

# JTLS

## Version Description Document

September 2013



DEPARTMENT OF DEFENSE  
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JOINT THEATER LEVEL SIMULATION  
(JTLS 4.1.2.0)

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## ABSTRACT

The Joint Theater Level Simulation (JTLS<sup>®</sup>) is an interactive, computer-based, multi-sided wargaming system that models combined joint and coalition resource air, land, naval, and Non-Governmental Organization (NGO) environments.

This *JTLS Version Description Document (VDD)* describes specific features of the Version 4.1.2.0 delivery of the configuration-managed JTLS software suite.

JTLS 4.1.2.0 is a Major release of the JTLS 4.1 series that includes a newly developed SBDKOR41 Standard Database, as well as major model functionality changes implemented as Engineering Change Proposals (ECPs), which are summarized in Chapter 2. Code modifications that represent corrections to known Software Trouble Reports (STRs) are described in Chapter 3. Remaining and outstanding STRs are described in Chapter 4.

This publication is updated and revised as required for each Major or Maintenance version release of the JTLS model. Corrections, additions, or recommendations for improvement must reference specific sections, pages, and paragraphs with appropriate justification and be forwarded to:

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## 1.0 INTRODUCTION

### 1.1 SCOPE

This *JTLS Version Description Document* (VDD) describes Version 4.1.2.0 of the configuration managed Joint Theater Level Simulation (JTLS<sup>®</sup>) software suite. JTLS 4.1.2.0 is a Maintenance delivery for the JTLS 4.1 series of releases. JTLS 4.1.2.0 includes the entire JTLS suite of software and the SDBKOR41 Standard Database that supports a realistic scenario based on the current Korean Peninsula theater of operations. Database modifications that were accomplished to upgrade the previous JTLS Standard Database to this current version are summarized in this chapter, as well as [APPENDIX B](#). Detailed descriptions of Engineering Change Proposals (ECPs) implemented for this release are provided in [Chapter 2.0](#).

JTLS 4.1.2.0 executes on the Red Hat Enterprise Linux Version 5 or 6 64-bit operating systems. The Web-Hosted Interface Program (WHIP<sup>®</sup>) user workstation interface can be executed from any Java-compatible Web browser available on any operating system.

### 1.2 INVENTORY OF MATERIALS

This section lists documents and software that are relevant to JTLS. All JTLS documents included in this delivery are provided in PDF format within a documents subdirectory.

#### 1.2.1 Obsolete/Outdated Documents

No documents have been removed from the JTLS documentation suite for this release.

#### 1.2.2 Unchanged Documents

The following documentation is provided for this release:

- *JTLS Analyst Guide* (JTLS Document 01, Version 4.1.0.0)
- *JTLS ATOT User Guide* (JTLS Document 03, Version 4.1.0.0)
- *JTLS Controller Guide* (JTLS Document 04, Version 4.1.0.0)
- *JTLS Data Requirements Manual* (JTLS Document 05, Version 4.1.0.0)
- *JTLS DDS User Guide* (JTLS Document 06, Version 4.1.0.0)
- *JTLS Director Guide* (JTLS Document 07, Version 4.1.0.0)
- *JTLS Executive Overview* (JTLS Document 08, Version 4.1.0.0)
- *JTLS Installation Manual* (JTLS Document 09, Version 4.1.0.0)

- *JTLS WHIP Training Manual* (JTLS Document 10, Version 4.1.0.0)
- *JTLS Player Guide* (JTLS Document 12, Version 4.1.0.0)
- *JTLS PPS User Guide* (JTLS Document 13, Version 4.1.0.0)
- *JTLS Standard Database Description* (JTLS Document 14, Version 4.1.0.0)
- *JTLS Software Maintenance Manual* (JTLS Document 15, Version 4.1.0.0)
- *JTLS Technical Coordinator Guide* (JTLS Document 16, Version 4.1.0.0)
- *JTLS Entity Level Server User Guide* (JTLS Document 19, Version 4.1.0.0)
- *JTLS Federation User Guide* (JTLS Document 20, Version 4.1.0.0)
- *JTLS C4I Interface Manual* (JTLS Document 21, Version 4.1.0.0)

### 1.2.3 Updated Documents

- *JTLS Version Description Document* (JTLS Document 17, Version 4.1.2.0)

### 1.2.4 New Documents

No new volumes are delivered with the JTLS 4.1.2.0 documentation suite.

### 1.2.5 Delivered Software Components

JTLS 4.1.2.0 may be delivered either on a CD or as a set of compressed TAR files to be downloaded. Either method includes the complete suite of software executable code and command procedures. These software components are included with this release:

- Combat Events Program (CEP)
- Scenario Initialization Program (SIP)
- Interface Configuration Program (ICP)
- Reformat Spreadsheet Program (RSP)
- Database Development System (DDS)
- Terrain Modification Utility (TMU)
- JTLS Symbols Application (JSYMS)
- Lanchester Development Tool (LDT)

- ATO Translator Program (ATOT)
- ATO Retrieval Program (ATORET)
- Convert Location Program (XCONVERT)
- Count Critical Order Program (CCO)
- JTLS HLA Interface Program (JHIP)
- After Action Review Client (AARC)
- Scenario Data Client (SDC)
- Order Entry Client (OEC)
- Order Verification Tool (OVT)
- JTLS Object Distribution Authority (JODA)
- Web Services Manager (WSM)
- Web-Hosted Interface Program (WHIP) and its component programs:
  - Apache Server (APACHE)
  - JTLS XML Serial Repository (JXSR)
  - Order Management Authority (OMA)
  - Synchronized Authentication and Preferences Service (SYNAPSE)
  - XML Message Service (XMS)
  - Total Recall Interactive Playback Program (TRIPP)
- Entity Level Server (ELS)
- JTLS Operational Interface (JOI)
- KML Operational Interface (KOI)
- TBMCS/ICC Interface Program (JTOI)
- JTLS Interface Network Navigator (JINN)
- JTLS Order of Battle Editor (JOBE)
- Database Configuration Program (DCP)

- DDS User Interface (DDS)

Instructions for installing JTLS 4.1.2.0 are provided in the *JTLS Installation Manual*. Installing a previous version of JTLS prior to installing JTLS 4.1.2.0 is not necessary. No other upgrade beyond installation of the compressed TAR files (or CD) is required. The software provided with this delivery is a complete release that includes all files and code required to execute JTLS.

### 1.2.6 Released Databases

This release includes these sample unclassified databases:

- The scenario developed as the Korea Standard Database and named SDBKOR41 is a large-scale, seven-sided scenario database reflecting the approximate starting positions of units involved in the Korea Peninsula theater of operations. This example scenario was developed using unclassified data sources and is consequently not completely accurate. Discrepancies among actual units and their locations are not detrimental to the intended purpose of this database, which is to provide a recognizable and realistic scenario that demonstrates the simulation capabilities and supports JTLS training.
- The scenario DEMSDBKOR41, which is a reduced version of SDBKOR41, has not been updated from JTLS 4.1.1 for this release.
- The scenario blank40 is the SDBKOR41 database with all force structure data removed, which can be used as a framework for building your customized database.

## 1.3 INTERFACE COMPATIBILITY

### 1.3.1 Support Software

JTLS 4.1.2.0 requires the following versions of support software, including operating systems, compilers, scripting utilities, database tools, transfer protocols, and display managers.

- Operating system for the model: Red Hat Linux Enterprise Edition Version 5 or 6 (ES), 64-bit architecture.

Security Enabled (SE) Linux must not be enabled on systems used to execute JTLS or its components. Tests reveal that SE Linux-enabled systems cause frequent and random JXSR crashes and errors. Use of SE Linux to support JTLS is currently not authorized.

- There are no restrictions on the operating system for client workstations, except that the operating system must have a Java-enabled web browser enabled. JTLS 4.1.2 has been tested on the following operating systems:

Red Hat Linux Enterprise Edition Version 5 and 6

CentOS Linux Version 5 and 6

Windows 2000, XP Professional, Vista, or Windows 7 can be used only if the workstation is an external HTTP client of the simulation network.

- Java Version 1.7.0 Update 40 is required for all platforms and must be used to support all workstations.

Because of recent incidents of intrusions into software systems, the United States Department of Defense (DoD) has implemented a strong and strictly enforced Information Assurance (IA) program. JTLS, as software that executes on DoD systems, must comply to the mandates of the IA program, along with all of the third party software used by JTLS, such as Oracle and Java.

One of the DoD IA requirements is that the software must implement a methodology that ensures that the end user keep the software up-to-date and all security patches are properly installed. Java 7 has fulfilled this mandate by implementing an expiration date for its software. After a certain date, all Java related programs will stop working, whether you are connected to an open network or not.

JTLS has decided to meet this requirement by linking our JTLS software releases to the Java 7 security updates. This version of JTLS is released using Java 7 Update 40, which expires on December 10, 2013. A new version of JTLS will be released prior to that expiration date.

JTLS has completed the IA program mandates and the JTLS 4.1 series of releases has been granted an Authority To Operate (ATO) on DoD systems.

- JTLS database tools require use of a certified Oracle database server and the full Oracle Client installation for runtime requirements. Refer to [Section 1.5.2](#) of this chapter for additional installation details.
- Windows software, X11R5 server, Motif 1.2 Library, Motif Window Manager: These items are included as part of the supported versions of Red Hat Linux ES.
- TCP/IP is required for inter-process communication between the JODA data server and all user interface programs. The version of TCP/IP included with the supported versions of Red Hat Linux ES is sufficient.
- The Perl script language is used by the JTLS system and game setup scripts. The version of Perl included with the supported versions of Red Hat Linux ES is sufficient. The Perl program is typically located in the /usr/bin directory. If Perl is installed in a another location, a link should be created from the /usr/bin directory to this program.

