Defense Information Infrastructure (DII) Common Operating Environment (COE)

Introduction to the
Enhanced Logistics Intratheater Support Tool (ELIST) Mission Application and its Segments:
Global Data Segment Version 8.1.0.0,
Database Instance Segment Version 8.1.0.0,
Database Fill Segment Version 8.1.0.0,
Database Segment Version 8.1.0.0,
Database Utility Segment Version 8.1.0.0,
Software Segment Version 8.1.0.0, and
Reference Data Segment Version 8.1.0.0

for Solaris 7

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1.   Scope

This document, the *Introduction to the Enhanced Logistics Intratheater Support Tool (ELIST) Mission Application and its Segments*, satisfies the following objectives:

- It identifies the mission application, known in brief as ELIST, and all seven of the segments that make up ELIST.

- It discusses the relevant security classification considerations.

- It defines several concepts and terms that are used throughout the DII COE documentation for ELIST.

- It discusses client/server relationships among the ELIST segments.

- It references all of the available documentation.

- It gives a brief history of the development of ELIST.

1.1   Identification

Table 1 identifies all the segments of the ELIST mission application. In the table, each segment is given a number by which it is referenced in the following discussion. The table also gives the name, the segment type (and, if a data segment, the segment scope), the current version number, and the directory name assigned to each segment.

Table 1. Segments of the ELIST Mission Application

Segment Number	Segment Name	Segment Type / Scope	Version Number	Directory Name
1	ELIST Global Data Segment	Data / Global	8.1.0.0	`ELISTglob`
2	ELIST Database Instance Segment	Data / Segment	8.1.0.0	`ELISTdbinst`
3	ELIST Database Fill Segment	Data / Local	8.1.0.0	`ELISTdbfill`
4	ELIST Database Segment	Database	8.1.0.0	`ELISTdb`
5	ELIST Database Utility Segment	Software	8.1.0.0	`ELISTdbutil`
6	ELIST Software Segment	Software	8.1.0.0	`ELISTexec`
7	ELIST Reference Data Segment	Data / Local	8.1.0.0	`ELISTrefdata`

All seven segments have the following identification properties in common:

Segment Prefix[1]:   ELIST

Platform(s)[2]:   Sun/Solaris 7

DII COE Versions: 4.2.0.0P4 or later

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[1] Note carefully that all segments have the same prefix. This is not typical of multisegment DII COE mission applications.

[2] Implementation of the ELIST segments for PC/Windows NT 4.0 will follow shortly. This documentation covers only the Sun/Solaris 7 platform but will be supplemented or replaced when an implementation becomes available for NT.

Segments 1–5 must be installed in the order shown and, with one exception (see Section 1.2.4), must be deinstalled in reverse order. Segments 6 and 7 can be installed and deinstalled at any time, but it is recommended that you not install them initially until Segments 1–5 have been installed. *All seven of the ELIST segments must be installed before you can use the ELIST mission application.*[3]

The ELIST mission application had a long history prior to its migration to DII COE, which accounts for the initial version number of 8.1.0.0 in 2002. Since 2001, just prior to the completion of its migration, ELIST has included the functionality of the Expanded Time-Phased Force Deployment Data (ETPFDD) Editor (ETEdit).

1.2 System Overview

1.2.1 ELIST Mission Application

The ELIST mission application simulates and evaluates the feasibility of intratheater transportation logistics primarily for the theater portion of a course of action. It performs a discrete event simulation of a series of movement requirements over a constrained infrastructure network using specified transportation assets. ELIST addresses the question of whether transportation infrastructures and lift allocations are adequate to support the movements of specific force structures and supplies to their destinations on time. Detailed information on the capabilities and use of ELIST can be found in the *User's Manual (UM) for the Enhanced Logistics Intratheater Support Tool (ELIST) Software Segment*, and in the *ELIST v.8.1: User's Manual* and the *ETEdit v.1.0: User's Manual*, to which it refers.

