

# JTLS

## Version Description Document

November 2013



DEPARTMENT OF DEFENSE  
JOINT STAFF J7  
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JOINT THEATER LEVEL SIMULATION  
(JTLS 4.1.3.0)

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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 4.1.3.0 delivery of the configuration-managed JTLS software suite.

JTLS 4.1.3.0 is a maintenance release of the JTLS 4.1 series that includes code modifications that represent corrections to known Software Trouble Reports (STRs), which 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 4.1.3.0 of the configuration managed Joint Theater Level Simulation (JTLS<sup>®</sup>) software suite. JTLS 4.1.3.0 is a Maintenance delivery for the JTLS 4.1 series of releases. JTLS 4.1.3.0 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 4.1.3.0 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 4.1.3.0)

### 1.2.4 New Documents

No new volumes are delivered with the JTLS 4.1.3.0 documentation suite.

### 1.2.5 Delivered Software Components

JTLS 4.1.3.0 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 4.1.3.0 are provided in the *JTLS Installation Manual*. Installing a previous version of JTLS prior to installing JTLS 4.1.3.0 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 4.1.3.0 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 45 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 45, which expires on 14 February 2014. 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 4.1.3.0 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 4.1.3.0 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 4.1.3.0 and any previous 4.1 series database, but some errors were discovered in the internally-held database procedures. For this

reason, after installing JTLS 4.1.3.0, 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 4.1.3.0, 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 4.1.3.0 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.

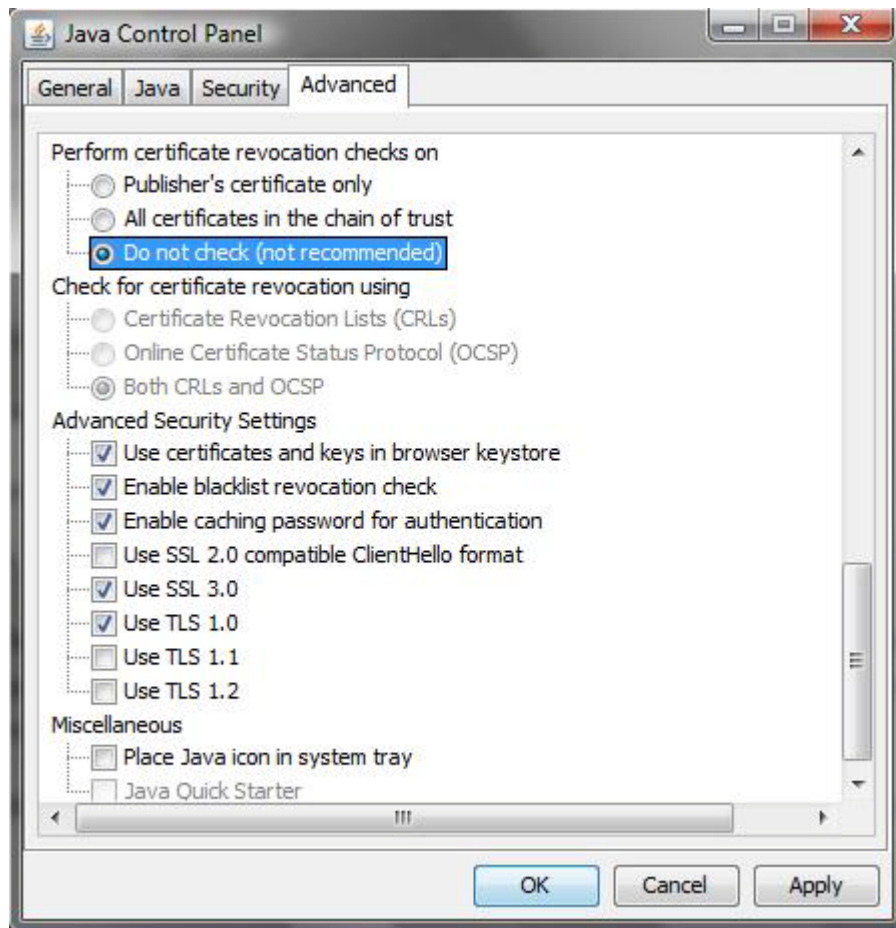
### 1.5.3 Disabling Certificate Authority

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 4.1.3.0 as a result of implementing authorized Engineering Change Proposals (ECPs).

### 2.1 JTLS-2013-11665 WHIP - Map Slide - Duplicate Selected Object

#### Summary of Model Change Request

It was not possible to duplicate existing objects within a WHIP map slide.

#### Design Summary

A new 'Duplicate' option was added when right-clicking on an existing object within the active slide. When this 'Duplicate' option is selected, a copy of the object is created. This new copy occupies the same location as the original object.

### 2.2 JTLS-2013-11686 SVP Download Outside of SVPR Utility

#### Summary of Model Change Request

The user should have the choice to simply do a download without needing to run the SVPR utility.

#### Design Summary

A new menu item has been placed under the Tools within the Database Development System (DDS) that allows the user to perform a SVP download, called "SVP Download". This menu item first requests the user to enter the scenario password before going on to bring up the window that shows the status of the download in progress. The user has the ability to Cancel out of the password entry dialog, and being returned to the main screen of the DDS, or to enter the appropriate scenario password to continue. Once the password has been accepted, the SVP Download window pops up and displays the progress of the download.

### 2.3 JTLS-2013-11687 SVPR Error/Warning Filter Box

#### Summary of Model Change Request

Provide a filter capability that provides a finer grain-ability to the Error/Warning check-boxes.

#### Design Summary

An additional edit field has been introduced in with the Errors/Warnings tab of the SVPR utility. This filter allows the scenario developer a finer grain-ability when selecting what errors/warnings they wish to work on. When no selections are in the filter edit box, the selections are in their last state left by the user; selected checkboxes demonstrate being checked, or unchecked as the

case may be, and the Error/Warning List is populated with those entries as normal. When the user enters a value in the filter, however, all checkboxes other than that selection are unselected, which changes the values displayed in the Error/Warning List accordingly. Multiple entries may be incorporated by use of a comma separating the values within the filter edit box, which another way to specify items is to use a range of values, specifying values separated by a hyphen.

## 2.4 JTLS-2013-11695 The RSP Could Not Create Complete Orders

### Summary of Model Change Request

When creating an order spreadsheet, a user may not want to specify each and every field needed for the order. There are several mandatory fields that can be entered as a default and not placed in the spreadsheet. The desire of this ECP is to allow the end user to do so.

### Design Summary

When creating a Reformat Spreadsheet Control file, the user is asked for the format of the spreadsheet as was done in previous versions of the RSP. After that specification is complete, the user is now given the option of specifying Order Fields that do not exist in the spreadsheet and their desired values. These are known as the Control File Default Fields. Every order created will have the Default Fields added to the Read Order File.

In previous versions, a user needed to use a text editor to add these default fields after the Read Order File was generated.

Documentation update in the Technical Controllers Guide remains to be completed.

This is a major overhaul of rsp code. No specific file list is provided.

## 2.5 JTLS-2013-11730 DDS Table Editor Header Search Capability

### Summary of Model Change Request

Historically, locating a particular column within DDS Table Editors have been time consuming with having to scan each column header to ascertain a match.

### Design Summary

A new search mechanism has been added to the DDS table editors that allows the scenario developer to search values in the table column's header. The values are typed into a new "Column" edit field adjacent to the "Filter" edit field at the top of the table editors. Once found, the table editor will track to the appropriate column containing the value matching its column header and highlight the column header in dark grey. Both full word and partial words are searched for, there is no case sensitivity, and hitting the "Enter" key searches for the same value repeatedly in adjacent columns until it wraps to the beginning of the table when the entry is no longer found.

## 2.6 JTLS-2013-11763 ATOT Process ROUTE Records

### Summary of Model Change Request

It is typical for the NATO Integrated Command and Control (ICC) system to generate the specific routes that an air mission should follow into its task area and out of its task area. The ATOT did not process and use this data.

### Design Summary

The ATOT was improved to read and process the information in the ROUTE record. The information was used to create a detailed Ingress and Egress route for the Air Mission.

## 2.7 JTLS-2013-11764 Difficult To Read ATOT Generated Order Files

### Summary of Model Change Request

It was very difficult to read and debug ATO-T generated order files. The desire was to have Utility Field Records appear on their own line so it is easy to read and understand.

### Design Summary

The requested solution was implemented. When the ATOT writes out the order files, for all UTILITY fields, such as the Ingress and Egress Path fields, each UTILITY field record is placed on its own line. All of the data then lines up nicely and it is easy to read, verify, and change if necessary.

## 2.8 JTLS-2012-11768 Allow JDPIs To Be Entered In GTGTLOC ID Field

### Summary of Model Change Request

When the US Theater Battle Management Core System (TBMCS) generates an ATO, it places the JDPI identifier in a very specific field which the ATOT recognizes. However, the NATO ICC system places this information in the Target ID field. The ATOT needs to allow for this difference.