- SIMSCRIPT II.5 (SIMSCRIPT to C) translator/compiler: SIMSCRIPT is required for recompiling JTLS code. It is not necessary to have a SIMSCRIPT compiler to execute JTLS, because all JTLS software executables are statically linked with the SIMSCRIPT libraries. The compiler is needed only if you are a U.S. Government organization that can obtain source code and plan to re-compile JTLS SIMSCRIPT code. To obtain a SIMSCRIPT compiler, contact CACI Inc.
- ANSI C Compiler: It is not necessary to use a C compiler to execute JTLS. This compiler is used only by U.S. Government organizations that can obtain source code and intend to re-compile any of the JTLS component programs. The C Compiler version delivered with the supported versions of Red Hat Linux ES is sufficient.
- C++ Compiler: It is not necessary to use a C++ compiler to execute JTLS. This compiler is used only by U.S. Government organizations that can obtain source code and intend to re-compile any of the JTLS HLA component programs. The C++ Compiler version delivered with the supported versions of Red Hat Linux ES is sufficient
- The JTLS DDS (Database Development System) application uses these open source libraries:

JFreeChart, licensed under LGPL (GNU LESSER GENERAL PUBLIC LICENSE) by Object Refinery Limited, <http://www.object-refinery.com>

JCommon, licensed under LGPL2.1 (GNU LESSER GENERAL PUBLIC LICENSE version 2.1 or later) by Object Refinery Limited, <http://www.object-refinery.com>

Commons-math3-3.0.jar, licensed under Apache Software Foundation (Apache License, Version 2.0) <http://www.apache.org/licenses/LICENSE-2.0> OHLA Compliance

- KML Operational Interface (KOI)

The Keyhole Markup Language (KML) Operational Interface (KOI) server utility enables the model to feed operational simulation data to any version of Google Earth™. The display capabilities and data transfer features of this terrain viewer are sufficiently robust to be used as a base-level operational interface. Operational Players who may be restricted from using the COP, C2PC, or other C4I systems may be able to install and use Google Earth and configure the KOI to provide a capability that resembles C4I for observing perception Force Side data.

Chapter 3 of the *C4I Interface Manual* describes requirements and procedures for using the KOI capabilities.

### 1.3.2 Special Consideration for the JTLS Air Tasking Order Translator (ATO-T)

The ATO-T executes in two modes:

- In the basic move, one or more files containing the translated orders is created and the Controller is responsible for submitting an appropriate READ ORDER FILE Order that submits these orders to the model.
- In the advanced move, the ATO-T connects to the Oracle-based Scenario Database Repository (SDR) and places the translated orders into the appropriate Order Entry Client (OEC) tables. The OEC is responsible for submitting the orders to the model.

The SIMSCRIPT and Oracle library support required by both ATO-T modes are obtained separately. The SIMSCRIPT support is currently provided with each JTLS release. The necessary SIMSCRIPT libraries are released in the ~/bin\_support directory for 64-bit Linux. If running in the basic mode, the Oracle libraries are also released in the ~/bin\_support directory for 64-bit Linux.

To run the advanced mode, users must have access to an Oracle server. Users must obtain, install, and configure the most current Oracle Full Client.

### 1.3.3 JTLS High Level Architecture Compliance

The JTLS 4.1.2.0 release is fully High Level Architecture (HLA) compliant, and includes all the programs required to run JTLS in an HLA mode. JTLS has moved to a new Federation Object Model (FOM) located in the \$JGAME/data/hla directory. Federation testing of JTLS is not complete, but some initial tests with JCATS 11 have been accomplished. Future plans include expanding the federation capabilities.

The HLA RTI (Run Time Infrastructure) executive program (rtiexec) recommended for use with this release is RTI-NG-Pro-v7.0 or Pitch pRTI Evolved 4.4.2.0. However, these programs are not included in the JTLS 4.1.2.0 delivery. Users may obtain a full installation package of the RTI software from either vendor: Raytheon Company (<http://www.raytheon.com>) or Pitch Corporation ([www.pitch.se](http://www.pitch.se)). For information about executing the HLA RTI Executive and other HLA-related software, refer to the appropriate HLA documentation and user guides.

## 1.4 DATABASE MODIFICATIONS

### 1.4.1 Database Upgrade from JTLS 4.1 Series

No database structure differences exist between JTLS 4.1.2.0 and any previous 4.1 series database, but some errors were discovered in the internally-held database procedures. For this

reason, after installing JTLS 4.1.2.0, you must unload and reload any JTLS 4.1 series scenarios that you may have.

To upgrade your previously installed and modified JTLS 4.1.X.0 scenario for JTLS 4.1.2.0, you must unload and reload your scenario. This will recreate the modified stored procedures, database triggers, etc. Failing to do so will cause issues in DDS operations, such as renaming, copying, and deep copying existing records.

If you are upgrading to JTLS 4.1 from JTLS 4.0 or earlier, you must unload and reload your scenario after the modification is completed.

The JTLS Default Symbol Set delivered with this release has been modified. You must propagate this new Default Symbol Set to any of your scenarios that use the Default Symbol Set. Use the procedure that follows. You should not make any modifications to the Default Symbol Set.

Use this procedure to start the JSYMS program to update the Default Symbol Set used by one or more scenarios.

1. Enter the command "jsyms --edit-default" from a command prompt window. Do not use the JTLS Menu > Database Menu for this purpose. This message appears:  
  
"!!! JSYMS Allows Editing and Saving the Default Symbol Set."
2. Select the Default Symbol Set from the drop-down menu and select OK.
3. Select Symbols from the menu bar, and select Save to update all scenarios that use the Default Symbol Set.
4. Close JSYMS.
5. Use the JTLS Menu Option 1 > 1 > 6 (Load Symbols) to load the current Default Symbol Set to your scenario account in the Oracle database,

#### 1.4.2 Database Upgrade from JTLS 4.0 or Earlier

Users who currently possess a JTLS scenario (ASCII file set) compatible with a version earlier than Version 4.1.0.0 can use this recommended modification procedure after installing this new version of JTLS:

1. Create a new Oracle account for the scenario.
2. From the new JTLS account, load the scenario ASCII files to the newly created Oracle account.



This process creates the JTLS schema that matches the previous JTLS version. After all data are loaded to the database tables, the process modifies the schema to match the current JTLS version. For JTLS 4.1, this process supports JTLS 3.0 (or higher) series scenarios only. If your scenario version is older than 3.0, the scenario must be upgraded to Version 3.4 first, by using the JTLS 3.4 version upgrade process. Consult Section 1.5.2 of the *JTLS 3.4.0.0 Version Description Document* for details and procedures.

JTLS users must consider that the automatic modification program inserts default values to the new database fields. Also, a new JTLS version may use previously existing data fields in a different way. Consult the appropriate *JTLS Version Description Document* to identify data fields that must be updated. The Database Modify program is the first process to use to update your databases to the new JTLS version. Changing the values in new or changed data fields is equally important.

The JTLS scenario/database modification process requires 10.2.0.5.4 or higher full Oracle Client installation.

### 1.4.3 Standard Database Changes

Additional Standard Database changes that are applicable to JTLS 4.1.2.0 are described in [APPENDIX B](#).

## 1.5 INSTALLATION

### 1.5.1 Installation Instructions

The *JTLS Installation Manual* included in the documents compressed TAR file that is part of this JTLS delivery provides detailed instructions for installing a new version of JTLS.

### 1.5.2 Oracle Compatibility and Installation

A full Oracle Client installation (not Instant Client) that matches your database server version is currently a requirement for running JTLS applications. The Oracle Instant Client is not sufficient for JTLS applications because Oracle utilities, such as sqlldr, imp, exp, tnsping, etc., are missing. If you have applied a patchset to your database server, the same patchset should be applied to the Oracle Client installation. For the 64-bit version of JTLS, a 64-bit Oracle Client installation must be used. The JTLS scenario/database modification process also expects 10.2.0.5.4 or higher full Oracle Client installation. Some sites NFS mount their database server as Oracle Client; other sites prefer a full install of the Oracle Client to a different directory that mounts (simple NFS will suffice) to JTLS. Your system administrator can choose the appropriate installation. Assigning the full Oracle Client installation location (or mount point) as the ORACLE\_HOME in the JTLS .cshrc file allows connecting to an Oracle database server (10.2.0.5.4 or higher - including 11g XE) running on any Oracle-certified database server platform.

The new DDS application utilizes the Oracle GlassFish J2EE server, which, like the JTLS WHIP Apache server, is delivered with JTLS and requires no separate installation.

Refer to Chapter 5 of the *JTLS Installation Manual* for additional details pertaining to the Oracle installation.

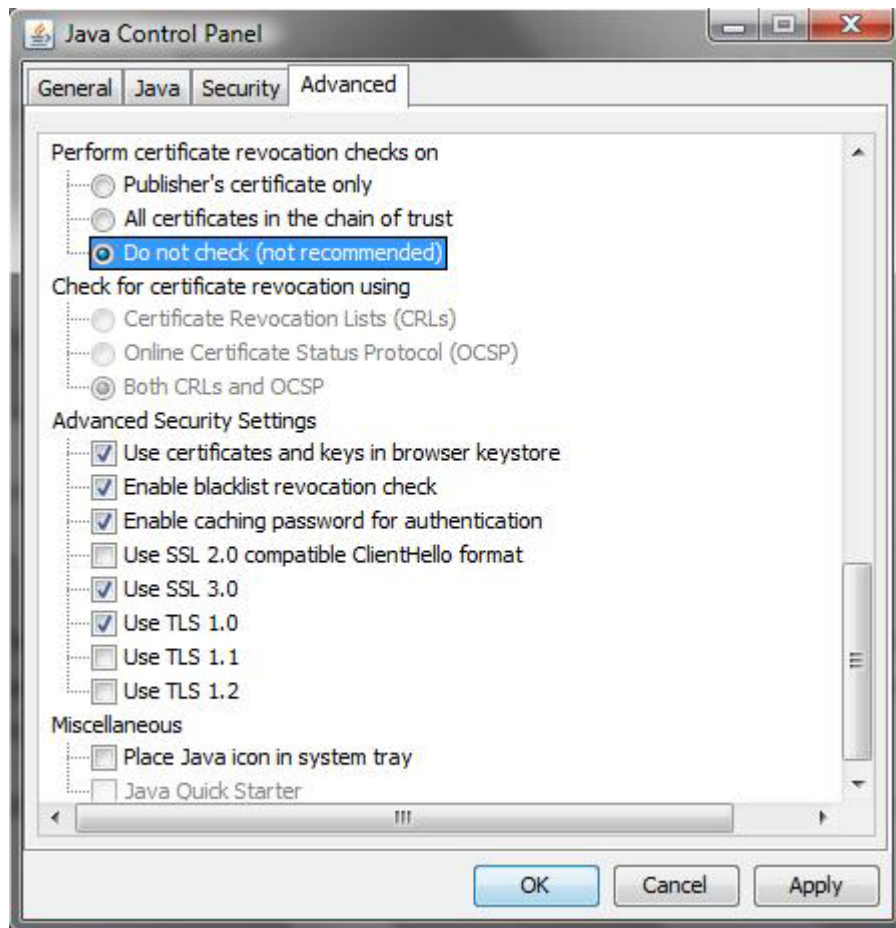
### 1.5.3 Disabling Certificate Authority

Keeping with high security standards, R&A has opted to sign its web enabled applications with a certificate from the COMODO Certificate Authority (CA). It uses the Public Key Infrastructure (PKI) to validate the digital signature. Local area networks, intranets and standalone systems that have no outside connection to the Internet must configure their installation to disable certificate revocation checks. If this step is not taken under a closed environment, the JTLS web enabled applications will experience a significant delay in start up. The PKI attempts to validate the certification on COMODO's servers via the Internet. Because of security issues and the expiry of versions, has strongly recommended that Web Start technologies be signed by a CA to validate that an application being run comes from a trusted and registered source under the PKI.