The ELIST mission application uses a database to store and manipulate ETPFDDs, transportation network infrastructure data, and data on transportation lift assets. Segments 1–5 are concerned with the installation and removal of the ELIST database. The platform on which they, the Oracle COTS segments, and certain database administration segments are installed is called a *database server platform*. All of these segments together are called *database server segments*. Segment 6 contains the software for running the ELIST mission application (that is, for running ELIST and ETEdit) and scripts for managing the National Imagery and Mapping Agency (NIMA) map reference data, a starter set of which is encapsulated in Segment 7. The platform on which Segments 6 and 7 are installed is called an *application client platform*, and these segments are called *application client segments*. Note that all seven segments can be installed on one machine, which then plays the role of both database server platform and application client platform. It is more common, however, for the two platforms to be represented by separate machines, communicating across a LAN, with different sets of segments installed on each. Furthermore, the application client segments may be installed on multiple application client platforms. This setup allows multiple users to share a common database while performing simulations for different regions, each supported by the appropriate NIMA map reference data.

Two groups of users—*general ELIST users* and *administrative ELIST users*—are defined by the ELIST mission application; they are represented by the `elistusr` and `elistadm` operating system groups, respectively. The DII COE segment installer creates these operating system groups as it installs the segments of the ELIST mission application. The two groups of users have different privileges and different access to features of the ELIST mission application. General ELIST users can edit ETPFDDs by using the **Run ETEdit** feature of the ELIST

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[3]To save space, however, the ELIST Database Fill Segment can be removed after successfully installing the ELIST Database Segment.

Software Segment, and they can run ELIST simulations by using the **Run ELIST** feature of the same segment. (ETEdit is also fully encapsulated in the **Run ELIST** feature, so that if ELIST is invoked by using **Run ELIST**, ETEdit is available inside it.) Administrative ELIST users, on the other hand, can manage ELIST database user accounts by using the features of the ELIST Database Utility Segment (see Section 1.2.6) and can add NIMA reference map data to the ELIST Reference Data Segment (or delete it from that segment) by using the **Add Map Data** or **Delete Map Data** features of the ELIST Software Segment.

During the installation of the segments of the ELIST mission application, the Security Administrator is directed to create two profiles—**General ELIST User** and **Administrative ELIST User**—with access to the respective sets of features. Subsequently, as ELIST users are given operating system accounts, the Security Administrator places the accounts of general ELIST users in the `elistusr` group and assigns them the **General ELIST User** profile; the accounts of administrative ELIST users are placed in the `elistadm` group (and *also* the `elistusr` group, which is necessary for proper access control) and assigned the **Administrative ELIST User** profile.

Complete instructions for installing and deinstalling ELIST can be found in the *Installation Procedures (IP) for the Enhanced Logistics Intratheater Support Tool (ELIST) Global Data Segment*, *Database Instance Segment*, *Database Fill Segment*, *Database Segment*, *Database Utility* Segment, *Software Segment, and Reference Data Segment*, known in short as the *ELIST IP*.

The combined test plan, test description, and test report covering the testing of the installation and deinstallation of the ELIST segments, as well as basic functional testing of their features, is available in the *Software Test Plan/Description/Report (STP/STD/STR) for the Enhanced Logistics Intratheater Support Tool (ELIST) Global Data Segment*, *Database Instance Segment*, *Database Fill Segment*, *Database Segment*, *Database Utility*, *Software Segment, and Reference Data Segment*.

1.2.2 ELIST Global Data Segment

Certain data files that record the identity and other properties of the ELIST database instance are accessed by multiple ELIST mission application segments. Because the database server segments and the application client segments can be installed on different machines, as noted in the previous section, the segment that contains these data files must be (in DII COE terminology) a data segment of global scope. It is known as the ELIST Global Data Segment. The installation of this segment places the data files on a shared disk partition, where they are directly accessible to all the ELIST mission application segments (*via* the LAN and NFS, when the database server segments and the application client segments are indeed installed on different machines).

Information about the current version of the ELIST Global Database Segment can be found in the *Software Version Description (SVD) for the Enhanced Logistics Intratheater Support Tool (ELIST) Global Data Segment*.

1.2.3 ELIST Database Instance Segment

The purpose of the ELIST Database Instance Segment is to ensure the existence of a database instance in which the ELIST database can be created. The actual creation of the ELIST database in that database instance is accomplished by the subsequent installation of a different segment, called the ELIST Database Segment.

Because the database administrator (DBA) at some sites may prefer to accommodate the databases required by several separate applications within a single shared database instance, while another DBA may prefer to associate those separate databases with unique database instances, the ELIST Database Instance Segment gives the installer two choices: using an existing database instance or creating a new database instance. The capability to designate an existing database instance also allows an experienced DBA to create a new database instance for ELIST by independent means. Such a capability might be used, for example, to establish a database instance for ELIST with properties that differ from those that would be assigned by the ELIST Database Instance Segment, were it allowed to create the instance.