### Design Summary

The code was changed to check the Target ID field against the names of targets in the JTLS database as well as JDPIs. The full range of logic used to locate and assign a target based on the contents of the GTGTLOC record was also documented.

## 2.9 JTLS-2013-11808 Provide Setup File Selection To Run Multiple JOIs

### Summary of Model Change Request

When the JOI process is started from the javamenu or jtlsmenu, it uses the default JOI setup file (joi.setup) to display and save the setup parameters. To use a different setup file, the JOI must be

started from a terminal window with `-setup` optional parameter. Running multiple JOIs is becoming more and more common during exercises and it was desired to have a capability to start the JOI with different setup files from the menu.

### Design Summary

Code was modified to provide the setup file selection when starting the JOI from the menu to allow the operator to start multiple JOIs quickly. All the JOI setup files will be located in `$JTLSHOME/game//config/joi` directory with ".setup" suffix as file name. When the JOI is stated from the menu, the operator can select a setup file from the the list of previously saved setup files or build one. When started without specifying a setup file, JOI will create and save the settings into a new setup file. The created setup file will be located in `$JTLSHOME/game//config/joi` directory and named as `_.setup`.

Note: Though the format of the setup file has not been changed, the location of the files has been changed. To use any previously saved setup files, move the files to `$JTLSHOME/game//config/joi` directory.

## 2.10 JTLS-2013-11810 Debug Button on WHIP and DDS Login Screen

### Summary of Model Change Request

It was desirable to launch a debug console from the login screen of the WHIP and DDS in order to monitor the behavior of the applications during their launch.

### Design Summary

A button was added to the login screens of the WHIP and DDS that launches a debug console.

## 2.11 JTLS-2013-11815 SVPR Resolution Close All (Clean-up)

### Summary of Model Change Request

A new feature has been introduced into the SVPR utility that will allow the scenario developer to "clean-up" after a resolution has been accomplished.

### Design Summary

A "Close All" button has been added to allow the scenario developer to close all of several open resolution dialogs simultaneously.



## 2.12 JTLS-2013-11821 Add JSAT Capability to Display Tracks as WHIP Slides

### Summary of Model Change Request

*The JSAT service was used to predict the orbits of satellites for use as National Asset Passes (NAP) in JTLS. After the satellite passage data were computed by JSAT, the client wanted to display these data on the WHIP.*

### Design Summary

The orbital data produced by the JSAT contained all of the information needed to display the paths of the satellites as they entered and exited the JTLS theater. A basic routine was added to JSAT to generate these data in a manner which conformed with the format of WHIP Slides. The JSAT slides can be displayed on the WHIP after a restart of the JXSR service, and then a restart of the Controller WHIP. As part of this improvement, an additional button was added to the JSAT graphical user interface which allows the user to "Create Slides for WHIP". The resulting output is written to the same directory as all other WHIP slides are stored.



## 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-2013-11666 Additional Data Fields Added to SVP Output

*The JTLS Database Development System (DDS) contains a new capability to automatically correct bad data in a scenario. In order for the automatic procedures to work, some additional data are needed by the DDS code to facilitate the corrections. As part of a continuing effort to incorporate these automatic correction routines into the DDS, some additional data have been added to the data that is saved by the SVP. Without these extra data, the automatic correction would not function properly.*

Small changes to the output routines have been made to provide the data needed by the DDS to automatically correct bad scenario data. Many files have been changes for this purpose, but the specifics are not listed here.

### 3.2 JTLS-2013-11667 Crash After Magic Moving Ship Emplacing Mines

*The CEP entered Debug while a ship was conducting Naval Mining operations. The ship was laying mines, but was magic moved before the operation was complete. The CEP crashed after the ship was subsequently given a sweep mines order.*

The problem was that the Magic Move code did not remove the ships next scheduled EMPLACE.MINE event. So when that event was processed, the code tried to use part of the data from the ship's current order (the sweep order) to execute the emplacement. Note that without the new Sweep order, what would have happened would have been that the EMPLACE.MINE processing code would have simply generated a LOGIC ERROR and exited. No crash, and no subsequent emplacement events would have been scheduled. The code error was corrected.

### 3.3 JTLS-2013-11668 Missing Attribute in Debug Order from JODA Console

*The Controller had the ability to set some debug flags in the CEP by typing a command in the console window for the JODA. Due to previous changes to the order format, the code which compiled this order was missing an attribute. As a result, the order confirmation message generated by the CEP had a garbled subject line.*

The JODA console code was modified to include the missing attribute.

### 3.4 JTLS-2013-11669 ICC Deployed Squadrons Not Represented Correctly

*In NATO's ICC and Norway's NEC-CCIS, deployed squadrons have the same Unit Identification Code (UIC) as the squadron from which they were deployed. This change was made to JTLS in a previous version and it was not transferred to the new JTLS 4.1 code stream.*

When detaching aircraft from a squadron to form a new squadron, ensure that the new squadron is given the same UIC code as its parent.

### 3.5 JTLS-2013-11670 Collateral JDPI Target Damage Warning Incorrect

*The Scenario Verification Program (SVP) generated an unreadable Error 630.*

The problem was that the SVP incorrectly generated a Warning Number 1630 as an Error 630. Warning 1630 states that a Joint Desired Point of Impact (JDPI) has an unsupported collateral damage target type. The proper number is not generated and the warning message is readable and understandable.

### 3.6 JTLS-2013-11671 Conflicting Usage of HRU Attribute for Organic Boat

*In the model, there is an attribute which holds the owning federate for High Resolution Units (HRU). This attribute is only relevant when the JTLS is run in a federated mode with other models. At some point in the development of the improved HRU code, this owning-federate attribute was re-used for the purpose of holding information related to the use of organic boats. Because of this dual-usage of the attribute, the original values of the owning-federate were lost when an HRU was created from the database. The result was that no externally owned HRU could be created at game start due to this attribute conflict.*

The code was modified to add a new attribute which holds the required organic boat preference. This attribute was used during the creation of HRUs when the player wishes to customize the need for a small boat. Normally, if the HRU prototype (HUP) includes a small boat requirement, then an HRU would not be created unless it included this boat. This requirement has changed such that the player can specify (on the create order) if the HRU organic boat was mandatory, optional, or not required.

The HRU owning federate attribute and the HRU organic boat preference attribute have been completely separated in the model. No additional conflicts remain in the code and both aspects maintain their independent meanings within the model.

### 3.7 JTLS-2013-11672 SVP Warning 1615 Incorrectly Generated for Zero Range

*Warning 1615 was incorrectly generated by the SVP for Prototype Owned Targets (POT). If a Ship Unit Prototype (SUP) or a Tactical Unit Prototype (TUP) contained POTs, Warning 1615 was generated if the range of the target was less than the minimum range of the Target Subcategory. However, if the POT had a range of zero, then the SVP should have utilized a range of the default value from the target subcategory. This substitution of the default range was valid for all target*

*categories except runways. Since the default range was not used in these circumstances, Warning 1615 was often generated inappropriately.*

The code was modified so it correctly utilized the default target category range when the specific target range was zero. This eliminated the excessive production of Warning 1615. These changes only affected POT targets associated with SUPs and TUPs. The range for runways must not be zero, but all other categories work as described.

### 3.8 JTLS-2013-11673 Automatic ATO Identification Assignment Failure

*The automatic Air Tasking Order (ATO) Identification (ID) assignment did not work.*

When the new order panels were created, the time for air mission execution was placed in a different place on the mission order. The code simply needed to be changed to find the desired mission execution time. Once the mission has a proper execution time, it properly assigned its ATO ID on existing IDs that exist within the model.

This change was really only important if you were linking JTLS to a real-world air mission tracking system with the JTLS Transactional Operational Interface (JTOI).

### 3.9 JTLS-2013-11674 Fortify Identified Issue

*The Government identified a number of code issues using the code analyzer Fortify, including in the category "Poor Error Handling: Return Inside Finally"*

The return statement was moved outside the finally block.

### 3.10 JTLS-2013-11675 JSAT Problems with Number of Satellites and Interval

*Two errors were found while running the JTLS Satellite Service (JSAT) to predict satellite passes over the game board. The user added a new satellite to the existing initialization data, but no output data were produced for this new satellite. When the new satellite data were stored in a new, individualized file, orbital data were produced. The user requested passes over a one week interval but the program generated data over only a single day.*

When the user added data to the default initialization file, the number of satellites exceeded the limits of the program. All satellite data are stored and accessed from Two-Line Element (TLE format) files. The JSAT has static array sizes which are limited to a maximum of 24 satellites per TLE file. The user attempted to add and use data for satellite number 25 in the TLE file. The program simply ignored the extra data without giving any warning to the user. Changes were made to the user interface such that it provides a highly visible warning pop-up box when the number of satellites in the TLE file exceeded the program limits.