The following outlines the step required to turn off certificate revocation checks. Again, this step should only be taken if the WHIP, TRIPP and/or DDS are going to be run in a closed environment.

Bring up the Control Panel. On Linux, typing 'jcontrol' in a terminal window will bring up the configuration panel. On Windows, go to the Windows 'Control Panel', select 'Programs' then click on ". Both Linux and Windows will display the same configuration panel.

Navigate to the 'Advanced' tab and in the list of configuration options, select the 'Do not check' radio button and click 'OK'. The image below illustrates the corresponding selection in the Control Panel.



**Figure 1.1 Control Panel**

Completing this step will allow you to run the JTLS web enabled applications without any external checks and launch the application without the validation delay.



## 2.0 ENGINEERING CHANGE PROPOSALS

This chapter summarizes model capabilities added to JTLS 4.1.2.0 as a result of implementing authorized Engineering Change Proposals (ECPs).

### 2.1 JTLS-2013-11607 Specific Time Entry In TRIPP

#### Summary of Model Change Request

Navigating to a specific time with a large recorded data set in the TRIPP proved to be difficult using the time selection slider. As the data set grows larger, the minutes in the time selection slider become finer, making it difficult to adjust the slider to a specific time.

#### Design Summary

A time entry field was added to the playback components panel. The entry field allows for a time to be entered in the Military Date Time Group (DTG) format as DDHHMM(Z)MONYY. Using this familiar time format will make it easy for users to quickly enter a time without having to think about converting to decimal days or other time formats.

When entering a desired time, hitting enter or clicking the "GO" button will verify that the entry is not blank, the correct format is used and that the time is within the recorded range. If these conditions are met, the time selection slider will immediately navigate to the specified time. If any of the conditions are not met, the time entry field will flash red indicating an error in the entry value. This will allow users to correct their entry and try again.



## 3.0 SOFTWARE TROUBLE REPORTS

Software Trouble Reports (STRs) describe software code errors that have been discovered by JTLS users or developers and have been corrected. The following STRs have been identified for this JTLS Maintenance release.

STRs that remain outstanding from previous JTLS versions are listed and described in [Chapter 4.0](#).

### 3.1 JTLS-2013-11590 Structural Changes to Verification Process for DDS

*The Database Development System (DDS) has a built-in capability to cyclically verify JTLS data, correct it, and then re-check it. This process requires some extra data fields which were not already available when the Scenario Verification Program (SVP) wrote data as simple messages. These data were needed to facilitate the automatic correction of data via user interaction within the DDS.*

For many SVP routines, some extra data were added to output structures to help with the correction of errors and warnings using the DDS. Typically these data included the types of prototypes (TUP/SUP/HUP), the types of units (Ground/FARP/Support/Airbase/Squadron/Naval), and the target categories (Air Defense, SSM, Sensor, Jammer, etc). These extra data were required by the DDS program, but were not otherwise visible to the database developer. In addition to extra data which have been added to the SVP output, numerous changes were made to the XML style sheet which translates the SVP data fields into readable sentences.

### 3.2 JTLS-2013-11591 DDS: Flight Path Freeze Problem

*When editing Flight Paths using the Map, it was reported the editor freezes after several changes. If the user makes only a couple of changes it will exit easily, but at some point, the editor freezes and the user cannot get out of it without closing the DDS screen.*

Although we could not replicate the problem, it might be the consequent result of several null pointer exceptions which had occurred when a node or arc moved immediately after a node or an arc name was changed. Therefore, code was fixed that prevents the null pointer exception.

### 3.3 JTLS-2013-11592 DCP Does Not Show Correct Version Number

*The DCP was not displaying the correct version number.*

The DCP was modified to retrieve the version number from the Java properties, which includes the JVERSION loaded from the compile\_time file.

### 3.4 JTLS-2013-11593 Display Version Number On Help Window

*The JTLS version number was not shown in the JOI and JTOI help windows.*

The routine was modified to display the JTLS version number and Operating System information.

### 3.5 JTLS-2013-11594 -1 Manned in HRU Combat Sys IMT

*An HRU conducted an Ambush against another HRU that had been created in the game. The ambushed HRU lost two Other-Troops combat systems. The HRU's Combat System IMT showed two losses under the Avail column, but a -1 under the Manned column. Prior to the ambush, the Avail and Manned columns were correct.*

The incorrectly updated Manned column in the HRU Combat System IMT was traced back to the process that first created the HRU. In that logic, the Manned attribute is used as an error flag when the player requests an HRU that cannot be feasibly created from the Parent unit. If there is no error, a "-1" is assigned to the Manned attribute to represent success, while at the same time an error status flag (THE.ANSWER) is returned to the calling routine to activate the new HRU. When the HRU's combat systems are passed to the JDS for display on the IMT, the Avail amount is passed as the Manned amount, thereby masking the true value of the Manned amount, which is still -1. Later, when the HRU experiences losses in combat, the Avail amount is reduced accordingly, but the Manned amount is not. When the JDS is updated with the new values, the Avail and Manned amounts are passed separately, which changes the IMT Manned column to -1.

Two changes were necessary to correct this problem.

- New code was added to the HRU creation process to assign the Avail amount to the Manned amount when the player's order is feasible.
- New code was added to the damage combat systems process to reduce the Manned amount by the number of losses suffered, exactly as the Avail amount is reduced.

### 3.6 JTLS-2013-11595 JSYMS, JINN: Handling Password in Char Array

*A password entered by the user was passing in a string value, which can possibly be exposed and create a security risk.*

The code was modified to meet government security measure requirements. String values were converted into a char array in the code and released after use.

### 3.7 JTLS-2013-11596 JXSR XML Structure Data Not Updating

*During tablet app development, the initial app retrieved the current situation of units from the JXSR via the XML interface. The majority of the information was correct, but updates to a unit location were not properly reflected in the XML data for the Controller. This data always showed the location of the units when the JXSR was started.*

The problem was traced to a small error in the processing of the updates and corrected.



### 3.8 JTLS-2013-11597 DDS SVPR cell edit causing automatic commits

*When a SVP Resolution (SVPR) component displays a specific data table cell, that table is brought up on the data. In the cell edit mode, the SVPR would cause database commits to be requested automatically, which was problematic.*

Placing the SVPR in a cell focus mode verses edit mode eliminated the database commits.

### 3.9 JTLS-2013-11600 JINN Empty TG Element in Dynamic XML Caused JOBE Crash

*When the JINN wrote out a dynamic xml file, it wrote empty "TG" elements in the unit's associated (maybe owned) target list. The empty "TG" elements will cause the JOBE to crash because it assumes "TG" is an actual target.*

The JINN eliminates a target type "minefield" while it writes a dynamic xml file and does not write the empty "TG" elements if that target should not be included for JOBE.

### 3.10 JTLS-2013-11601 HRU Speed Check to Avoid Division by Zero

*The potential for a division by zero error was discovered in the logic that calculates the required time for an HRU to move across a bridge (network). This error could only occur if the HRU's achieved speed happened to be zero.*

Safety code was added to generate a logic error message and ensure the HRU's achieved speed is greater than zero.

### 3.11 JTLS-2013-11602 Unnecessary Entity Updates Sent to ELS Data Server

*The Entity Level Simulation (ELS) generated superfluous data updates for its entities on the ELS Object Data Authority (EODA). Each update for an entity on the EODA is supposed to contain new or changed data for the entity-level objects. In some cases, the object data were updated, but no changes were being made to the object attributes. These duplicate updates result in unnecessary data traffic on an otherwise very busy data server.*

Close inspection of the ELS data publications found that there were several reasons for the unnecessary updates. In all cases, the root cause of the problem was identified and the code was modified to eliminate the unnecessary updates. There were three causes for these issues, each described below.

First, when crew are mounted on or unmounted from vehicles, the entities were inadvertently updated twice on the EODA. This happened because the entities were first updated when their mounting platform was undergoing an update. Then, when the crew-type combat system was updated from update to the aggregate unit, a second update process occurred. This secondary step was removed and no further duplication issues remained for mounted crew.

Second, when truck entities were used in convoys, their locations were being updated each time the convoy moved. Since the convoy trucks are aligned in template offset locations, the entity offsets do not move relative to their leader object. The latitude and longitude of the leader was changing as expected, but the attributes for the entities did not change although updates were being sent to the EODA. These extraneous updates were removed and no unnecessary publications are visible for convoy entities.

Third, when aircraft were used in air missions, and when truck entities were used in convoys, those combat systems were marked as unavailable in the aggregate unit. This condition triggered an entity update to be sent to the EODA even though no attributes had changed. Note that there are no entity attributes on the EODA which indicates whether or not a system is unavailable. These updates were also removed in the code and no extra publications were made when entities change states to or from available and unavailable.

When all three issues (described above) were corrected, then no more unnecessary entity updates were seen on the EODA. These changes will help to improve the entity-level processing by other programs such as the JTLS HLA Interface Program (JHIP) and the MUSE JTLS Interface Module (JIM).

### 3.12 JTLS-2013-11603 Spreadsheet ACO Problems

*The format displayed in the sample ato\_spreadsheet.xls file for building ACO locations does not work.*

The code for processing the ACO spreadsheet format was previously modified and the sample spreadsheet was not updated. No code changes were required for this STR, but the sample ato\_spreadsheet.xls file was updated in the \$JGAME/DATA directory.