The ELIST Database Instance Segment should be installed by, or in the presence of, a DBA (using the usual `sysadmin` account). If the option of using an existing database instance is chosen, the installer is responsible for ensuring that the properties of the existing database instance are suitable for ELIST. On the other hand, if the option of creating a new database instance is chosen, the installer is asked to select a `SYSTEM` password for the new instance, which the segment then creates with the appropriate properties. Those properties are outlined in the `ReleaseNotes` file of the ELIST Database Instance Segment, which is reproduced in an appendix of the SVD for that segment as well as an appendix of the *ELIST IP*.

The *System Administrator's Manual (SAM) for the Enhanced Logistics Intratheater Support Tool (ELIST) Database Instance Segment* provides guidance for recovering from errors that can occur during the segment's installation or deinstallation. It also outlines methods for creating an ELIST database instance before installing the segment, in case the installer chooses to use an existing instance rather than allowing the segment to create a new instance when it is installed. Finally, it contains instructions for changing the password of the `SYSTEM` account of the database instance, should that become necessary after the segment is installed.

Information about the current version of the ELIST Database Instance Segment can be found in the *Software Version Description (SVD) for the Enhanced Logistics Intratheater Support Tool (ELIST) Database Instance Segment*.

1.2.4 ELIST Database Fill Segment

The purpose of the ELIST Database Fill Segment is to provide data for an initial load of the ELIST database. Because it does not perform segment-specific actions during its installation or removal and provides no scripts or programs to be used at other times, this segment is completely passive. The data are used during the subsequent installation of the ELIST Database Segment. After the successful installation of the latter segment, the ELIST Database Fill Segment can be removed. Removal of this segment frees approximately 25 MB of disk storage.

Individual users can import additional data into the ELIST database after the initial database load when required for particular uses of ELIST. Other users provide the data to be imported by exporting them from the ELIST database (at the same site or a different site). Menu items for performing such imports and exports are provided by the **Run ELIST** feature of the ELIST Software Segment.

Information about the current version of the ELIST Database Fill Segment can be found in the *Software Version Description (SVD) for the Enhanced Logistics Intratheater Support Tool (ELIST) Database Fill Segment*.

1.2.5   ELIST Database Segment

Installation of the ELIST Database Segment creates the ELIST database in the database instance identified (and possibly created) during the prior installation of the ELIST Database Instance Segment. This process creates the application-specific tablespaces (or data stores), defines user roles, creates database owner accounts and defines their roles, and creates the tables and other schema objects required by ELIST. It also fills some of those tables with the initial data provided by the ELIST Database Fill Segment. The latter segment can be removed after the successful installation of the ELIST Database Segment.

The ELIST Database Segment should be installed by, or in the presence of, the DBA (using the usual `sysadmin` account) because it prompts for the `SYSTEM` password of the ELIST database instance.

Scripts for maintaining ELIST database user accounts are contained in a different segment, the ELIST Database Utility Segment.

The structure of the ELIST database schema is described in the *Database Design Document (DBDD) for the Enhanced Logistics Intratheater Support Tool (ELIST) Database Segment*.

The *System Administrator's Manual (SAM) for the Enhanced Logistics Intratheater Support Tool (ELIST) Database Segment* provides guidance for recovering from errors that can occur during the segment's installation or deinstallation. It also outlines methods for extending database storage should it become filled during the operation of ELIST.

Information about the current version of the ELIST Database Segment can be found in the *Software Version Description (SVD) for the Enhanced Logistics Intratheater Support Tool (ELIST) Database Segment*.

1.2.6   ELIST Database Utility Segment

The ELIST Database Utility Segment contains scripts that allow administrative ELIST users to perform normal maintenance on ELIST database user accounts. These scripts, which represent the executable features of the segment, are launched in the standard way for software segments, *i.e.*, from a desktop icon. The administrative functions supported by the segment correspond to the following feature names:

- **Create User Account**

- **Remove User Account**

- **List User Accounts**

- **Lock User Account**

- **Unlock User Account**

- **Change User Password**

The scripts, which can be executed at any time after the installation and initialization of the segment, prompt the administrative ELIST user for the `SYSTEM` password of the ELIST

database instance. When creating an ELIST database user account, an administrative ELIST user selects a password for the account.[4]

Instructions for using these features can be found in the *User's Manual (UM) for the Enhanced Logistics Intratheater Support Tool (ELIST) Database Utility Segment*.