When the user tried to run the program over a week-long time period, the output data should have easily produced satellite passes over that entire time interval. The program was found to be prematurely exiting from the calculations due to a flag being erroneously set to true. The code

was modified to prevent this early termination of the execution. Subsequent execution of the program produced data over the entire range of specified times and dates.

### 3.11 JTLS-2013-11676 Incomplete SVP Check for Assets to Move Dry Supplies

*A support unit indicated incorrectly that it had no trucks available to move dry supplies. The support unit did have COMBAT SYSTEM OTHER TRUCKS.*

The SVP was altered to check if the support unit had COMBAT SYSTEM CARGO TRUCKS or COMBAT SYSTEM OTHER TRUCKS. This was WARNING 1411.

### 3.12 JTLS-2013-11677 Aviation Fuel Not Checked for FARPs

*The Scenario Initialization Program (SIP) does not check if aviation fuel is available at a FARP.*

The code only checked airbases and independent squadrons. This check was expanded to include FARPs and naval squadrons that have a type of Carrier or are Helo Capable.

### 3.13 JTLS-2013-11678 SVP Warning 1262 Could Not Be Ignored

*SVP Warning 1262 Could Not Be Turned Off.*

The code was corrected to properly check if the user did not want Warning 1262 produced.

### 3.14 JTLS-2013-11684 JTOI - Incorrect Deploy Type Sent to NEC CCIS

*For a detached squadron, 2 squadron\_unit\_status records were created in NEC-CCIS by the JTOI. The two records have different deploy types, "R" and "D", with proper sending airbase and receiving airbase data. The JTOI was sending incorrect deploy types, causing NEC-CCIS server errors.*

Code was modified to correct the error.

### 3.15 JTLS-2013-11685 Civilian Aircraft Always Takeoff Immediately

*The Civilian Aircraft order allows the user to input a desired leave time or a desired arrive time. These fields have no effect on the order. as the mission always takes off immediately.*

When the order panels were changed, the location of this information was moved to the ADD Tab. The model code simply needed to access this information from the correct location on the order.

### 3.16 JTLS-2013-11688 HRU Moving Through Crowd Detected Too Early

*HRUs moving through a crowd are being detected too early.*

The issue is that the old detection time algorithm assumed that the more units that are covering the HRU position, the better the ability for the covering units to find the HRU. This is true up to a

point, but if too many people are in the area then it is much more difficult to find the HRU because it will be lost in the crowd.

The algorithm was changed to account for this situation. The Analyst Guide has been updated to provide a detailed explanation of the HRU detection algorithm.

### 3.17 JTLS-2013-11689 Two Hold Fire Intercepting Air Missions Break-off

*JTLS has a routine that automatically stops an air mission from continuing an intercept if the mission believes that the odds of surviving an engagement are extremely small. Two missions intercepting each other are going through this routine even though neither has any intention of firing because of their ROE.*

The routine that determines if the intercept should break off was changed. The mission determining whether it should break-off was given visibility of the other mission's ROE. The concept was that if the other mission has no intention of firing, it is flying in such a way to let you know it is of no harm to you - it doesn't attempt to lock on, and it follows a non-threatening flight profile. This added logic solved the issue. When and if the other mission changes its ROE to allow combat, the intercept break-off logic will again be automatically instituted.

### 3.18 JTLS-2013-11690 Set and Show Order Issues for HRUs

*A number of issues were found with the SET and SHOW order for changing HRU parameters. Problems were encountered with the number and types of combat systems and supplies which can be set in an HRU, and the portion which changes the detection times for HRUs was not functioning as expected.*

When an HRU was created, the player could set the combat systems and supplies in the HRU. The combat systems and supplies can only be from those types found in the prototype (HUP). The player could select a combat system count which was limited to no more than the TOE in the HUP. The amount of supplies was not limited to the amount in the HUP but must be taken from the supply categories found in the HUP.

After the HRU exists, the controller could change the type and number of combat systems to exceed the values given in the prototype. The same issue exists for supplies. The number and category of supplies could be set to nearly unlimited amounts and categories. These issues indicated that limits needed to be placed on both combat systems and supplies to control the setting of their number and type. The code was modified to limit the combat system types and supply categories to just those systems and categories which are part of the HRU's prototype. The quantity of supplies is not limited, but the number of combat systems cannot exceed the TOE for that system in the HUP.

The detection times for HRU were also a problematic part of the Set and Show orders. When the controller changed the detection time for an HRU for a specific foreign side, the resulting message contained a list of all of the detection times for all sides. If the user requested to show

just the changes, then only the ordered changes should be shown. It should not show all of the detection times when Changes-Only was requested. Furthermore, when the user made a change to the detection time, the resulting value did not appear to be modified. Finally, if the user attempted to place an HRU in covert mode while that HRU was in combat, the model allowed the change to occur. When an HRU was in combat, the code was modified such that the detection time going covert could not be set to be earlier than the assess combat event. A code error was found which prevented any changes to the detection times for non-covert HRUs. Corrections were made and changes to the detection times were applied and reported correctly in subsequent testing.

### 3.19 JTLS-2013-11691 Crash Showing Lethality Parameter

*The model went into a Simdebug when the Controller asked to show a LOAD ASSIGNMENT ARRAY for a aircraft and load type combination that did not exist.*

Although the model went into Simdebug, the technical controller could continue without any ill effect. The message being generated by the model did not properly close a time field. Once it was properly closed, the message was generated correctly.

### 3.20 JTLS-2013-11698 Memory Leak from Satellite Coverage Off Game Board

*When a satellite appeared in the game as a result of a National Asset Pass order, it created the hex tags that represent its coverage. When this happened, if any of the coverage ended up off the game board, instead of skipping the tag, the entire process stopped and the result was that array holding all of the covered hexes was not released and made available to other parts of the program.*

The hex that was off the game board was skipped and the process continued instead of stopping. After all covered hexes were processed, the array holding the information was properly released.

### 3.21 JTLS-2013-11699 Link-16 Track Constantly Changing Track Number

*A Link-16 track was constantly changing track number.*

The problem stemmed from an inconsistency in how the model determined if a Sensor Target had a Link-16 Source number. This code was in two different places and the logic requested by the Government was fairly confusing. The code was moved into a single routine to guarantee consistency. The problem only occurred if the Radar Target was supposed to get its Source Number from its associated unit.

The new and consistent logic works as follows:

If the Sensor Target is owned by a Naval Unit, then the source number comes from the unit. If the unit does not have a source, then the source number comes from the target.



If the Sensor Target is owned by a land-based unit, then the source number comes from the target and if the target does not have a source number specified, then the model looks to the target's owning unit.

If the Sensor Target is not owned, the model looks to the target for its source number and if the target does not have a source number, then the model looks to the target's associated unit.

If none of these situations apply, the Sensor Target is not a Link-16 asset.

### 3.22 JTLS-2013-11694 JSAT Never Predicts Passes for West Longitudes

*The JTLS Satellite Service (JSAT) is used to predict the passage of satellites over the game board. The Controller noted that the output from JSAT never included data for passes over western (negative) longitudes. All data were produced for eastern (positive) longitudes. The resulting National Asset Pass (NAP) orders had significant holes where there was no satellite coverage.*

A simple mathematical error in the method for converting the satellite longitudes into compatible values for comparison with locations on the JTLS game board caused this error and was corrected.

It was also found that the JSAT could produce output data for passes which were over the game board for less than a minute. One minute is the minimum acceptable interval which can be used by the NAP order in JTLS. To prevent very short passage durations, the JSAT code was modified to round-up any passes to be at least one minute in duration.

Status messages were also added to the JSAT execution window to provide the operator with a measure of the progress while the program was run. Because of the complex computations, the JSAT process for predicting the locations of satellite often took several minutes to complete.

### 3.23 JTLS-2013-11696 Logic Error After HRU Task Canceled

*An HRU started to execute a new task and found some leftover route points in its route. The code generated a logic error and then automatically cleared the route prior to executing the new task.*

If an HRU must cancel a task because there is no feasible route to the task location, the task is properly canceled, but the route points it was supposed to follow to the new task location were not removed from the HRU's planned route set. The next task given to the HRU caused the logic error. The solution to the issue was to clear the HRU's route when the first order with the infeasible route was canceled, and was implemented and tested.

### 3.24 JTLS-2013-11697 HRUS With Multiple Targets to Extract Crashing CEP

*A CEP game crash occurred when an HRU, whose HUP specified multiple SAM/AAA targets that were to be extracted from the parent unit, was created. The code was using the Target Working Set to cycle through the newly extracted targets and transfer ownership to the HRU. However, the*

*code to transfer ownership would clear and re-use the Target Working Set in the middle of the transfer operation.*

*Upon fixing this, an error was also discovered in the extraction of targets and the creation of magic targets. In both these routines the HRU Target Set contains a template of the targets to be extracted/created. The code cycled through this set, removing the templates and inserting the newly extracted/created targets. This removing and inserting of objects into the set while cycling through the set also resulted in a crash.*

In all three cases, changing the target ownership, extracting physical targets, and creating magic targets, the code was modified to use a temporary array to hold the target objects to be cycled through, thus preventing manipulation of the set in multiple places and avoiding the crash.