### 3.13 JTLS-2013-11604 Errors in Spreadsheet Naval Orders

*Naval orders generated from the ATO-T spreadsheet function will not pass OVT verification.*

During the upgrade to JTLS 4.1, several enhancements were made to the format of all JTLS orders. The Naval Orders code generation section of the ATO-T was overlooked during this process. The code has now been updated and tested.

### 3.14 JTLS-2013-11605 Zero Entity Pointer Processing ATO-T Transfer Missions

*The ATO-T crashed with a zero entity pointer when attempting to process transfer missions generated from an ATO-T spreadsheet.*

When the ATO-T processes transport missions, it uses the ICAO codes for the airbases. Once it finds the matching ICAO, it can then map the airbase and its latitude and longitude. An error in the code was mapping the ICAO to an undefined airbase. The code was corrected and tested.

### 3.15 JTLS-2013-11606 Damage Reports Inconsistent with IMT KIA/WIA Tallies

*After a mortar attack on a ground unit, the Controller and Player Damage Reports did not agree with the Unit's Combat System IMT. Specifically, both damage reports showed 2 KIA and 1 WIA, but the IMT displayed 1 KIA and 2 WIA.*

*After an HRU ambush against another HRU, the Controller and Player Damage Reports did not agree with the HRU and parent Unit's Combat System IMTs. Specifically, the Controller and Player Damage Reports showed 2 KIA (none damaged), the HRU's IMT displayed 0 KIA and 0 WIA, and the HRU's parent Unit IMT displayed 1 KIA and 1 WIA.*

*When personnel-type combat systems were marked as WIA and evacuated from the game, the supply category for casualties was added to the unit and the weight of that supply was increased by an amount equivalent to the number of evacuated systems. The number of combat systems in the available and manned categories was reduced by the proper amount, but the number of systems in maintenance and/or wounded in action (WIA) was not increased. In addition to the Aggregate-level issues (described above), this also caused a problem with tracking the evacuated combat systems in the ELS.*

In the first case, the problem was traced to a logic flaw that overlooked the situation where the damaged combat system was not placed in maintenance because it was evacuated from the Unit. The logic assumed that ALL damaged personnel systems were placed in maintenance. When the number of catastrophic kills was calculated for the damage reports, the number added to maintenance was subtracted from the overall number of "hit" systems. Because the evacuated system was not in maintenance, it was incorrectly counted as a KIA in both reports. The Combat System IMT was correct; the reports were wrong. To correct the problem, the report logic required knowledge of evacuations to accurately calculate the number of kills. Accordingly, Cumulative WIA was re-purposed to tally the number of evacuated personnel, instead of wounded, in the CEP as well as in the Combat System IMT (the number placed in maintenance/hospital is the number of WIA at any one time). The reports were also modified to show the number of evacuees, in addition to the number killed and the number placed in maintenance as a result of an attack.

In the second case, there were several inconsistencies in the calculation and updating of Cumulative KIA and Cumulative WIA during the assessment of HRU combat system losses. Several changes were made to resolve the inconsistencies:

- Update the HRU's Cumulative KIA, which wasn't being done before,
- No longer update the parent Unit's Cumulative WIA because evacuations are not modeled in HRUs,
- If the HRU is not covert capable, treat all losses as catastrophic kills,

- If the HRU is covert capable, model a less lethal outcome as follows: (a) determine if any losses (catastrophic kills) could be wounded, and if so, determine if any could be evacuated, then (b) reduce the catastrophic kill count by the number of wounded that are not evacuated. Treating the theoretical non-evacuated wounded as "unharmful" enhances the survivability of the covert capable HRU.

Regarding the effects on the ELS, when systems were evacuated by the CEP, the combat system counts for cumulative WIA now reflect the amounts tabulated in the supply category for casualties. The ELS used this change in the WIA count to determine when systems were removed from the game. Those systems are properly removed from the active entities in the unit and they are deleted from the EODA data server.

### 3.16 JTLS-2013-11608 SIP Crash For Incomplete Minefield Target

*It is possible that a DDS user creates a minefield target and specifies a Targetable Weapon Type that is not associated with a type of minefield. The SVP catches this error, but if the error does exist the code that checks for legal DIS Codes crashes.*

The DIS Code checking logic was improved to check for this condition and the target's assigned DIS code is not checked. When the user fixes the minefield target type error, the verification program will be able to check the DIS code.

### 3.17 JTLS-2013-11609 DDS Minefield Target Creation And Update Problem

*The DDS user can create a new minefield with a targetable weapon with effects type other than 'MINES'. It is also possible to update an existing minefield target record and assign a non 'MINES' effects type targetable weapon from the pull down list. For a minefield target only targetable weapons with 'MINES' effects type should be displayed in the pull down list during new minefield target record creation or updating an existing record.*

The related WHERE clause was added to the related screen definition XML file for filtering out all targetable weapons except the ones with 'MINES' effects type.

### 3.18 JTLS-2013-11610 DDS Map Doesn't Come Up In Certain Obscure Cases

*When bringing up the DDS for an intentionally erroneous scenario, the Map component wasn't able to display.*

This is because some targets have bogus subcategory data. When that happens, the Map is trying to determine whether or not to display an object based on the set filters, and the MapFilters.getState() method throws an exception because that target object has -1 subcategory index. This exception prevented the map from loading its rest data. MapFilters.getState() was fixed to check and ensure a target has both greater than zero category and subcategory indices (previously, it was only checking for category indices).

### 3.19 JTLS-2013-11611 Incorrect Initialization File for Satellite Service

*The JTLS Satellite Service (JSAT) is a stand-alone program which was used to predict the passage of satellite assets over the JTLS game board. This program required input parameters based on data from the JTLS database. These initialization data are written by both the SIP and from the CEP. The initialization data produced from the CEP were missing one of the necessary fields. As a result, the JSAT program ran properly when it used the initialization data from the SIP. It did not run at all when the initialization data were generated from the CEP.*

The SIP code was previously modified to include the full name and the short name for the factions in the game. The JSAT was expecting to read the full and short names for the factions, however those data were not available when the CEP generated the initialization data. The CEP code were modified to match the output from the SIP. The two data files now match and the JSAT runs as expected.

### 3.20 JTLS-2013-11612 JOI Track Name Not Updated When Started From Recovery

*When the JOI was started with the recovery option, the track name field for the OTH-Gold message was not being updated for naval units. If starting from a checkpoint or recovery file, the JOI was using the track names that were saved during the checkpoint (or in recovery file). During a checkpoint, the JOI was saving JEDI, trackId, and track names for all objects so that it can use the same Id and names when restart. The track names were saved so that the JOI uses the same names for tracks where the operator manually modifies the names during previous runs. For previous releases, this was not an issue since the name data was persistent and known to all detecting sides. With 4.1 release, the track name became a perceived information and was being changed with different detection phases.*

The code fix was made to the checkpoint or recovery file so that we only save the track names for the objects where the names were manually modified by the operator. The modified names will be used if the JOI is restarted from that checkpoint or the recovery file is used as an option.

### 3.21 JTLS-2013-11613 SVP Checking For Non-Owned Targets In Water Crash

*The SVP crashed while attempting to check if a non-owned target was in a water location. The database had a non-owned target off the game board and the program did not properly check for this case.*

The code was changed to properly check that the non-owned target was on the game board prior to checking if its game board location was on the water.

### 3.22 JTLS-2013-11614 DDS-DRM Link Not Working For Some Pipeline Data Fields

*The DDS - Data Requirements Manual link was not working for some of the Pipeline and Pipeline Arcs data fields. The labels were also not correct for some of those fields as well.*

The `dds_drm_help.properties` file contains the database to model parameter linkage information. For some of the Pipeline and Pipeline Arcs table data fields the linkages were corrected. The misleading or wrong data field labels were modified.

### 3.23 JTLS-2013-11615 National ELINT Coverage Not Working

*There are four types of Electronic Intelligence (ELINT) coverage in this version of JTLS. An ELINT asset can be placed on a satellite, on an air mission, or can be assigned to a sensor target. Each of these specific ELINT capabilities works fine. It is also possible to indicate that a Force Side can have ELINT collection capability over the entire game board magically without requiring the use or allocation of any asset. This fourth method was not working.*

The code was changed to properly implement the national ELINT coverage capability. Now if a Force Side is given this capability it will detect all foreign emissions and display them on the WHIP. The emissions will also generate TACELINT messages if the data for the emitting sensors are properly provided as part of the database.

### 3.24 JTLS-2013-11616 DDS SVPR Failed to Update Command Hierarchy and SITREP

*When choosing to Find On Map as a resolution within the SVPR, the unit is not highlighted in the Command Hierarchy or displayed in the SITREP.*

The SVPR code was updated to match the conventions used when locating Map objects in the WHIP and DDS.

### 3.25 JTLS-2013-11617 TUP Report NullPointerException

*When creating a TUP DDS report, if a TUP did not have all 6 directions for "Initial Distribution of Combat Power" a NullPointerException was thrown and the report failed to be created.*

Modified the TUP Report to check for null values for combat power and replace them with -1.

### 3.26 JTLS-2013-11618 Not All OPAREAs Checked For Validity

*If the user creates an Operations Area (OPAREA) with fewer than 3 points, an error is generated and all of the subsequent OPAREAs in the database list are not checked.*

The SVP logic stopped checking all OPAREAS when it encountered an OPAREA with fewer than 3 points. The logic should have simply stopped checking that OPAREA. The logic was altered to correctly check all of the remaining OPAREAS.

### 3.27 JTLS-2013-11619 Missing Check for Off-Board Runways

*When an airbase was located off the game board, any owned runway must also be located off the game board. The SVP had no error to check the location of runways for off-board airbases.*

Error 447 was added to the SVP to check the locations of runways which were owned by off-board airbases.

### 3.28 JTLS-2013-11620 Superfluous Errors Removed from SVP

*Errors 223 and 234 were part of the SVP.*

*Error 223 checked to see that a single color was not being used by more than one side in the game.*

*Error 234 checked that an HRU did not own targets of un-allowed categories. It is impossible to create data for both of these errors due to the existing Oracle table constraints. Since data cannot be generated with these situations, the SVP errors were executing unnecessary checks.*

The code, the associated error messages, and the documentation have been modified to remove Errors 223 and 234. The equivalent checks were done at the table-level in the DDS. The additional SVP errors were not needed.

