata. A review of the categories and authoritative rating indicate this might be a good source.

[Home](#) [Back](#) [Search for Data Sources](#) [Data Source Reports](#) [Feedback](#)

An MSRR Resource

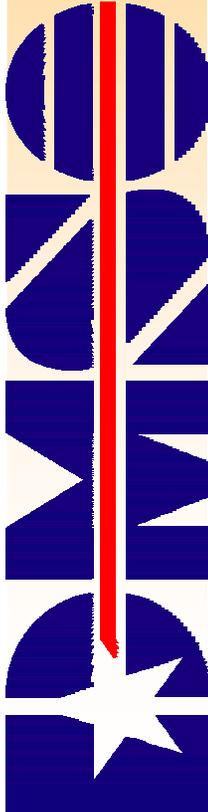


Datasource Details

Title:	Conventional Force Data Base (CFDB) = Data Center		
Type:	Database	Rating:	Authoritative
Oversight Org:	OSD PA&E	Classification:	s
POC:	James M. Pieper		
Designating Office:	OSD PA&E		
Authority:			
Data Model:	Yes-IDEF1X		
Data Elem Dict:	<input type="checkbox"/>		
Dictionary Name:	interactive on-line		
Designating Component:	DoD		

Category

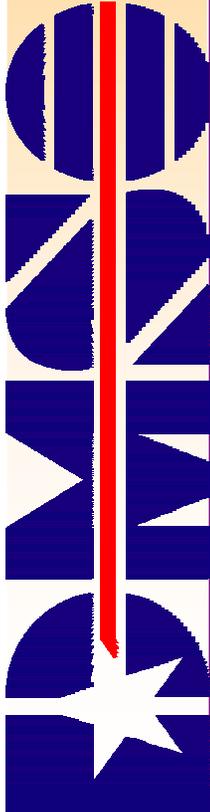
- Equipment
 - |-Equipment Characteristics
- Scenario
 - |-Army
- Force Description
 - |-Army under Force_Description
 - |-Table of Organization & Equ.
 - |-Marine Corps under Force_Descript.
 - |-TO/TE (Table of Organizatio





- ❖ **The description further supports use of this source. However, there is no direct link (URL) to the data, so you have to contact the POC to gain access.**

Description:	--- A near real time data base composed of three main categories: units, personnel (assigned by occupation and grade), and equipment (authorized, required, & on hand quantity at property book level) for all Services --- Provides single source of current data from all
URL:	None
VVC	yes
Accomplished:	There is A Data Quality Engineering Tool (DQE) used to Check
Restriction:	Data to be used for Modeling and Simulation Analysis only
Access:	Contact POC
Support:	Unlimited

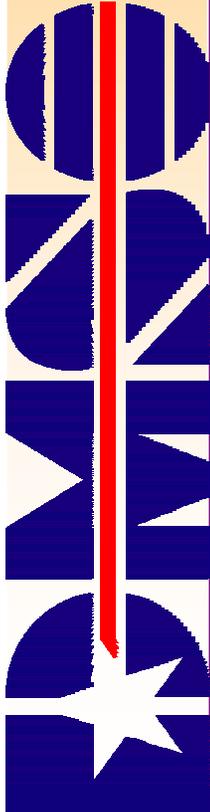




- ❖ After identifying the force structure, you could return to the Home Page and, using the Main Search (Any words), search for consumption rates. You select Logistics Planning Factors from the returned listing.

The screenshot shows a search interface with the following elements:

- Search Types:** Buttons for Main Search, Category Search, List All, Title Find, and Word Search.
- General Search Tips:** A link to search tips.
- Main Search:** A search box containing the text "consumption rates".
- Search Options:** Radio buttons for "All words", "Any words" (which is selected), and "This phrase".
- Submit Search:** A button to execute the search.
- Search Results:** A section titled "Search Results" indicating "Your request returned 118 Records:". The results list includes:
 - [Active Duty Loss File \(Approved\)](#)
 - [Active Duty Master File \(Approved\)](#)
 - [AFDD 30, Airlift Operations \(Authoritative\)](#)
 - [JV2010 \(Authoritative\)](#)
 - [Logistics Planning Factors Data Bases - \(Operational\) \(Approved\)](#)
 - [Logistics Remote Users Network \(N\) \(Non-Designated\)](#)





❖ The metadata for the Logistics Planning Factors Data Bases (Operational) is displayed.