### 3.25 JTLS-2013-11698 Game Crash With Controller-Created Supply Dump

*A game crash occurred when the Controller created a supply dump target in the same hex as an existing supply dump on the same side. The CEP did not create a new supply dump but combined the supplies for the new dump with the existing dump. This was recorded as a successful order implementation, which caused the CEP to attempt to put the new target on the game board and since there was no new target it crashed.*

The CEP was modified to check that both the order was successful and the new dump was not just combined with an existing dump before attempting to access the new target.

### 3.26 JTLS-2013-117699 Clarification of Help Data in SVP Script

*The SVP produces an XML output file which is combined with a stylesheet to produce the error and warning messages and corrective action used by the DDS. This stylesheet also has the ability to produce the error and warning messages as simple text output.*

*While determining how to run the script at the database test, it was noted that the help text was not clear on what defaults were used when arguments were not provided.*

The help text was updated to better explain the default behavior when arguments were omitted. This does not affect the functionality of the script, only provides clarification on the functionality.

### 3.27 JTLS-2013-11701 Unit Taking Shelter In Destroy Tunnel

*It was possible to tell a Unit to take shelter in a destroyed tunnel.*

An additional check was added to the processing of a sheltering order. If the tunnel is destroyed, the order to shelter objects within the tunnel is rejected.

### 3.28 JTLS-2013-11702 Game Crash Aborting Airlift of an Airbase

*An inexperienced JTLS operator ordered an airbase to be airlifted to a location that did not have a runway. The model did as instructed and dispatched an air mission to conduct the airlift. The mission flew to the pickup location, and since the airbase did not have any assigned squadrons, loaded the first load, creating a detachment of the airbase in the process. The mission flew to the dropoff location and could not find a place to land resulting in the cancellation of the mission and the re-attachment of the airbase detachment back into the airbase.*

*As part of this re-attachment process the detachment had all air events canceled for it, including checking for any own side missions in the same hex that needed to be scrambled. This check resulted in a game crash because the detachment had never been assigned a hex location since it was never placed on the game board.*

Added a check to the checking for own side missions that are on the ground at the location of the airbase or FARP whose air events are being canceled. The code now ensures that the airbase or FARP are on the playing surface.

### 3.29 JTLS-2013-11703 Duplicate Numbers Assigned to SVP Warnings

*The SVP Warning number 1129 was being assigned to two different warnings within the SIP code. One of the warnings was documented, but the other had been recently added and was not documented. Additionally, two other warnings existed that had not had warning text assigned and therefore would not appear in the SVP output.*

A new warning number was assigned to the duplicate number and the three warnings were added to both the SVP-Template file, which defines the format of the output, and the DDS User Guide.

### 3.30 JTLS-2013-11704 Supply Category and Unit of Measure Order Fields

*A common method for modifying supply categories in orders is to provide two order fields. The first order field allows the player to select a supply category. Once a supply category is chosen, a second field will update and allow the player to enter a quantity in a unit of measure appropriate for the chosen supply category. The chosen supply category has an associated type, such as wet weight or dry weight.*

*When a wet weight supply category is chosen, the quantity field should have updated with units of measure from the wet weight category. However, the units of measure being used were only ever from the dry weight category, regardless of the chosen supply category.*

Logic was added to the quantity field so that it can dynamically switch between wet weight and dry weight units of measure when a new supply category is chosen.

### 3.31 JTLS-2013-11709 Improved WSM SSH Authentication

*JTLS services are generally configured to execute on multiple servers. When the WSM starts, it needs to establish SSH Tunnels to these remote servers for secure information exchange, and these tunnels need to be reset if the ICP modifies any game configuration. Currently, if SSH auto-login is not configured at the server level, the WSM prompts the user to reenter the password for every server every time the SSH tunnel is reset. This is tedious and can be misleading when the ICP/WSM are run on different servers.*

Added capability for WSM to take ssh password for a single time, and apply it to whenever it is needed for ssh processing. Also added "Reset SSH Tunnel" action to the Control menu for resetting SSH tunnels without restart WSM. This is useful to re-establish SSH tunnels to servers that are initially down or not connectible.

Script wsm is modified accordingly to support three WSM start-up modes:

-p: start WSM in background from either javamenu or terminal. Single password entry required for ssh authentication. This is the default.

-b: start WSM in background from either javamenu or terminal. Setup auto-login or enter password everytime to authenticate SSH process

-f: start WSM in foreground from terminal, this mode is useful to display WSM execution logs. Setup auto-login or enter password everytime to authenticate SSH process.

### 3.32 JTLS-2013-11710 Non-Covert HRU Into Covert When Protected Not Working

*A Covert-capable HRU was told to move using non-covert means back to its home base. From there it was given an order to execute another task covertly and it would not go back into covert status.*

The problem was tracked down to the logic followed if the HRU was starting its mission in a protected mode or not. Protected mode means that the HRU is currently integrated with one of its own units and prior to going out on its covert task, it get a full new computation of the time until it is detected. If the HRU is not in the protected mode, it must live with its possibly depleted current time to detection values. The logic incorrectly set the HRU's status to cover only under the logic sequence for the unprotected situation. The logic was corrected and now no matter whether the HRU starts out its new covert mission in the protected or unprotected mode its Covert Status flag is properly set.

### 3.33 JTLS-2013-11711 Model Crash If Satellite Start and End Point Identical

*The model crashes if the distance between the start and end point of the satellite is zero. The distance is used to compute the satellite speed for scheduling its move events. When accessing the zero speed value for the moving object the model crashes.*

We considered two possible solutions to this problem. We could restrict the order so that the start and end point were not the same or we could fix the code so a speed of zero would not cause an issue. We decided to fix the code, because it is possible that the end user simply wants the satellite up at the single point for some length of time.

### 3.34 JTLS-2013-11712 Supply Target Lose Some Supply Records

*Before a checkpoint, a Supply Storage Target showed a record for CLASS III AIR with zero on hand. A stop checkpoint was taken and the model was restarted. The IMT lost the record.*

In previous versions of the model, it was impossible to tell if a target supply category has been sent to the JODA and IMT. For this reason on a checkpoint, it only saved those records for which the target had some supplies. A change in JTLS 4.1 resulted in holding onto this target supplies in a different manner. It is now easy to tell which supply records have been passed to the JODA. The checkpoint code was changed to make use of this new data structure and all supply target records, whether there are current on-hand supplies or not are saved as part of the checkpoint. On a restart these records will be restored to the supply target. The result is that the JODA will be populated and the records will be displayed on the IMT.

### 3.35 JTLS-2013-11713 Call Sign Length Too Long In OTH-Gold Message

*For the EMITTER VOICE CALL SIGN field in OTH-Gold Contact (CTC) messages, the JOI provides the call sign of air missions. The OTH-Gold message specification allows entries with a maximum length of 12 characters. Some non-ATO missions had call signs longer than 12 characters, which caused parsing errors on the NOR CCIS system.*

The JOI code was modified so that it checks the call sign length before sending out the message. If the length is greater than 12 characters, only the first 12 characters will be part of the message.

### 3.36 JTLS-2013-11714 JTOI Updates To Support ICC 282

*Due to changes in ICC 282, several issues were discovered when the JTOI was used to interface with ICC 282:*

- 1. When a mission attacks a unit, an interim mission report is generated and the JTOI provides the mission and targeted unit data to ICC. The JTOI was not providing data for the fields Low Cloud Cover, Low Cloud Height, Visibility, and Weather Condition under the Mission Editor window in ICC.*
- 2. The enemy\_act\_location fields contained incorrect data under Mission Editor window.*
- 3. The target course field holds value in degrees (0 through 359), while ICC expects the course data in 3 digit format (000 - 359).*

4. The radar status field showed "1" instead of "OPR". In ICC 282, the radar\_status values were changed from a numeric string to a text string.

5. The role field for detached squadrons showed "MIS"; it should inherit parent squadron's role.

Several routines were modified to resolve the problems:

1. Mission Editor - MISREP - Mission Tab

The JTOI now provides 4 additional fields with default values as follows:

Low Cloud Cover - "0"

Low Cloud Height - "9"

Visibility - "9"

Weather Condition - "0"

2. A code error was fixed when setting the enemy\_act\_location\_lon field.

3. Target course data are provided to ICC in 3 digit format.

4. The RADAR\_STATUS\_CODE section needs to be added to the icc\_code\_map file to provide status mapping for sensor targets. If status mapping is provided in the icc\_code\_map, JTOI provide the radar\_status defined in icc\_code\_map (ICC 282). If the radar\_status codes are not defined in the icc\_code\_map, JTOI send "1" through "4" based on the target strength (ICC 274).

5. For detached squadrons, the parent's role data will be retrieved from the unit\_platform\_type table. The unit\_platform\_type table has only 1 parent record, thus consistent role data can be retrieved.