### 3.29 JTLS-2013-11621 DDS CSP-CS Table Fails To Filter Targetable Weapons

*The Combat System Prototype (CSP) - Combat System (CS) data table includes the explicit Targetable Weapon that an HRU should fire if it owns the specified Combat System. This Targetable Weapon should not be an Air-To-Air Weapon or a weapon specified as a Surface-To-Air Weapon. Select only Targetable Weapons with an impact type SURFACE\_BURST, AIR\_BURST or SUBSURFACE\_BURST should be allowed.*

The related filtering clause was added to the query specification in the DDS CSP\_CS screen definition XML file, only to allow Targetable Weapons with the impact types of AIR\_BURST, SUBSURFACE\_BURST and SURFACE\_BURST.

### 3.30 JTLS-2013-11622 JOI Message Send Timer Not Being Reset

*Within the JOI, several parameters control the OTH-Gold messages being sent to the C4I system; update time interval for each track type, the number of objects in the queue for each track type, and the automatic send object count in the queue. When the object count in the message queue reaches the auto send count, messages are sent out. The messages are also sent when the game time reaches the next update time based on the time interval setting. A interval time of 3 minutes indicates that the JOI will send out messages when 3 minutes are passed from the last send (up to auto send count). The problem was the timer was not being reset when the object count in the queue reached the auto send count and messages were sent out.*

The code was modified so that the JOI resets the message update timer every time it sends out messages and the queue gets cleared.

### 3.31 JTLS-2013-11623 Crash Picking Up Transported Unit At Home Location

*The model crashed when a user attempted to transport a Unit via truck when it was already being transported via truck. The crash only occurred if the shipping Unit was at the exact same location as the Unit being moved.*

There were several issues found during the investigation of the crash. Besides the crash situation, the model was not properly determining if a unit was being transported. It was possible for the model to believe a unit was being transported when in fact it was not.

The logic errors were solved and now all unit transport options are working as designed.

### 3.32 JTLS-2013-11624 Incorrect Default Squawk Check Message

*SVP Error 128 incorrectly says the entered Default Squawk number had more than 4 digits. The DDS stops you from entering more than 4 digits. The error is generated when the Default Squawk has fewer than 4 characters.*

The message and documentation were changed to indicate that the Default Squawk had fewer than 4 digits.

### 3.33 JTLS-2013-11625 Add WSM Waits for User Password Input When Needed

*When a ssh autologin key is not setup, the WSM is started with the -f option for the user to input the password. However, the time for the user to type in the ssh password was too short.*

Added waitFor in the ssh tunnel starting process, so that the process waits for the user to type in the corresponding ssh password.

### 3.34 JTLS-2013-11626 Destroyed Convoy Crash

*A truck convoy was completely destroyed while enroute to a transit point before its next delivery location. The CEP crashed while attempting to create a replacement convoy to deliver the supplies intended for the Unit at the delivery location.*

The logic that generates the new convoy assumed that the destroyed convoy was heading toward a delivery location, when in fact, it was heading toward a transit point. By design, there was no receiving unit assigned to the convoy (SR.UNIT.HEADED.FOR) while enroute to a transit point. The logic attempted to reference the non-existent receiving unit and crashed because of the null entity pointer. To fix the problem, the logic was changed to search the convoy's delivery set to find the next receiving unit after the transit point, if SR.UNIT.HEADED.FOR is null.

### 3.35 JTLS-2013-11627 DDS SVPR exception on OK button

*In the SVPR, when selecting the "okay" button of a reference dialog, a legacy variable remained null and caused an exception.*



References to this legacy variable were eliminated.

### 3.36 JTLS-2013-11628 Convoy KIA Not Reflected in Home Unit

*A truck convoy suffered several vehicle losses while enroute to a delivery location as described in a Spot Report. The Supply Run IMT immediately showed a reduction in the current number of trucks as a result. Also, a requested Supply Run Status Report showed the reduced truck count. When the convoy arrived at its delivery location, the number of Unavailable trucks at the convoy's home (support) Unit was reduced by the losses, as expected. However, the convoy's home Unit Cumulative KIA column in the Combat Systems IMT did not show the losses. When the convoy returned home, the Available and Manned columns in the IMT increased and the Unavailable decreased by the number of surviving vehicles, as expected, but again the Cumulative KIA did not increase.*

*In another case, a convoy was completely destroyed while enroute. As expected, the convoy's current truck count was reduced to zero and the home Unit's Unavailable count was reduced by the number of trucks lost. However, again the home Unit's Cumulative KIA was not increased.*

By design, the convoy's vehicle count is updated at the instant a loss is suffered, but the home Unit's Unavailable count is not reduced until the convoy arrives at its next destination to settle the losses. The amount reduced is determined by subtracting the Current count from the Starting count, and then the Starting count is changed to the Current count and the convoy begins anew. In this manner, an accounting of the vehicle losses along the previous leg is made at each and every pickup/drop-off point. When the convoy finally returns home, the Available and Manned counts are increased and the Unavailable count is decreased by the number of surviving vehicles. Additionally, if any losses were suffered along the final leg, the Unavailable count is further reduced.

Missing from this logic was an update of the Cumulative KIA at the home Unit before the convoy counts were reset at each pick-up/drop-off point and upon arriving home. New code was added to increase the home Unit's Cumulative KIA by the number of losses suffered along the previous leg at each stop, consistent with the reductions in the home Unit's Unavailable count. Similarly, new code was added to update the Cumulative KIA when the convoy is completely destroyed.

While testing these code changes, a problem in the Controller Damage Report was revealed when an Assess Weapon Damage order was sent to attack a convoy. The report showed an "unknown" object because the logic was missing the correct reference .OBJECT.CONVOY in two case statements. Also, a new sub-message (7300 sub 25) was required to display the name of the convoy.

### 3.37 JTLS-2013-11629 Copying tables with frozen columns

*Users were unable to copy an entire IMT or DDS table that used frozen columns. The frozen columns were either unable to be copied or would need to be copied separately from the non-frozen columns.*

This fix addresses the issue by allowing users to copy an IMT or DDS table in its entirety, including any frozen columns.

### 3.38 JTLS-2013-11632 Ground Units Not Damaged by Minefields

*A battalion-sized ground Unit, under administrative move orders, moved into a hex containing an undetected minefield target. The target consisted of three standard minefields containing 1000 mines each. As expected, the Unit stumbled onto and cleared one of the minefields, but it did not suffer any attrition as a result.*

By design, a Unit that unexpectedly encounters a minefield target is permitted to automatically clear a standard minefield equivalent without an explicit Clear Mines order. However, also by design, the Unit is subject to attrition in the process. An error in the minefield damage assessment algorithm prevented the combat systems in the Unit from experiencing any attrition in the encountered minefield. The error stemmed from an incomplete improvement that streamlined processing of the combat systems in the Unit. The error was corrected.

### 3.39 JTLS-2013-11633 DDS Railroad Node To Assign Target Was Incapable

*The associated target field was removed from railroad node table in JTLS 4.0, since DDS inherited GDP code, currently, JTLS 4.1 does not have a capability that a railroad node can select associated targets from the dialog window.*

Added "Add Target" and "Remove Target" to the node menu and the capability to popup the dialog window which shows available associated targets to select.

### 3.40 JTLS-2013-11634 DDS Network Node/Arc Name Change Caused Java Exception

*Adding a new railroad node and changing the name of the existing network did not work. The code automatically assigned the name "NODE." plus a sequence number when a new node is created on the layer.*

*Later, the user can edit the node name either on the table or through the dialog window on the layer. After the node name changed, the corresponding arc needed to update but the null pointer exception was thrown because the new node object was not properly created.*

The create object method is added in each of map object network classes and the method is called when a new node is created from the existing network. In the editor layer class needed to update internal use of the hash maps and list when the name change happened.

### 3.41 JTLS-2013-11635 DDS Network Name Characters Exceeded Oracle Byte Size

*A user created a new OPAREA on the DDS map. Since a name input text field accepted up to 30 characters, the user entered the maximum character length and sent the OPAREA to the Oracle. This caused a DbException because the ao\_name of the area\_of\_operations table byte size was set to 15 characters.*

Each of network package has a Input dialog class and has a textFieldKeyTyped method which verifies the limit number for input character's length for a name text field Need to find out exact field byte size from the Oracle table and reset the limit number in the code.

### 3.42 JTLS-2013-11636 Graphic Symbol Not Updated For Detected Ships

*The C2PC and some other COP tools determine the graphic symbols for detected naval objects from a list of enumerations. Within JTLS this enumeration is built as part of the database and assigned to the Ship Unit Prototype (SUP) attribute Specific Class Type. This attribute is always known for own side ships, but initially it is not known for detected foreign ships. The concept is that once the detector reached a classification level of Recognition that this data becomes available. This was not happening, and therefore for foreign naval units the attribute was never assigned resulting in the COP picture never providing an identifying graphic symbol.*

The update of the SUP attribute was added to the code to switch the classification level of detected objects. Now when a Recognition detection level is reached the update is sent to the JODA, received by the JOI, and passed to any connected C4I system.

### 3.43 JTLS-2013-11637 TACELINT Message Use Header/Footer Specification File

*When the JOI was configured to generate TACELINT messages, it was using a hard-coded Header (first line) and Footer (last line) for the messages. The Government requested that we use the format defined in the message header/footer specification file.*

The code was modified so that the JOI generates TACELINT messages with the file-specified header/footer format. To provide flexibility, an additional setup option was added where the operator can choose the format; English, MTF, or None.

If the English format was selected during the setup, the English.hf was read in by the JOI. If the MTF format was chosen, the mtf.hf file was processed. Both header/footer specification files are located under the \$JTLSHOME/game/data/messages/format directory. If None was selected, no header and footer lines are provided in the message.

Note: Due to the changes in the format of the setup file, previous versions of the setup files will not work with this release.

### 3.44 JTLS-2013-11638 Replay JXSR Crashes On Model Restart

*The Replay JXSR would sometimes crash when the model was restarted. This was caused by the model restart event interrupting the refreshing process on the playback package library's file set, which is used by the Replay JXSR. This caused the file set to return data indicating new TRIPP files with unreadable values, causing the Replay JXSR to crash and rendering any open TRIPP(s) unusable.*

The playback package library refreshing process was modified to use the playback reset flag to prevent the refresh process from looking for new TRIPP files until the file set is properly

established. The refresh process then continues, preventing a potential Replay JXSR crash and maintaining the usability of any open TRIPP(s).

