

JCDB DATA POPULATION AND DATA WAREHOUSING

Problem:

There is not a singular process in place for populating the static and semi-static data required by the Joint Common Database (JCDB) end users. This is due primarily to the rapid evolution of the JCDB and the divergence of the many authoritative data sources DoD wide.

Solution:

Program Executive Office-Command Control Communications Systems (PEO-C3S) Horizontal Technology Integration Office (HTIO) establishes the process for obtaining raw data from root Department of Defense (DoD) data sources and populates the JCDB with the semi-static data. HTIO would manage this process and the associated system.

Background:

The JCDB is a pivotal element of the U.S. Army's drive toward the use of standard data and common software/hardware products in all C2 systems. The JCDB is currently used for the provision of common functional data across the Army Battle Command System (ABCS) subsystems and is key in the efficient exchange of C3I data between systems. The JCDB provides the ABCS systems a common format and language for executing true database-to-database data exchange.

The JCDB currently supports the use of data that falls into three categories.

- 1). **STATIC DATA.** Static data is data that is used in the JCDB lookup datatables. This type of data has a discrete data domain set and rarely needs modification. Examples of static data are countries, echelons, and rank codes.
- 2). **SEMI-STATIC DATA.** Semi-static data is data that is not normally changed at the unit level, but is often changed at the institutional level. The proponent for this type of data is at the institutional level. Examples of this type of data are organizations (ORG_ID), personnel, materiel, and the data for associating relationships between these entities.
- 3). **DYNAMIC DATA.** Dynamic data is operational data that changes often at all echelons, often in near real-time. The proponent for this data is at the users at the unit level. Examples of this type of data are locations, operational status, orders, and map graphics. Rigorous management of dynamic data is not required.

[NOTE: The current agreement in place is that the CTSF in Ft. Hood, Texas has the responsibility for populating the JCDB with data required for operational testing. This is scenario driven dynamic data populated based upon the geographies required and the participating units.]

Both static and semi-static data are treated as reference data by the ABCS developers and therefore, can be loaded as part of the JCDB COE segment. Because there are procedures in place to modify static data and because dynamic data is not considered reference data, this paper focuses on the population of the semi-static data required by the JCDB.

Current efforts:

The current effort to supply the JCDB with semi-static data focuses on the organization information. Organization Identifier (ORG_ID) is a key to many tables in the JCDB. The U.S. Army Force Management Support Agency (USAFMSA) has been funded to provide force structure (Organization/Unit) data to the JCDB. This effort will meet the requirements of the ABCS community with force structure data in the long-term, but fails to meet the needs of the JCDB in the near-term. USAFMSA's plan calls for a prototype system to be tested in April 2000, producing a small subset of the required data. Their plan further calls for the system to be full implemented between 2003 and 2005.

Discussion:

To populate the JCDB with semi-static data a system must be established to accomplish the following objectives:

1. Acquire the required data from the root sources; i.e., USAFMSA, Defense Intelligence Agency (DIA), Army Materiel Command, etc...
2. Translate the raw source data into a JCDB-friendly format.
3. Populate the JCDB for each new segment delivery.
4. Collaborate with the JCDB development program to apply procedures for updating legacy JCDB reference datatables utilizing the COE segmentation process.

Concept of Solution:

The establishment of a JCDB data warehouse group with the mission of gathering raw data from the root sources, and populating the JCDB reference set data tables.

Implementation:

TASK 1: Identify the root sources of DoD data.

The data warehouse group will identify the definitive source of the data need by the JCDB. For Example, DCSPER for personnel data, AMC for materiel data, and USAFMSA for force structure data.

TASK 2: Establish agreements with the definitive sources of required data.

PEO-C3S establishes agreements with the data sources to provide raw data to the data warehouse group. The agreements will require the definitive source to provide the raw in the native format that the source is currently using. These agreements will further require the sources of the data to routinely provide updates to the data.

TASK 3: Initial translation of raw data.

Using the initial raw data provide by the root sources, the data warehouse group translates the data into the JCDB usable format. Each of the different definitive sources has formatted their data to accomplish their specific mission; therefore there will be some complexities in the translation. For example, force structure data does not include such operational structures as command posts. These idiosyncrasies can be overcome by working to solutions with the doctrinal sources at TRADOC and the sources of the data. The major challenge during this process will not be translating the raw data, but rather establishing the various relationships of the data acquired from the different sources. This must be done even if the sources of the data do the translation themselves.

TASK 4: Translate modification to the source data.

The data warehouse group will translate changes in the raw source data into the JCDB format. As each of the sources update their data sets they must be sent the data to the data warehouse group for translation. Therefore the JCDB can stay synchronized with the source data with minimal delay.

TASK 5: Prepare JCDB COE segment.

The data warehouse group will work with the JCDB developers to incorporate the semi-static data into the JCDB COE segment. The final step in the process of giving the user the most accurate data available is developing the COE segment.

Benefits of establishing a Data Warehouse Group:

- Consolidates the tasks of translating the data into the JCDB and establishing the associations of the data in the hands of the same organization.
- Establishes positive PEO-C3S control over the complete process. The data warehouse group, JCDB developers, and the ABCS subsystems developer all would be in the PEO-C3S change of command.