### 3.37 JTLS-2013-11715 Player Created Naval Formation On Land

*A Naval player found that Naval Formations could be created with their reference points in strictly land hexes, including hexes far inland.*

The WHIP did allow a creation of a Naval Formation that had its reference point in a land hex. The CREATE FORMATION order .xml file specified "BOTH" as the hex type constraint. This allowed any Land, Water, Dual Capable, and Small Island hexes to be entered. The order did not, however, allow any ship to be assigned a formation Station location that was in a Land hex. The problem only happened if the formation reference point did not have a formation ship assigned to be stationed there.

If such a formation was created, the NAVAL MOVE order allowed the Player to move that formation, as long as the reference point on land was in a hex that was adjacent to water. The

NAVAL MOVE order was rejected (no optimal path) if the reference point was more than one hex inland.

The MAGIC MOVE FORMATION did not allow a magic move of a formation to a Land hex, even if all the ships in the formation would end up in water hexes. But this rejection was done by the CEP, not done at the WHIP level.

The problem was corrected. Now, the CREATE FORMATION order forces the formation reference point to be in a Water, Small Island, or Dual Capable hex, even if no ship is ordered to take station there. For consistency, the MAGIC MOVE FORMATION order was changed so that it now also allows Magic Moves only with Water, Small Island, or Dual Capable Hexes as the new formation reference point location. The "WATER" location constraint key word is used. The WHIP translates a "WATER" hex location constraint as meaning any hex type except strictly LAND.

### 3.38 JTLS-2013-11716 Increase Default OTH-Gold Message Send Count To 100

*When the JOI was used for a larger database, some OTH-Gold tracks were lost when the track count exceeded approximately 5300 tracks. When the JOI starts, it always uses the default auto send count of 25, sending 25 messages in a set. Though the Auto Send Count can be adjusted during run time, a larger message auto send count was requested to reduce the message traffic during initial download.*

The default auto send count was increased from 25 to 100.

### 3.39 JTLS-2013-11717 Special Characters In TACELINT Message Name Field

*In the TACELINT message name field, the underscore character was being removed.*

Code was modified so that special characters in name fields are replaced by spaces.

### 3.40 JTLS-2013-11718 Checkorder Gave An Error After the Problem Fixed

*In the Change Mission Parameter Order, it would not allow the user to send the order that only changed the mission load that should be used. This problem is fixed by adding to a constraint the name of the order group, but the checkorder script gives an error.*

Added loops to the constraint name check to find a matching name from existing field and group names.

### 3.41 JTLS-2013-11719 JOI - Loading Block List File As Start-up Option

*The JOI block list file contains a list of unit names intended to be blocked (not sent to GCCS) for the duration of the exercise. If the block\_list file existed, the JOI was always reading the file and set the hide flags for those units in the list. This can cause issues if multiple JOIs are running in an exercise.*

The loading of the block list file was changed as a JOI start-up option. The JOI will read and process only if the block file name is provided as a parameter, like '-block block\_file\_name'. If multiple JOIs are running, this will allow each JOI process to specify it's own block list file or none (default). The block list file must exist in the \$JTLSHOME/game/ directory.

### 3.42 JTLS-2013-11720 DDS - Railroad Add Arc Available Node List

*Right-clicking a railroad node shows menu items. Selecting "Add Arc" connects an arc from the selected node to another node that is displayed on a list on the map. When the existing railroad has a large number of nodes, the node list seems to be larger and unable to show all available nodes on the map.*

The node list no longer shows on the map, but instead generates a dialog that contains a node list. The dialog is filterable.

### 3.43 JTLS-2013-11724 JNLP Obsolete Class Invocation

*As of Java 7 Update 40, retina display support has been implemented to render Java fonts and graphics vividly on Macs. With this support, the WHIP and DDS JNLP files no longer require externally instantiating Apple's Quartz class and setting the supporting Integer class cache amount.*

Java's display support allows the WHIP and DDS to render appropriately without requiring the external invocation of helper classes when running the Java applications on Macs. Therefore the external invocations set in the JNLP file have been removed. In addition, by eliminating the external class invocation the applications adhere to stronger security.

### 3.44 JTLS-2013-11725 WHIP Range Rings and Routes Filter Panel Errors

*The WHIP's Range Rings and Routes filter panels had rendering errors when navigating to one of these filter panels and attempting to navigate back to the main Filter Control panel using the back button. The display would not be rendered properly, resulting in a blank panel.*

*The error occurred because the Range Rings and Routes panels created in a persistent manner a delete context menu that allows for the removal of entries in a corresponding table pane. The error was shown as the panel cleared of the components to render on the panel.*

The error was corrected by creating the context menu, with the delete menu item, as it is invoked by the user.

### 3.45 JTLS-2013-11726 JINN - Removed Unused TARGET\_PLUS\_EETGTS Download

*The GDP downloads the target\_plus\_eetgts table for displaying TUP\_POT targets on the map. However, the JINN does not write TUP\_POT targets to pass to the JOBE. The JINN does not need to download this table.*



The code was changed so that the JINN no longer downloads and sets the target\_plus\_eetgts data in the repository.

### 3.46 JTLS-2013-11727 Link16 Engagement Message Anomaly

*For Link16 Engagement Messages (J10.2), the JOI provides three JU numbers - the source JU (detector), the launcher JU (weapon), and the Missile track JU. When the message was received in ICC 282, it was plotting as if the firing was coming from the detector (source JU). They were expecting the launcher to be the reporting source.*

Code was modified so that the launcher JU number was also used as the source.

### 3.47 JTLS-2013-11728 Filter Panel Navigation Buttons Indexing Error

*The WHIP Filter panel arrow navigation buttons were incorrectly indexing the visited filter panels in the Filter Control pane. This caused the arrow navigation buttons to be enabled and disabled inconsistently with the order of visited panels.*

The indexing was corrected to properly keep track of the order of visited filter panels and enable or disable the navigation buttons according to the current location in the navigation ordering stream.

### 3.48 JTLS-2013-11729 Reformat Spreadsheet Program Updates

*JTLS 4.1 introduced the concept of a named Group order attribute to organize individual order fields into collections of like fields, in order to simplify user interactions with the model. This prevented the Reformat Spreadsheet Program (RSP) from functioning because the named Group keyword could not be processed.*

The RSP was modified to accommodate the named Group keyword by implementing default data fields, and now accepts interactive input of keywords (order fields) and corresponding data, in addition to the keywords associated with the spreadsheet input file. The default data fields can also be saved in the RSP control file with the spreadsheet keywords. The generated orders contain both the entered keywords & spreadsheet data and the default keywords and data.

A new input RSP file (orders.rsp) was created that is analogous to the existing orders definition file (orders.def). From this new file, the RSP refers to the order fields to determine the validity of keywords entered by the user in the RSP control file.

Note that most of the validity checking for data input has been relegated to the Order Verification Tool (OVT).

See also JTLS-2013-11695.

### 3.49 JTLS-2013-11731 Minor Errors From Steadfast Jazz 13

*A small number of minor errors were discovered during the Steadfast Jazz 13 exercise. These errors, though disparate, were so minor that a separate STR was not deemed feasible for the individual items.*

- 1) The message definition file for the Non-Theater DSA Collection Report had an extraneous bit of text, "PI.REMAINING.DET.TIME", within the middle of a combat system count record.*
- 2) Within the WHIP's Order Manager, the NATO.REPORTS.PLAYER order shows up with a reference of NRP vs the actual reference field as filled by the operator.*
- 3) It was not possible to tell which checkpoint was being copied to the shadow game once the popup window that runs the copy/rename script started.*
- 4) The OPM HUP.DETECTION.MULTIPLIER label was "Detection multiplier (Covert)". The capitalization did not match other entries on the page.*

The solutions for each of the individual items follows:

- 1) The extraneous bit of text was removed from the MDF.
- 2) The order had an empty queue tag, which specifies to the Order Manager the fields that should be used to identify the order. This tag was filled with the name of the Reference field.
- 3) Added the checkpoint number to the title of the popup window.
- 4) The label was changed to "Detection Multiplier (Covert):" to maintain consistency with the other items on the HUP page.

### 3.50 JTLS-2013-11732 Target Ranges Show As Zero On Controller's OPM

*The Online Player Manual (OPM) lists the targets owned by individual units in a table on the individual unit pages. One column on this table shows target category specific data, which for SSM, Sensor, Jammer, and SAM/AAA targets includes the range of the target. Within the Controller OPM pages these ranges always showed as zero. Within the force side pages the ranges within the table showed the proper value.*

The actual problem was traced back to the ability to specify a range value of zero within the DDS, which means that the individual target should get its actual range from the target category data. This switching of the range from zero to the target category value is accomplished when the OPM target pages are written. Previously, these pages were written after the individual unit pages, which meant that the ranges had not yet been switched from zero when the unit pages were written. However, since OPM generation is conducted a force side at a time, once the values had been set in the generation of the Controller's OPM they were set for successive force side generations.