### 3.45 JTLS-2013-11640 DDS Deep Copy Fails To Populate The FLP\_CS\_CS Table

*The DDS Deep Copy process was failing to populate the FLP\_CS\_CS child table when a combat system record was cascade duplicated. The same process should update the CSP\_CS child table by referencing related records instead of using the default values.*

The DDS deepcopy\_my\_record stored procedure code was modified to include the FLP\_CS\_CS child table to be populated when a combat system is cascade duplicated (deep copied). Also the code was modified to use the related CSP\_CS records instead of the default values bypassing the related database trigger.

Please see Section 1.4.1 of this document for more information regarding the DDS Deep Copy process.

### 3.46 JTLS-2013-11641 Logic Error In Amphibious Attack Counter Artillery

*A logic error was being generated during an amphibious assault by enemy units when attempting to determine if they had proper ROE to engage. The unit type, versus the object type, was being passed to the routine that performed the ROE determination. This logic error will prevent the enemy unit from properly engaging the amphibious operation.*

The argument in the call to the ROE determination routine was altered from being the unit type, such as ground, airbase, etc., to the define for object type unit.

### 3.47 JTLS-2013-11642 OMA Crashes Due to Empty Line in Constraint

*The OVT Library reads the failure messages associated with a constraint. The messages are a series of lines, where it is assumed that a carriage return exists between each line. The OVT reads these lines so that if a constraint fails, the associated failure message will be sent to the program. However, an empty line, which should just be treated as a newline character, was causing the OVT Library, and thus the OMA, to crash.*

The OVT Library code was modified to treat an empty line as a newline character and add that single character to the message being composed. This change affects all programs that use the OVT Library and not just the OMA.

### 3.48 JTLS-2013-11643 TACELINT Message Queue Not Populated After Game Start

*The TACELINT messages were not being sent when the CEP was restarted to roll in new executable. When a new JODA download was done after the CEP restart, the JOI did not repopulate the message queue with received emitter objects. This situation occurred if the JOI remained running when the CEP (or JODA) was restarted.*

The code was modified so that the JOI clears and repopulates the TACELINT message queue when it receives additional downloads from the JODA.

### 3.49 JTLS-2013-11644 JINN Dynamic XML File was Not Updated After Upload

*After the JINN uploads a "DELETE" object from the returned dynamic.xml file, it should remove the deleted object data from the file. However, the data was not removed from the xml file.*

In the JOBE, after being marked "DELETE", the object should not be removed from the dynamic xml file for the JINN. In the JINN, the deleted object needed to be removed from the dynamic xml file after upload to the database. The code was appropriately modified in both the JINN and the JOBE.

### 3.50 JTLS-2013-11645 Starting TRIPP Throws Exception When GlassFish Down

*When GlassFish server is not configured or down, starting a TRIPP throws an exception for failed to fetch the list of AAR report stylesheets, this list is cached in the TRIPP for later use. Because the AAR reports are not always used in the TRIPP, this exception is annoying.*

This issue was fixed by "delayed fetching" of the list of AAR report stylesheets only when the ReportBrowser is launched from TRIPP. When the ReportBrowser is launched, it verifies if this list is cached, and, if not, then triggers the fetching.

The same logic is applied to ddsc, even though for ddsc, the GlassFish server is required to be up.

### 3.51 JTLS-2013-11646 Fortify Identified Issues

*The Government identified a number of code issues using the code analyzer Fortify. This STR addresses the issues in the categories: "Race Condition: Singleton Member", "Null Deference", and "Unreleased Resource: Files"*

Valid issues in R&A-maintained code were corrected.

### 3.52 JTLS-2013-11647 Unit Will Not Delay Over Multiple Hexes

*The Delay order allows the operator to specify a series of delay points that a unit should fallback to whenever it meets a time and loss of strength condition while in combat. When demonstrating the Delay order it was discovered that if the unit was given a delay point more than a single hex away it would never fallback to that point regardless of the time or its strength.*

The model loads the delay points as a series of route points and transfers the time and strength requirement to the route point. However, it also optimizes a route from the unit's current position to the route point. When the delay points are more than a single hex apart this involves creating additional route points that do not have the time and strength information associated with them. When determining if the unit should fallback the code would look at the first of these route

points; if the time and strength data did not exist on the first route point then the unit's current strength was compared against a strength of zero. This means the unit never met the criteria to fallback.

The code was changed to examine the first directed (user specified) route point and check the time and unit strength against it. Additionally, while testing another error was discovered which would prematurely stop the unit during a fallback if it was no longer in combat. The design team felt that the intent of the Delay order was to fall all the way back to the Delay point regardless if combat was broken or not. This error was also fixed.

### 3.53 JTLS-2013-11648 HRU-Owned SAM/AAA Will Not Fire

*An HRU-owned SAM/AAA target refused to fire at enemy air missions. The HRU had proper Rules of Engagement (ROE) to engage the air mission, but was not firing. The problem was traced to a routine that is supposed to return a target's owner called when checking the ROE for the target. This routine gave precedence to a unit owner if it existed, followed by an associated unit if it existed, followed by an owning HRU. Since whenever a target is given by a unit to an HRU that parent unit becomes the associated unit, this routine was always returning a unit as the owner. Thus, the parent unit's ROE was being checked for firing permission instead of the owning HRU's ROE.*

The priority of determining a target owner was switched in the routine to give first preference to an owning unit, followed by an owning HRU, followed by an associated unit. In addition, one of the routines that used this same routine was always expecting a unit pointer to be returned and had to be modified to accommodate either a unit or an HRU pointer.

### 3.54 JTLS-2013-11649 Eliminate Two Messages from Set/Show Orders

*When the Controller submitted an order to Set and Show parameters, the model produced not one but two messages about the ordered changes. One message described just the changed attributes, whereas a second message showed all the current values. These dual messages for Set/Show orders were producing a very large number of messages.*

The code which produces messages was modified for many orders. Nearly all of the Set/Show orders had this dual-message behavior. These orders now request a single message type to either show the Changes-Only or Show-All attributes. In addition to the CEP code, this STR involved changes to the associated order panels and the message data files. Only one message is produced when a controller submits a Set/Show order.

### 3.55 JTLS-2013-11650 Naval Unit Strength Calculation

*The weighted unit strength calculation for naval vessels did not include crew that were manning combat systems (i.e. Unavailable crew in the IMT). Crew that were not manning combat systems (i.e. Available crew in the IMT) were included in the calculation. This situation was inconsistent*

*with the ground unit strength calculation, where both Available and Unavailable crew are included in the calculation.*

The weighted strength calculation for naval units counts only Manned combat systems, which includes crew combat systems that are Available because they are considered to be manning themselves. The logic overlooked crew combat systems that were Unavailable because they were manning other combat systems that require crews. The weighted strength calculation for naval units was changed to include Unavailable crew combat systems.

### 3.56 JTLS-2013-11651 Changes to SVP for JMIRM Data Checks

*There were a number of existing JMIRM data checks in the SVP. For the verification of the JMIRM data, some of these checks automatically sent the program into debugging mode. As a result, the program would not complete its execution if it encountered one of these issues. This became a problem when users attempted to run the SVP in a cyclical manner from the DDS.*

The JMIRM verification code was modified to remove all of the instances where the program went into debug mode for an error. These errors were modified to become true SVP Warnings. The program no longer stops and enters debug mode when a JMIRM-related data error occurs.

### 3.57 JTLS-2013-11652 DDS Map National Boundary Creation Anomaly

*When creating a new national boundary directly on the map, after the data was inserted into the database, the national boundary line on the map became enclosed, making it appear as a polygon instead.*

This error was introduced when incorrectly fixing an updating issue for the national boundary. The issue is now resolved.

### 3.58 JTLS-2013-11653 JOBE Subsequent Save Loses Previous

*During subsequent saving(s) of the database to the dynamic xml file, any previously marked for deletion targets disappear from the xml file completely. This would prevent the JINN from deleting these targets from the database when integrating the JOBE data back to the database.*

The problem was caused by a bug that caused the JINN to not correctly handle target data that are marked for deletion. The issue is now resolved.

### 3.59 JTLS-2013-11654 JOBE Map Displaying Classification as UNKNOWN

*The JOBE map classification banner displayed "UNKNOWN CLASSIFICATION".*

The problem was that no classification data was written in the data files provided for JOBE. The JOBE static schema file was modified to include the classification as an attribute for the JOBESstatic element, and the JINN is modified to download the classification data and write it in the static xml file for JOBE.

### 3.60 JTLS-2013-11655 ATO-T Generated Route Orders Do Not Verify

*If an orbiting mission in a USMTF message is told to orbit along a specific route, the resulting order did not verify and has to be hand-edited to add the missing keyword "TYPE\_LOC 1".*

The missing keyword is an addition to the JTLS 4.1 order stream. It was properly passed by the ATO-T when specifying an ingress route or an egress route. The code was changed to correctly include this new JTLS 4.1 keyword for orbit routes.

### 3.61 JTLS-2013-11656 HRUs Do Not Reload SAM/AAA Targets

*When an HRU-owned SAM/AAA target fires all its weapons, it requests additional supplies from the HRU's parent unit instead of directly from the HRU.*

This solution involves a change to the ASCII checkpoint for the Implicit Resupply Done event.

The existing SAM/AAA resupply mechanism involves requesting supplies from an owning unit if it exists and then an associated unit. Since an HRU-owned target always has the HRU's parent as the associated unit, the SAM/AAA targets would default to the parent unit. The resupply mechanism had to be expanded to permit resupply from an HRU. Now when a SAM/AAA site needs weapons it checks in order for an owning unit, an owning HRU, and an associated unit. The first existing object is used and a resupply request is sent to that object.

### 3.62 JTLS-2013-11657 Additional SSH Tunnel Configuration Parameters

*When a remote server is down or refusing ssh connection when the WSM starts, the WSM hangs because it keeps trying to establish a ssh tunnel connection to that remote server.*

*When a remote server is down or refusing ssh connection while the WSM is running, the WSM does not reflect this server change and may provide a false service status.*

New default settings were added to the ssh tunnel configuration that timeout a failed attempt to establish an ssh tunnel to a remote server or terminate an ssh tunnel connection if the WSM loses its connection to the remote server.