Information about the current version of the ELIST Database Utility Segment can be found in the *Software Version Description (SVD) for the Enhanced Logistics Intratheater Support Tool (ELIST) Database Utility Segment*.

1.2.7   ELIST Software Segment

The ELIST Software Segment contains scripts that allow general ELIST users to edit ETPFDDs and run ELIST simulations. These scripts, which represent the end-user functions of ELIST, are launched in the standard way used for software segments, *i.e.*, from a desktop icon. The end-user functions supported by the ELIST Software Segment correspond to the following feature names:

- **Run ELIST**

- **Run ETEdit**

ETEdit is fully encapsulated inside ELIST and is therefore also available when running the latter.

This segment also contains scripts that allow administrative ELIST users to add NIMA map reference data to, or delete such data from, the ELIST Reference Data Segment. The administrative functions supported by the ELIST Software Segment correspond to the following feature names:

- **Add Map Data**

- **Delete Map Data**

Instructions for using these features can be found in the *User's Manual (UM) for the Enhanced Logistics Intratheater Support Tool (ELIST) Software Segment*.

Information about the current version of the ELIST Software Segment can be found in the *Software Version Description (SVD) for the Enhanced Logistics Intratheater Support Tool (ELIST) Software Segment*.

1.2.8   ELIST Reference Data Segment

The ELIST Reference Data Segment provides a starter set of NIMA map reference data consisting of the minimum World Vector Shoreline (WVS) data required by ELIST. These data, which are in vector product format, can be supplemented by the additional NIMA map data (*e.g.*, ADRG, CADRG, or DTED data, which are in raster product format) required for particular uses of ELIST, as described in the *User's Manual (UM) for the Enhanced Logistics Intratheater*

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[4] Each general ELIST user is prompted for his/her own database account password when the **Run ELIST** or **Run ETEdit** features of the ELIST Software Segment are invoked.

Support Tool (ELIST) Software Segment.[5] Some such raster product map data are *always* required to run a simulation.

Information about the current version of the ELIST Reference Data Segment can be found in the *Software Version Description (SVD) for the Enhanced Logistics Intratheater Support Tool (ELIST) Reference Data Segment.*

1.3   Security Classification Considerations

The software, data, and documentation associated with all seven segments of the ELIST mission application, as distributed, are **Unclassified**. Just after installation, the ELIST database contains only Unclassified data.

ELIST may be used with classified data, and in that case the user is responsible for satisfying the applicable security requirements regarding the handling of classified materials.

Classified data are entered into the system by interacting with the ELIST Software Segment. Such data may be Time-Phased Force Deployment data (TPFDDs) or networks. Classified TPFDDs can be created within ELIST by using ETEdit, or they can be imported into ELIST from external data; they are subsequently stored in the ELIST database. Classified networks can only be imported into ELIST from external data; they, too, are subsequently stored in the ELIST database. When a TPFDD is created, the user is queried for the applicable security classification of the data. When a TPFDD or a network is imported, the security classification embedded within the external data accompanies it into the system. *All data displayed in windows, or printed, by the ELIST Software Segment are labeled with appropriate security banners, giving the classification level of the data.* Computed data are labeled with the highest security classification of the data from which they are derived.

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[5] The software for managing the data stored in the ELIST Reference Data Segment actually belongs to the ELIST Software Segment.

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2.   Referenced Documents

The following other documents are referenced in this document.

2.1   Government Documents

2.1.1   DII COE ELIST Documents

Software Version Description (SVD) for the Enhanced Logistics Intratheater Support Tool (ELIST) Global Data Segment Version 8.1.0.0 for Solaris 7, ELISTglob.8100.Final.SOL7.SVD, Argonne National Laboratory, 26 February 2002

Software Version Description (SVD) for the Enhanced Logistics Intratheater Support Tool (ELIST) Database Instance Segment Version 8.1.0.0 for Solaris 7, ELISTdbinst.8100.Final.SOL7.SVD, Argonne National Laboratory, 26 February 2002

Software Version Description (SVD) for the Enhanced Logistics Intratheater Support Tool (ELIST) Database Fill Segment Version 18.10.0 for Solaris 7, ELISTdbfill.8100.Final.SOL7.SVD, Argonne National Laboratory, 26 February 2002