In order to solve this problem the generation of unit pages was moved to happen after the generation of the target pages.

### 3.51 JTLS-2013-11758 Impossible To Have Two Independent ATOs

*In an exercise, two of the sides in the game were using a real-world system to create Air Tasking Orders (ATOs). The desire was to translate these two ATOs and have JTLS update the two real-world systems. This was not feasible because JTLS did not allow the two independent sides to create two different ATO Identification (ID) numbers over the same period of time. For example, Side 1 could not create an ATO ID of A1 covering 0600 on 13 November to 0559 on 14 November at the same time that Side 2 create an ATO ID of B1 for the same period of time.*

The order verification code within the model only looked for overlapping time periods. It needed to check for overlapping time periods only if the sides designated to use the ATO ID overlapped. The check was corrected.

Once corrected JTLS successfully fed two independent real-world systems with air mission updating information using two JTLS Transactional Interface Program (JTOIs).

### 3.52 JTLS-2013-11759 ATO Period Offset Time Not Used

*The ATO Translator (ATOT) has the ability to alter the time at which an ATO should execute. For example, it is possible to read in an ATO scheduled to fly on 13 November, but to change all of the orders so it executes on 16 November instead. The time adjustment value, known inside the ATO-T as the OFFSET.TIME, was not applied to the order used to tell the model the name of the ATO Identification (ID) number.*

The ATOT code was changed to not only apply the OFFSET.TIME to the mission orders, but to also use it to adjust the ATO time period order.

### 3.53 JTLS-2013-11760 Setting Automatic Squawk Numbers Caused Issues

*In an exercise, the Situation Forces Civilian side entered all of their civilian air missions used to represent commercial flights. After the orders were entered and while the missions were still in a SCHEDULED mode, the Controller entered the default Squawk values that should belong to the civilian side. What was observed is that all of the scheduled air missions immediately were given the same squawk code.*

This reported error was caused by two overlapping issues.

1. Air missions that are not flying should not be given squawk codes when the Controller submitted the order. Only air missions that were flying should have been assigned an automatically generated squawk code.

2. If an air mission had only one aircraft, the automatic code assignment logic did not reserve the single squawk code for the mission. The logic only appears to work if the mission had more than one aircraft.

Both issues were fixed.

#### 3.54 JTLS-2013-11761 ATOT REASSET Record Not Always Read

*During the execution of a new ATO that had multiple REASSET records, it was noted that the ATOT did not always fill in the Task Units table with the information found on the REASSET record.*

It was possible that every other REASSET record was being read by the ATOT. The problem was corrected.

#### 3.55 JTLS-2013-11762 ATOT Incorrectly States EC Mission Cannot Be Conducted

*The ATOT incorrectly generated an error stating that an aircraft did not have the correct jammers to conduct a specific type of jamming mission. The problem was that the ATOT only looked at the Aircraft Load specified in the model's Load Assignment Array. The user had provided a specific load in the ATO file. The specified ATO load did have the correct jammers.*

The error checking code was altered to use the user specified load if provided, and the load indicated in the Load Assignment Array if no user specified load was provided.

#### 3.56 JTLS-2013-11765 ATOT Patrol Mission Orbit Location Orders Not Correct

*Normally ASW Patrol Missions are translated by the Air Tasking Order Translator (ATOT) as polygonal search area missions. If the data indicated that the Patrol Mission should patrol and orbit point, the order generated by the ATOT does not have the correct format.*

The format of the order was corrected. This was done, by centralizing all of the orbiting parameter code. By doing so, all orbiting type mission will not use the same code to generate the orders needed to represent the user generated ATO message.

#### 3.57 JTLS-2013-11766 ATOT Warning Numbers Of 000

*There were a few Errors and Warnings generated by the ATOT that had numbers of 000. It appeared as if the value had been assigned temporarily and never replaced with an unused ATOT number.*

All 000 Errors and Warnings have been replaced with their own unique number. The documentation was changed to include a list of every Error and Warning generated by the ATOT along with a suggested solution if the issue is encountered during the translation process.

### 3.58 JTLS-2013-11767 ATO MSNACFT Record Incomplete

*When translating an ATO generated by the NATO ICC system, one of the MSNACFT records was incomplete. The Squawk information for the mission was not specified.*

The code was changed to recognize this situation. If encountered, the mission is still considered a good mission, but the squawk information will not be passed to the model.

### 3.59 JTLS-2013-11769 ATOT Computation Of Location Altitude

*Within an Air Control Order (ACO), each named location can have a effective level (EFFLEVEL) record which indicates the altitude range at which the named location can be used. The ATOT concept was to assign an altitude to the named location that was in the middle of the effective level. This mid-point altitude was not computed correctly.*

The computation was corrected. The computation resulted in an altitude that was always too low. For an effective level from 150 to 200 (15,000 to 20,000 feet), the old algorithm computed the mid-altitude as 2500 feet. It correctly computed the mid-point of the range, but forgot to add the lowest effective level. Using this example, the altitude is now computed as 15,000 + 2500 or 17,500 feet.

The reason the error was not located sooner is that the location altitude is seldom used. Instead the ATO message would always indicate the altitude at which the mission should fly. When ECP JTLS-2013-11763 was implemented, in which the ROUTE record is now process, the ACO location altitudes were needed and the error became very obvious.

### 3.60 JTLS-2013-11770 Show SUP Order Incorrect For Ship Class Name

*The Show SUP message always indicated that the Ship Class Name for the SUP was NONE.*

The code was corrected to properly print out the SUP's Ship Class Name.

### 3.61 JTLS-2013-11771 Mission Summary Sort Not Working

*When the ATOT was moved to Simscript III, the program lost the ability to sort the Mission Summary Screen.*

The problems with the sorting were fixed. The user can now sort the Mission Summary Screen on any of the columns listed. The user documentation was changed to explain this change.

### 3.62 JTLS-2013-11772 Unrecognized ACMSTAT Record in ACO

*JTLS was passed an ACO in which there was an ACMSTAT record. This record was not recognized by the ATOT.*

The record contained no information of use to JTLS. The code was changed to simply pass over the record.

### 3.63 JTLS-2013-11773 Rendezvous Point In Ingress Route Problem

*The ATOT placed the rendezvous point for an Air Mission Package in each mission's Ingress Route. This was a poor idea because if the user decided to change the Rendezvous Point, the mission would still go to the old rendezvous point prior to moving to the new user defined point.*

The code was changed to not place the Air Mission Package rendezvous point in the mission's Ingress Route.

### 3.64 JTLS-2013-11774 Improve Air Mission Package Rendezvous Point

*Normally an ATO lists the location at which a package should rendezvous before going into the target area. If this information is not specified, the ATOT computes a rendezvous point. The old algorithm only considered the home bases of all missions in the package and selected the single home base that was closest to the centroid of the selected targets. This algorithm did not consider that the model may have created an Ingress Route for a mission, such as a tanker location. This Ingress Route information should also be a part of the algorithm*

The new algorithm looks at the last point in the mission's Ingress Route. If the mission has no Ingress Route, then the algorithm considers the mission's Home Base. The ATOT still computes and finds the closest point to the target centroid.

### 3.65 JTLS-2013-11775 SVP Warning HUP Supplies Not Available Incorrect

*The SVP Warning 1221 indicates that a HUP has a Combat System for which it does not have enough supplies to fire even one round. The problem is that the error message is not always generated.*

The error message was not generated if the HUP did not have a record for the required Supply Category. The code was corrected.

In addition, the check can only be done for a specific Combat System Prototype (CSP). The warning message was expanded to print the CSP that was used for the check and the Combat System that was causing the problem. By including this information as part of the message, the database developer can decide whether the Combat System should be removed from the HUP or that supplies should be added.

Finally the Logic Error was removed from the CEP because it is not an abnormal situation that the Supply Category record does not exist for the HRU. This is true because the SVP only lists this as a warning and therefore it is a feasible decision made by the database developer.

### 3.66 JTLS-2013-11776 Logic Error Determining If JDPI Is Externally Owned

*A logic error was generated when attempting to create a Controller Damage Report when weapons were dropped on a JDPI. The logic error was generated when the model asked whether the JDPI was owned by an external model.*

JDPIs cannot be owned by an external model - this is currently not a capability of JTLS while operating within a federation. The model was changed to always return an answer of NO when asked if the JDPI is externally owned.

### 3.67 JTLS-2013-11777 Logic Error Recording HRU Information

*When an HRU collects information, the model generated a logic error because it could not determine what sensor detected the object on which data was collected.*

The problem was localized to the detection of targets. The problem was fixed and now all detected objects know what sensor was used in the detection.

### 3.68 JTLS-2013-11778 Assess Mine Damage Crash Poisson Zero Value

*The model crashed when attempting to assess mine damage to a ship that had no personnel.*

There were two problems.