### 3.63 JTLS-2013-11658 Non-Amphib Capable Boats Used in Amphib Operations

*The model was using non-amphibious-capable boats (e.g. life boats) to execute amphibious assaults and pick-ups. Only amphibious-capable boats should be used.*

Amphibious operations utilize the small boats assigned to naval vessels. These small boats are held in a small boat array owned by each ship (as defined in the ship's SUP). The logic was not restricting the types of small boats to use in an amphibious operation to only those that are truly amphibious capable. Consequently, all small boats, regardless of type or purpose, were allocated to the operation.



A check was added to ensure that only amphibious capable boats (which includes LCACs) are assigned to the assault or pick-up. The same check was also added to the logic that calculates the estimated time to complete the operation and to the logic that determines the feasibility of the operation before execution.

### 3.64 JTLS-2013-11659 Reformat Spreadsheet Non-Operative

*The Reformat Spreadsheet does not work. It does not recognize any of the field keywords.*

The problem existed because the code had been streamlined and attempted to share the order file read code with the Count Critical Order File (CCO) program. Although the two code bases are very similar there were some difference that were overlooked when the code base was combined in an attempt to reduce the code that needed to be maintained. The Reformat Spreadsheet required code differences were put back.

### 3.65 JTLS-2013-11660 DCP Map Did Not Change

*When selecting a new map file in the DCP and saving, the new map file did not replace the old map file.*

The error was corrected.

### 3.66 JTLS-2013-11661 SVPR:Checkbox Values Reset When Forcing Cell Edit Mode

*When a Resolution is being acted upon which requires a table editor to come up, an error would occur if the cell editor is a check box. Forcing the check box into an edit mode would result in the check box resetting its value to off, and not allowing the state to be changed.*

Recognizing the type of editor the table column required allowed the SVPR to bypass forcing the check box into edit mode, thereby allowing the check box state to be changed accordingly.

### 3.67 JTLS-2013-11662 SVP Crash With NO\_STATEMENT Link16 Site Type In DB

*The SVP crashed when the link16 site type field for sensor\_type table was modified from null to NO\_STATEMENT. As a link16 message attribute, the site type field holds a link16 acceptable entry from the list of values as defined in the documentation. Though the "NO\_STATEMENT" was a valid entry in the DDS, the SIP was not handling it as a valid entry. Also, the CEP was generating a logic error for the "NO\_STATEMENT" entry while reading the database.*

The code was modified in the SIP and CEP to handle the "NO\_STATEMENT" database entry. It will assign an index value of 0, which will be sent to the C4I system via the JOI as part of link16 messages.

### 3.68 JTLS-2013-11663 DDS Location Has Comma ',' on Some Foreign Systems

*Since the release of Java 1.7, on certain foreign computer systems, location fields displayed in DDS tables displayed "," instead of "." for decimal numbers, despite when the foreign system's location settings were set to "U.S." This caused Java to throw exceptions and render the location fields uneditable when the user attempted to edit the location.*

DDS, JOBE, and JINN code were changed to set the JVM's location to "U.S." at startup.

### 3.69 JTLS-2013-11664 DDS Echelon Mark Not Updated When Cmd Lvl is Changed

*On the DDS map, land unit symbols have echelon markings displayed based on the unit's command level (brigade, battalion, etc). If the user changes the command level of the TUP the unit is using, or picks a different TUP altogether, the echelon marking is not updated accordingly.*

DDS code was corrected to update the land unit's symbol when its TUP is changed.

## 4.0 REMAINING ERRORS

Every effort has been made to correct known model errors. All reproducible errors that resulted in CEP catastrophic software failures (crashes) have been corrected. Other corrections were prioritized and completed according to their resource cost-to-benefit relationship.

Correction of the remaining STRs, however, must be postponed to a later version due to time and resource constraints. These problems may be corrected prior to the next release of JTLS. If an immediate need arises for code corrections to remedy any of these outstanding STRs, such as an exercise planned to occur before the next release, contact the JTLS Development Team Leader. Refer to the Abstract of this document for the current address.

Code errors described in this chapter should be noted specifically because they affect the basic functionality of JTLS. Information is provided regarding the extent of the error, as well as suggestions to avoid or minimize the effects of the problem.

### 4.1 JTLS-0942 Air Transport Cannot Combine Wet And Dry Supplies

When both wet and dry supply categories are included in the same Transport Instructions List for an Air Transport mission, they will not be transported at the same time. The first supply category shipment type will be loaded, but the second will not. If both are included in the same Supply List, the wet category is preferred. The aircraft go through the motions as if loading and delivering the denied category, including MISREP confirmation. No pickup or delivery is made, although an empty storage area may be created. There is no documentation to support this situation, and the user is not notified of the problem.

### 4.2 JTLS-0956 MPP Messages For Canceled Missions In Error

If an airbase is magic moved with several squadrons on active missions that need to be canceled or with squadrons in the middle of a self lift, the subsequent message generated for the situation has several errors. The changes required are too risky during the exercise. The problem will not cause a crash, but will cause the MPP to incorrectly display the message contents.

### 4.3 JTLS-0961 Group Ground Move Delayed To Lead Unit

There is a problem when a group ground move is sent. The directive is delayed to the lead unit. When the lead unit learns about the move, it immediately tells the units in the follow-on group. This could lead to directives being received out of order. Assume the user sends a directive at 0100 and the CEP determines the lead unit should receive the message at 0200. The lead unit cannot receive any other directives until after 0200. The CEP ensures that directive receipt is in the same order as the user sent the directives. This is not true for the follow-on units. If the user sent an order at 0115 directly to one of the follow-on units, the follow-on unit could receive the 0115 directive prior to the order sent at 0100. If this error is causing problems for upcoming exercises, the Configuration Manager should be contacted for a code fix to solve this problem.

#### 4.4 JTLS-0968 Inconsistency Between Regular Run And Pusher

There is a major inconsistency between a regular run and a run created using pusher. When an order with ASAP is sent, the READ KEYWORD routine sets the data parameter to TIME.V. When pusher reads in the order, TIME.V is much earlier than it was when the order arrived in the first place. For orbiting missions and alert missions, this alters when they will go off alert by a great deal. This must be fixed and made consistent. It appears that both TIME.V and order receipt time must be saved to the ci1 file to accomplish this task.

#### 4.5 JTLS-0971 Ship Continuous Tracking Not Working

The new unidentified object design indicates that ships which are continuously tracked will not have unidentified objects created. A continuously tracked Naval unit and all of its targets are creating unidentified objects. They should not be doing this.

#### 4.6 JTLS-0973 Periodic Report Air Supplies And Fuel Not Correct

The arrays which hold air supply usage are not being maintained correctly given the new MISSION RESOURCE ALLOCATION event.

#### 4.7 JTLS-0974 Submarine Detection By Ground Sensors

A moving submarine does not get full credit for coverage time by sonars on board other ships or submarines. It gets full coverage time for airborne sensors but not ground based sensors.

#### 4.8 JTLS-0981 Formation With No Posture

The model crashed when a formation reached a Destination Two hex and the formation no longer had a posture. Therefore it did not know what to do. A Destination Two hex indicates that the Formation should conduct its assigned Amphibious Operation, drop off its Sealifted supplies or clear mines from a minefield. The posture of the formation is used to tell the formation which of these three tasks should be accomplished.

When the formation reached its Destination Two hex, the posture of the formation was zero; therefore, the formation did not know which of the three tasks should be accomplished.

#### 4.9 JTLS-1384 Area, Target, And Unit Report Documentation

Some users have indicated that the documentation of Area Report, Unit Report, and Target Report similarities and differences are incomplete or inaccurate. A review of this documentation is needed.

#### 4.10 JTLS-2005-1457 Target Auto Assign Errors In Orbiting OAS

An Orbiting OAS mission was created with Auto Assigned allowed and search target category as SSM. An SSM was magic moved to the area of the orbit. Perception of the SSM was given to the

mission's side using the controller Target Report order. The mission saw the target and immediately attacked it. When the OAS mission returned, the Mission Report said it was assigned to attack target UIO11816U but the target could not be found. It appears that mission was previously holding the target as unidentified and it was not found after it was assigned a specific target number.

#### 4.11 JTLS-2011-10810 SE Linux Causes JSXR Crashes

Frequent and random JSXR Web Service crashes occurred while executing JTLS 3.4.3 in an exercise network configuration supported by a Security Enhanced Linux-enabled platform. The system configuration included 7 JSXRs and 125 WHIPs. Java 1.6.0.16 was used to support workstations. Accumulation of numerous core.jsxr files in the `$/game` directory and `logic_error` files in the `$/debug` directory was observed. Server CPU resources and system memory were adequate and not adversely affected.

This issue did not occur after SELinux was disabled on the system servers. Until this issue is resolved, executing JTLS or its components on SELinux-enabled systems is not authorized.



## APPENDIX A. ABBREVIATIONS AND ACRONYMS

Terms are included in this Appendix to define their usage in JTLS design, functionality, and documentation.