Software Version Description (SVD) for the Enhanced Logistics Intratheater Support Tool (ELIST) Database Segment Version 8.1.0.0 for Solaris 7, ELISTdb.8100.Final.SOL7.SVD, Argonne National Laboratory, 26 February 2002

Software Version Description (SVD) for the Enhanced Logistics Intratheater Support Tool (ELIST) Database Utility Segment Version 8.1.0.0 for Solaris 7, ELISTdbutil.8100.Final.SOL7.SVD, Argonne National Laboratory, 26 February 2002

Software Version Description (SVD) for the Enhanced Logistics Intratheater Support Tool (ELIST) Software Segment Version 8.1.0.0 for Solaris 7, ELISTexec.8100.Final.SOL7.SVD, Argonne National Laboratory, 26 February 2002

Software Version Description (SVD) for the Enhanced Logistics Intratheater Support Tool (ELIST) Reference Data Segment Version 8.1.0.0 for Solaris 7, ELISTrefdata.8100.Final.SOL7.SVD, Argonne National Laboratory, 26 February 2002

User's Manual (UM) for the Enhanced Logistics Intratheater Support Tool (ELIST) Database Utility Segment Version 8.1.0.0 for Solaris 7, ELISTdbutil.8100.Final.SOL7.UM, Argonne National Laboratory, 26 February 2002

User's Manual (UM) for the Enhanced Logistics Intratheater Support Tool (ELIST) Software Segment Version 8.1.0.0 for Solaris 7, ELISTexec.8100.Final.SOL7.UM, Argonne National Laboratory, 26 February 2002

System Administrator's Manual (SAM) for the Enhanced Logistics Intratheater Support Tool (ELIST) Database Instance Segment Version 8.1.0.0 for Solaris 7, ELISTdbinst.8100.Final.SOL7.SAM, Argonne National Laboratory, 26 February 2002

System Administrator's Manual (SAM) for the Enhanced Logistics Intratheater Support Tool (ELIST) Database Segment Version 8.1.0.0 for Solaris 7, ELISTdb.8100.Final.SOL7.SAM, 26 February 2002

Database Design Document (DBDD) for the Enhanced Logistics Intratheater Support Tool (ELIST) Database Segment Version 8.1.0.0 for Solaris 7, ELISTdb.8100.Final.SOL7.DBDD, Argonne National Laboratory, 26 February 2002

Software Test Plan/Description/Report (STP/STD/STR) for the Enhanced Logistics Intratheater Support Tool (ELIST) Global Data Segment Version 8.1.0.0, Database Instance Segment Version 8.1.0.0, Database Fill Segment Version 8.1.0.0, Database Segment Version 8.1.0.0, Database Utility Segment Version 8.1.0.0, Software Segment Version 8.1.0.0, and Reference Data Segment Version 8.1.0.0 for Solaris 7, ELIST.8100.Final.SOL7.STP_STD_STR, Argonne National Laboratory, 26 February 2002

2.1.2   Other DII COE Documents

N/A.

2.1.3   Other ELIST Documents

ELIST v.8.1: User's Manual, ANL/DIS/TM-62, Argonne National Laboratory, February 2002

ETEdit v.1.0: User's Manual, ANL/DIS/TM-63, Argonne National Laboratory, February 2002

2.1.4   Other Government Documents

N/A.

2.2   Non-Government Documents

N/A.

3. Notes

The following table defines the acronyms used in this document.

Acronym	Definition
ADRG	ARC Digitized Raster Graphics
CADRG	Compressed ARC Digitized Raster Graphics
COE	Common Operating Environment
COTS	Common Off-the-Shelf
DBA	Database Administrator
DBDD	Database Design Document
DII	Defense Information Infrastructure
DTED	Digital Terrain Elevation Data
ELIST	Enhanced Logistics Intratheater Support Tool (DII COE segment prefix)
ETEdit	ETPFDD Editor
ETPFDD	Expanded Time-Phased Force Deployment Data
IP	Installation Procedures
LAN	Local Area Network
MB	Megabyte(s)
N/A	Not Applicable
NFS	Network File System
NIMA	National Imagery and Mapping Agency
NT	New Technology (an operating system for Microsoft Windows)
PC	Personal Computer
SAM	System Administrator's Manual
SVD	Software Version Description
TPFDD	Time-Phased Force Deployment Data
UM	User's Manual
WVS	World Vector Shoreline

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4. Acknowledgements

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5. Documentation Improvement and Feedback

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