1. How did a ship get zero personnel. This was tracked to a problem with the Controller Change Strength algorithm. This issue is discussed under a separate STR because it results in a significant change to the methodology of magically changing the strength of a unit.
2. The model was changed to check for the zero personnel situation, and instead of crashing a Logic Error is generated and the assessment stops. No mine damage is computed.

### 3.69 JTLS-2013-11779 Crash Changing Refuel Chit For Scheduled Mission

*The model crashed when the user entered an order to change the assigned refuel chits for a tanker that was still in the Scheduled posture.*

The model needs to handle Schedule Tankers differently. The code to do this was included in the model and was correct. The problem was that the model incorrectly determined that the mission was not in the Scheduled Posture. This problem was fixed.

### 3.70 JTLS-2013-11780 Missile Count To ICC

*JTLS has the ability to update the weapon count for SAM sites that are Link-16 capable when linked to the NATO ICC system. The desire is that the weapon count should be the sum of the standard and advanced targetable weapons that can be used by the SAM site.*

The model used to output the maximum number of the two types of weapons. The model now updates the ICC with the sum of the weapons.

### 3.71 JTLS-2013-11781 Tanker Allowable Leave Station Time

*The user inputs a desired off-station time for a tanker as part of the order. Currently the model will send the tanker home at the specified time as long as no missions are currently heading to the tanker for fuel. If a mission has a refuel chit for the tanker, but is currently not heading to the tanker, the tanker will leave and the mission will have to find fuel elsewhere. The desire is that a tanker should not leave if some mission is expecting the tanker to provide fuel in the future.*

The model logic was changed. A tanker will extend its on-station time by one minute if it has missions currently heading to it for fuel or if it is holding a future refuel chit for any mission.

### 3.72 JTLS-2013-11782 JODA Air Updating Air Mission Load

*The JODA received a update air mission load message and the mission identifier was not specified.*

The problem was that the model should not have sent out the mission load message. When determining whether a mission is launch capable, the model creates a temporary mission to help with the required logic. If weapons are added to this temporary mission, the model was attempting to tell the JODA about the changes. The JODA should not be informed about anything that has to do with this temporary mission. The logic was changed so the bad message is no longer sent to the JODA.

### 3.73 JTLS-2013-11783 Impossible To Use Magic Air Ops Order To Refuel Tanker

*It is impossible to change the amount of fuel a tanker has available to give to others using the Magic Air Ops order.*

The problem was fixed and the Magic Air Ops Order code thoroughly tested.

### 3.74 JTLS-2013-11784 Air Mission Patrol Area Not Displayed

*Patrol Areas (polygons) for air missions were not displayed when the Patrol Area option was selected from either the context sensitive (right-click) menu or the Filter Panel-Routes-Air menu on the WHIP.*

When the Mission Resource event takes place, the model initializes the mission's route for display on the WHIP. At the same time, the logic that should initialize Patrol Area polygons was unfinished. To correct this problem, a new routine was written to perform that function. The new logic handles missions downloaded from a checkpoint restart as well as newly created missions that have a Patrol Area assigned.



### 3.75 JTLS-2013-11786 JOI - TACELINT Message Interval Not Fully Shown

*When the time interval for generating the TACELINT messages was modified to 99999 seconds, the time interval was changed within the JOI but the main GUI displayed only 3 digits as 999.*

The code was modified to display up to 5 digits of the TACELINT message time interval.

### 3.76 JTLS-2013-11787 Documentation Inconsistent with Model for AC Capacity

*A user was trying to Airlift/Airdrop a large unit in a single trip. The aircraft parameter AC.DRY.WEIGHT was set to zero. The Data Requirements Manual indicated that if this parameter was zero, then for transport purposes, the aircraft would have an unlimited capacity. When the user ordered the mission to transport the unit, the mission was created and then unexpectedly halted because it was not carrying any supplies. The documented capability did not appear to work.*

There was no code in the CEP to support the concept of an unlimited carry capacity when AC.DRY.WEIGHT was set to zero. To resolve this inconsistency, the documentation was changed to remove all references to a zero implying an unlimited capacity. If this parameter is set to zero, then the aircraft will have absolutely no capacity to carry personnel, equipment, or supplies.

### 3.77 JTLS-2013-11788 Underscore Char In SUP Ship Class Name Caused Error

*The underscore character in the SUP Ship Class Name field was causing OTH-Gold errors in MCCIS. In the OTH-Gold CTC (Contact) report, the CLASS-NAME class field contains the ship class name for naval units. According to the documentation, the CLASS field allows special characters except the hyphen.*

The code was modified to prevent the hyphen and underscore characters in the message field by replacing them with a blank spaces.

### 3.78 JTLS-2013-11789 JOI - Reduce TACELINT Messages Being Sent

*The TACELINT message receiving system cannot handle the volume of messages that are being sent out from the JOI even after the time interval was increased.*

The TACELINT messages are sent during the initial download when the JOI process is started and also when any updates on emitter objects were received from JODA. Though the interval was increased to a larger number (600 seconds), messages were being sent due to constant updates generated by the model. The code was modified to reduce the TACELINT message traffic. When the JOI receives updates on emitter objects, no messages will be sent unless the object became active. These updates will be sent as time advances based on the interval setting.

### 3.79 JTLS-2013-11790 Unnecessary Data Saved In Checkpoints, Debug Objects

*Some unnecessary data were being saved as part of ASCII checkpoints.*

The unnecessary data were the current values of the Debug Objects that could have been specified by Controller Order. For code efficiency, they were removed from the checkpoint files.

In addition, the ASCII checkpoint writing routines were renamed. This was done to make it consistent with the JTLS configuration managed naming convention.

### 3.80 JTLS-2013-11791 Damage Report Indicates Launcher Killed

*When a JDPI associated with a SAM site's Fire Control Radar was hit and killed, the damage report incorrectly indicated that a launcher was hit and killed.*

As things are damaged, an entity called an OBJECT.DAMAGE (OD) is created. In the damage JDPI code, the OD object was incorrectly created. Its attributes were always assigned in such a way that the damage reporting code thought that a launcher was hit. The OD creation code was corrected to properly indicate when a launcher was hit and when the fire control sensor was hit.

### 3.81 JTLS-2013-11792 Damaged Fire Control Sensor Emitter Not Removed

*Sensor target and Fire Control Sensors associated with SAM targets can be detected by Electronic Intelligence (ELINT) collectors. If the ELINT collector detects the sensor emission, an object called an Emitting Object is created and can be displayed on the WHIP. Under some conditions when the Fire Control Sensor for a SAM target is destroyed, the Emitting Object is not removed from the WHIP.*

The code incorrectly looked at the wrong attribute to determine if the Emitting Object should be destroyed. Instead of basing its determination whether to destroy the Emitting Object on whether the Fire Control Sensors were dead, the code looked to see whether the SAM associated with the Emitting Object was capable of firing with its Fire Control Sensor dead - thus, SAM sites with dead Fire Control Sensors were still displaying Emitting Objects related to those Fire Control Sensors. The code was corrected.

### 3.82 JTLS-2013-11793 Logic Error Generating ICC MISREP When Hitting JDPI

*The model generated a logic error each time an air mission was told to attack a JDPI. The logic error was within the code that tried to update the NATO ICC system MISREP function.*

The code was not expecting the option of attacking a JDPI - it only considered the options of attacking a unit or a target. This fix did not output any JDPI information for ICC, but only stopped the logic error from being generated. Currently an air mission that is told to attack a convoy, an HRU, or now a JDPI, does not send an updating MISREP record to ICC. NATO and ICC personnel need to indicate what information should be passed to ICC under these circumstances.

### 3.83 JTLS-2013-11794 Gallon To Pounds Conversion Factor Mismatch

*As a part of the Link16 J13.2 (AIR PLATFORM STATUS) message, the fuel data for air missions were provided. The NATO ICC expects the values in pounds and the JOI was using the hard-coded*

*conversion factor of 6.25. The UOM table in the database had a LBS entry with 6.75 multiplicative value.*

To provide consistent data to the NATO ICC, the JOI was modified to use the conversion factors specified in the database to convert the fuel data from gallons to pounds, or the multiplier value of 6.79 if the conversion factors are not specified in the database.

### 3.84 JTLS-2013-11795 Runway Direction Blank in Target Parameters Message

*The direction of a runway target appeared as a blank in the Target Parameters message, which is generated by the Set Target Parameters order.*

The Target Parameters message XML template referenced an invalid data element that caused a blank to be output instead of the actual value. The invalid reference was corrected.

### 3.85 JTLS-2013-11796 Setting Ship Prototype Does Not Work

*A user attempted to change a ship's prototype during game execution. The WHIP showed some signs of this, but the ship did not act as if the prototype changed.*

The prototype of the ship had not changed. This was a fairly simple fix to set the prototype, but it caused the design team to re-look at the entire routine. Several issues were found as a result of this:

- a. Several change situations were not considered, such as attempting to change a submarine to a no-submarine prototype. Many of this major change situations are now detected and the change prototype portion of the order is now rejected.
- b. The ability to change the next Adjust Supply event for a unit also appeared not to be working. It was working but the message did not properly indicate that the change had been implemented.