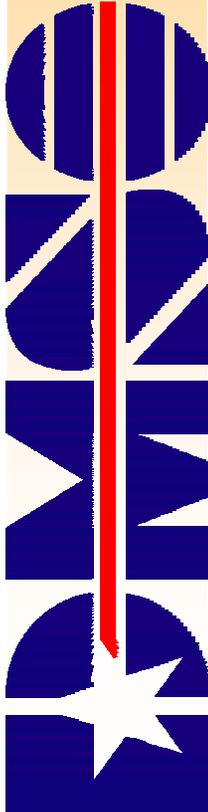
[Home](#) [Back](#) [Search for Data Sources](#) [Data Source Reports](#) [Feedback](#)

An MSRR Resource



Datasource Details

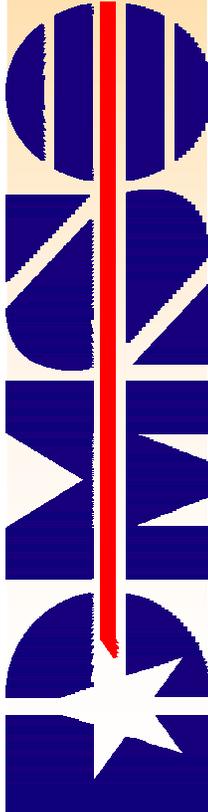
Title:	Logistics Planning Factors Data Bases - (Operational)		
Type:	Database	Rating:	Approved
Oversight Org:	U. S. Army CASCOM	Classification:	s
POC:	Mr. Alex Blair	Category:	Equipment -Equipment Performance -Air under Equipment_Perform. -Land under Equipment_Perform. -Sea under Equipment_Perform. Force Description -Army under Force_Description -Table of Organization & Equ. Doctrine and Operations
Designating Office:	Army Modeling and Simulat		
Authority:			
Data Model:	No		
Data Elem Dict:	<input type="checkbox"/>		
Dictionary Name:	Model documentation distr		
Designating Component:	Army		





- ❖ **The metadata reveals that OPLOGPLN is a combination of a model and underlying databases and will provide the required information. However, you must contact the POC to acquire the software.**

Description:	The Operational Logistics Planner (OPLOGPLN) is a combination of model and underlying databases. The databases contain Army DCSLOG certified usage and consumption factors, TO&Es and scenario modifiers. The model queries the user for the specific force and operational information and then
URL:	None
VVC Accomplished:	Verification is conducted by each Proponent with each annual update. Validation is done against output of OPLOGPLN at the
Restriction:	None to DOD & ABCA treaty countries. Release to other countries through Diplomatic process.
Access:	Access by written request to POC. Product can be provided on most media.
Support:	Unlimited support provided to DOD customers and ABCA IAW treaty.





- ❖ You contact the POC and acquire the planning tool.
- ❖ You input your specific scenario information and the model calculates the planning values.
- ❖ You now have appropriate data to load your database for the model run.



POC Form ID: 309

POC Name: Mr. Alex Blair
POC Type: Person

First Name: Alex **M.I.:**
Last Name: Blair

Address: U.S. Army CASCOM
Address1: ATTN: Mr. Alex Blair
Address2: 700 Quarters Road, Suite 142

Mail Stop:
City: Ft. Lee **Postal ID:** 23801-6000
State: VA **Country:** USA

Phone: 8047650639 **POC DSN:** 5390639
Fax: 8047650627

POC EMail: blaira@lee-emh2.army.mil