AAA	Anti-Aircraft Artillery
AADC	Area Air Defense Commander
AAL	Air-to-Air Lethality
A/C	Aircraft
ACP	Air Control Prototype
ADA	Air Defense Artillery
AEW	Airborne Early Warning
AFB	Air Force Base
AG	Air-Ground (Air-to-Ground)
AI	Air Interdiction
AIM	Air Intercept Missile
AIREF	Air Refueling
AKL	Area Kill Lethality
AMMO	Ammunition
AO	Area of Operations
AOC	Air Operations Center
APC	Armored Personnel Carrier
ARECCE	Armed Reconnaissance
ARTE	Air Route
ARTY	Artillery
ASC	Automatic Supply Calculation
ASCII	American Standard Code for Information Interchange
ASW	Anti-Submarine Warfare
ATC	Aircraft Target Category
ATGM	Anti-Tank Guided Missile
ATK	Attack
ATO	Air Tasking Order
ATORET	Air Tasking Order Retrieve Program
ATOT	Air Tasking Order Translator
AWACS	Airborne Warning And Control System
AZ	Altitude Zone

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BADGE	Bilateral Air Defense Ground Environment (used by Japan Defense Agency)
BAI	Battlefield Air Interdiction
BDA	Battle Damage Assessment
BDE	Brigade
BN	Battalion
C3	Command, Control, and Communications
C3I	Command, Control, Communications, and Intelligence
C4I	Command, Control, Communications, Computers, and Intelligence
CA	Civil Affairs
CADRG	Compressed ARC Digitized Raster Graphics
CAP	Combat Air Patrol
CAS	Close Air Support
CAT	Category
CCF	Central Control Facility
CCP	Command Control Prototype
CCU	Controller Change Unit
CEP	Combat Events Program
CMDR	Commander
COP	Common Operational Picture
CP	Combat Power
CS	Combat System
CSP	Combat System Prototype
CTAPS	Contingency Tactical Air Planning System
CTG	Commander Task Group
CTRL	Control keyboard command
DCA	Defense Counter Air
DCL	Digital Command Language
DDS	Database Development System
DEMSDB	Demonstration Standard Database
DISA	Defense Information Systems Agency
DIV	Division
DMA	Defense Mapping Agency
DoD	Department of Defense
DOS	Days of Supply



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DPICM	Dual Purpose Improved Conventional Munitions
DS	Direct Support
DSA	Directed Search Area
DTG	Date Time Group
EC	Electronic Combat
ECM	Electronic Counter Measure
ECP	Engineering Change Proposal
EI	Essential Elements of Information
ELINT	Electronic Intelligence
ELS	Entity Level Server
EODA	Entity Level JTLS Object Data Authority
ETA	Estimated Time of Arrival
FARP	Forward Arming and Refueling Point
FLP	Fire Lethality Prototype
FLOT	Forward Location of Troops
FOL	Forward Operating Location
FWL	Frederick W. Lanchester (originated a differential equation model of attrition)
GAL	Gallon
GCCS	Global Command and Control System
GRTE	Ground Route
GS	General Support
GSR	General Support Reinforcing
GUI	Graphical User Interface
HARM	High-speed Anti-radiation Missile
HE	High Explosive
HELO	Helicopter
HMMWV	High Mobility Multipurpose Wheeled Vehicle
HQ	Headquarters
HRU	High Resolution Unit
HTML	Hypertext Markup Language
HTT	High resolution unit Target Type
HUP	High resolution Unit Prototype
ICM	Improved Conventional Munitions
ICP	Interface Configuration Program

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ICPLLogin	Interface Login Program
ID	Identifier
IFF	Identification Friend or Foe
IIP	Intelligence Information Prototype
IMT	Information Management Tool
INFO	Information
INTEL	Intelligence
JCATS	Joint Conflict And Tactical Simulation
JDA	Japan Defense Agency
JDPI	Joint Desired Point of Impact (formerly DMPI: Desired Mean Point of Impact)
JDS	JTLS Data System
JDSP	JTLS Data System Protocol
JEDI	JODA Entity Data Identifier
JMCIS	Joint Maritime Combat Information System
JMEM	Joint Munitions Effectiveness Manuals
JODA	JTLS Object Distribution Authority
JOI	JTLS Operational Interface
JPL	Jet Propulsion Laboratory
JRSG	Joint Rapid Scenario Generation (formerly JIDPS: Joint Integrated Database Preparation System)
JSDF	Japanese Self-Defense Force
JTLS	Joint Theater Level Simulation
JTOI	JTLS Transaction Operational Interface
JXSR	JTLS XML Serial Repository
KIA	Killed In Action
KM	Kilometer
KNOTS	Nautical miles per hour
LA	Lethal Area
LAN	Local Area Network
LAT	Latitude
LB	Login Build (JTLS order type)
LDAP	Lightweight Directory Access Protocol
LDT	Lanchester coefficient Development Tool
LOG	Logistics
LOGIN	Logistics Input

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LOGREP	Logistics Report
LONG	Longitude
LOTS	Logistics Over The Shore
LR	Long Range
M&S	Modeling and Simulation
MAPP	Modern Aids to Planning Program
MB	Megabyte
MCP	Mobility Counter-mobility Prototype
MCR	Model Change Request
MG	Machine Gun
MHE	Material Handling Equipment
MIP	Model Interface Program
MOGAS	Motor Gasoline
MOPP	Mission-Oriented Protective Posture
MOSAIC	NCSA user interface software
MOTIF	X Window System graphical interface
MP	Maneuver Prototype
MPP	Message Processor Program
MSC	Major Subordinate Command
MSG	Message
MTF	Message Text Formats
MUREP	Munitions Report
MUSE	Multiple Unified Simulation Environment
NCSA	National Center for Supercomputing Applications (University of Illinois)
NEO	Noncombatant Evacuation Operations
NFS	Network File Server
NGO	Non-Governmental Organization
NIS	Network Information Service or Network Information System
NM	Nautical Mile
NTSC	Naval Telecommunications System Center
OAS	Offensive Air Support
OBS	Order of Battle Service (formerly UGU: Unit Generation Utility)
OCA	Offensive Counter-Air
OJCS	Organization of the Joint Chiefs of Staff

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OMA	Order Management Authority
ONC	Operational Navigation Chart
OPM	Online Player Manual
OPP	Order Preprocessing Program
OTH	Over The Horizon
OTH Gold	Over The Horizon message specification
OTH-T	Over The Horizon-Targeting
pD	Probability of Detection
pE	Probability of Engage
pH	Probability of Hit
pK	Probability of Kill
PKL	Point Kill Lethality
POL	Petroleum, Oil, and Lubricants
POSIX	International operating system standard based on System V and BSD
PPS	Postprocessor System
PSYOPS	Psychological Operations
RAM	Random Access Memory
RDMS	Relational Database Management System
RECCE	Reconnaissance (air missions)
RECON	Reconnaissance (ground missions)
REGT	Regiment
RNS	Random Number Seed
ROE	Rules Of Engagement
RPT	Report
RSP	Reformat Spreadsheet Program
SAL	Surface-to-Air Lethality
SAM	Surface-to-Air Missile
SAM/AAA	Surface-to-Air Missile/Anti-Aircraft Artillery
SC	Supply Category
SCP	Simulation Control Plan
SDB	Standard Database
SEAD	Suppression of Enemy Air Defense
SIMSCRIPT	Simulation programming language (product of CACI, Inc.)
SIP	Scenario Initialization Program

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SITREP	Situation Report
SLP	Sustainment Log Prototype
SOF	Special Operations Forces
SP	Survivability Prototype
SQL	Structured Query Language
SR	Short Range
SRP	Start/Restart Program (a JTLS component)
SRTE	Sea Route
SSM	Surface-to-Surface Missile
STR	Software Trouble Report
SUP	Ship Unit Prototype
SVP	Scenario Verification Program
SYNAPSE	Synchronized Authentication and Preferences Service
TADIL	Tactical Digital Interface Link
TCP/IP	Transmission Control Protocol/Internet Protocol
TEL	Transporter Erector Launcher
TG	Target entity attribute prefix
TGS	Terrain Generation Service (formerly TPS:Terrain Preparation System)
TGT	Target
TMU	Terrain Modification Utility
TOE	Table of Organization and Equipment
TOT	Time Over Target
TOW	Tube-launched Optically-tracked Wire-guided missile
TPFDD	Time-Phased Force Deployment Data
TTG	Target Type Group
TTL	Target Types List
TUP	Tactical Unit Prototype
TW	Targetable Weapon
UBL	Unit Basic Load
UIM/X	GUI builder tool
UNIX	POSIX-compliant operating system
UNK	Unknown
UOM	Unit Of Measure
USA	United States Army (U.S. and U.S.A. refer to United States and United States of America)

USAF	United States Air Force
USCG	United States Coast Guard
USMC	United States Marine Corps
USMTF	United States Message Text Format
USN	United States Navy
UT	Unit entity attribute prefix
UTM	Universal Transverse Mercator
VIFRED	Visual Forms Editor
VMS	Virtual Memory System
VTOL	Vertical Take-Off and Landing aircraft
WAN	Wide Area Network
WDRAW	Withdraw
WEJ	Web Enabled JTLS
WHIP	Web Hosted Interface Program
WIA	Wounded In Action
WPC	Warrior Preparation Center
WPN	Weapon
WT	Weight
WW	Wild Weasel
XMS	XML Message Service

## APPENDIX B. Version 4.1.2.0 STANDARD DATABASE CHANGES

Major Changes include:

- Added New Aircraft (9)
- Added New SUPs (21)

### B.1 Sensors Added

- APY10\_AGS

### B.2 Jammers Added

- ALQ213.RDR.JAM

### B.3 Aircraft Classes Added

- AC130W.STING.II
- MC130J.COMMA.II
- AC-130J.GHOSTRID
- P-8A.POSEIDON
- HERON.UAV
- C27J.SPARTAN
- C295.CASA
- C295.CASA.MPA
- SCANEAGLE

### B.4 Aircraft Loads Added/Renamed

- AC130W.DEF
- MC130J.DEF
- AC130J.DEF
- P8A.DEF
- HERON.DEF

- C295-MPA.DEF
- SCANEAGLE.UAV.DEF

#### B.5 Calibers Added

- 3FGM25FG
- 4.5SGM30SG20CG
- 4.5SGM57FGL
- 5FGL3FGM
- 76FGL35FG

#### B.6 Ship Unit Prototypes (SUPs) Added

- AKIZUKI.DDG\_JA
- AMERICA\_US
- AQUITAINE.AS\_FR
- BAYNUNAK\_UE
- BERGAMINI.ASW\_IT
- BERGAMINI.GP\_IT
- CANBERRA\_AU
- DARING\_GB
- FORMIDABLE\_SG
- HOBART\_AU
- IV.HUITFELDT\_DK
- IZUMO\_JA
- LARGS.BAY\_AU
- MILGEM\_TR
- PRO.KHAREEF\_OM



- SENTINEL\_US
- SIGMA.9113\_ID
- SPEARHEAD.JHSV\_US
- STEREGUSHCHI\_RU
- VISBY\_SE
- ZUMWALT\_US

#### B.7 Air Defense Classes Added

- RIM162(MK29)
- RIM162(MK56)

#### B.8 SSM Added

- A70.VLS(8)
- MK57.VLS(4)

#### B.9 New MINE CLEARING CAPABILITY (MCC) Added

- VISBY\_SE\_MCC

#### B.10 New MINE SEARCH CAPABILITY (MSC) Added

- VISBY\_SE\_MSC