In addition to these two functional changes, some general code cleanup and reorganization was accomplished to help with any future improvements and maintenance that needs to be done to this order code.

### 3.86 JTLS-2013-11797 Crash Generating IIR For IR Sensor

*The model crashed while attempting to generate an IIR message based on the collection of an IR satellite pass.*

The issue was that the IR satellite did not collect information on a detected unit's combat systems. One part of the code assumed that it would collect this type of information and another part of the code assumed that it did not. The code was corrected to assume that IR, which JTLS considers a sub-type of an Imagery sensor can in fact collect on combat systems.

Since that was encountered while preparing for an exercise, the code was also modified to check for the situation that caused the crash to begin with. To do this, the routine that generates the IIR message was also changed to generate a logic error if the proper combat system information was not available as expected.

### 3.87 JTLS-2013-11798 Change Orbit Location Results In Loss Of Refuel Chits

*If the user enters a new orbit location for an air mission while the mission is orbiting, the model incorrectly removes all existing refuel chits for the mission.*

The situation was corrected. A mission should only remove existing refuel chits and find new refuel locations for those missions, if the tanker will never go to an orbit again.

### 3.88 JTLS-2013-11799 DDS - Modified Add/Remove Target for Pipeline

*Adding or removing an associated target from a selected pipeline node or pipeline network did not display the correct available target list. In addition, selecting a target did not update the database.*

Originally, in the pipeline code, the target list was created at the pipeline download, but this has been changed to create the target list upon request. The code was modified to commit the target to the database table.

### 3.89 JTLS-2013-11800 OVT Should Use Queue Name to Determine Order Name

*If the OVT finds errors in a Read Order File (ROF) it opens a dialog listing all of the errors and refers to the individual orders within the ROF both by number (first order, second order, etc) and by the order name. It assumes that the order name is the first value within the order. This is not always true and the keyword value pair that represents the name can appear anywhere within the order. This was observed with orders that were generated by the ATOT, and it was hard for the technician to match the errors with the actual order.*

The OVT Library was modified to read the queue tag within all order XML files, which is used to inform the WHIP which fields to use to display the order in the Order Group Editor. The OVT Library was then expanded to allow an external program, such as the OVT, to request the value of the named field for a submitted order. If the order does not have a queue entry then the OVT library will use the value of the first filled field from the submitted order.

### 3.90 JTLS-2013-11801 Provide Controller A Method To Match UI Objects

*A player was having a problem with an Unidentified unit and asked for help from a Controller. For the player, an Unidentified unit is any unit for which an Identification level of detection has not been made. The player sees these objects with a name such as UI00037\_... The Controller had no reliable way to match the UI name to the name of the actual object.*

The Controller's version of the name\_prefix attribute, which holds the UI designator for objects that have not been localized, but is not used by the Controller side or the object's owning side, was modified to always hold the UI designator, which allows the WHIP to access it. The Controller WHIP Sitrep for units, targets, and HRUs was modified to display the UI designator, and the primary unit, target, and HRU IMT screens were modified to display the UI designator as a hidden field - this allows the Controller to view the UI designator, but empty values will always show for the players.

### 3.91 JTLS-2013-11802 Controller Change Strength Inaccurate

*The Controller entered an order to have a unit change its strength to 70%. The unit ended up at 30% strength, because too many crew members were destroyed, leaving more than 30% of the combat systems unable to fight.*

The Controller change strength algorithm was changed. The reduction of a unit's combat systems no longer includes Crew members - instead, the algorithm begins taking combat systems away from the unit, pro-rating them based on the units TO&E and stopping if the next removal would make the result lower than the desired new strength of the unit. Once the combat systems have been removed, the remaining combat systems are re-manned, and if any unused Crew members are left over, the algorithm will start to remove the unused crew if by doing so the unit's strength will come even closer to the desired strength.

The new algorithm should never put a unit at a weighted strength lower than the value entered by the user.

### 3.92 JTLS-2013-11803 Create Aircraft Load With Blank Name

*A Controller had the ability to create an aircraft load with a blank name, causing any subsequent checkpoints to fail.*

The order panel was not designed correctly, listing the load name as optional when creating a new aircraft load. This problem was corrected.

During the testing of this fix, several other issues were uncovered. The order that was sent to the CEP was not released. This meant that the memory used to hold the order was lost to the system. This could cause an issue, if for some reason, a user would send the order numerous times during an exercise.

The code was also made more readable, which will help future maintenance efforts on the order.

### 3.93 JTLS-2013-11804 Generic Objects Not Checked By OVT

*A number of MANAGE.JDPI orders to create new JDPIs were placed in a Read Order File (ROF). Within each order the Damage Subcategory field was submitted as an integer. The ROF was run through the OVT, and when the ROF was input into the CEP, the game crashed.*

The orders were in an old format of the order before the order constraint tying the category and subcategory together was implemented. Now, the required entry is the name of a target\_subcat item from the JDSP. Therefore it did not internally assign a field type for this field, which resulted in no checks being done for this field's entry. When the ROF was read through the OVT, it failed to catch this error and caused the crash. The OVT Library did not have core to recognize and indicate this type of error. The OVT Library was modified to recognize this type of error and to display an error when an unknown field type is encountered.

### 3.94 JTLS-2013-11805 Scenario Name Too Long For ATO Retrieval

*A copy of the Steadfast Jazz 2013 scenario was created for OPFOR Air to test their ICC ATO against before submitting it to the real game. This scenario was named sfjz13\_opfor\_air, which is longer than the 15 characters we used to limit our scenario names to. When the OPFOR Air cell attempted to start the ATOT, it would abort early because of a crash in the ATO Retrieval program (atoret), which is invoked from the ATOT. This crash was subsequently chased down to code within the atoret that copied the scenario name into a character string of only 15 characters. Since the scenario name was larger this would result in writing over other parts of the memory, which often leads to a crash in the most unusual of places.*

Two things were done to mitigate this problem in the future. The first is that the allowed scenario name length was expanded from 15 characters to 25 characters. The second was that the copy of the scenario name into the local string was converted to a string length copy. This type of copy instructs the program to copy only the first n number of characters, in our case 25. This prevents the over-writing of other parts of memory avoiding a potentially confusing crash. Truncating the scenario name will still cause a mis-match between the ATOT and atoret, but this should be able to be traced easily back to the shortened name via the screen output. Numerous other variables within the atoret were also performing a copy and these were all switched to string length copies.

### 3.95 JTLS-2013-11806 Unit Movement Along Long Bridge Finishes Too Soon

*When a unit traveled across a long bridge, it arrived at the destination much sooner than expected. This arrival time was significantly earlier than the time the model estimated to complete the move.*

This problem was reproduced and some minor code errors were found. These errors existed in routines which (1) calculated the actual travel time, and (2) in code which moved the unit along its route to a new hex. Code changes were implemented and testing showed that the travel times along long bridges agreed with estimated time intervals. Although the coding corrections were minor, they resulted in major differences in the time to complete movement across long bridges. This problem affected all movement along target networks. It applied to both long bridges and tunnels.

### 3.96 JTLS-2013-11807 Submarine Did Not Submerge When Ordered

*A submarine at snorkel/periscope depth would not submerge when the Change Submarine Depth order was submitted.*

The problem was traced to a database issue. The submarine's snorkel/periscope depth was exactly equal to the submarine's operational depth in the Ship Unit Prototype for the submarine. As a result, when the Change Submarine Depth order was submitted, the submarine remained at its current depth.

A new warning message (#1263) was created in the Scenario Verification Program (SVP) to advise the database builders when the SUP SUBMERGED DEPTH (displayed as the SNORKEL\_PERISCOPE depth state in the WHIP) is equal to the SUP OPERATIONAL DEPTH (displayed as the SUBMERGED depth state in the WHIP). In general, the SUP OPERATIONAL DEPTH should be greater (deeper) than the SUP SUBMERGED DEPTH in the database to avoid undesired submarine behavior.

### 3.97 JTLS-2013-11809 DDS - Pipeline Data Editor Crashed

*Adding a source node to the existing pipeline network allows the user to select a main source node from the Pipeline Data Editor. After a warning is displayed and the user clicks "Ok", the program crashed and gave an IndexOutOfBoundsException.*

The code was modified so that it would use the network source method to get a correct source node list. The code was used the HashMap class instead of using the List class because some source nodes are shared by arcs. Therefore, multiple source nodes are in the network list but giving the return list should not be duplicated.

### 3.98 JTLS-2013-11811 HRU Speed Values in OPM Unchanged When UOM Changed

*The OPM contained values for the speeds of specific combat systems when they are used in HRUs. The parameter CSP.CS.HRU.SPEED held these data. The Unit of Measure (UOM) control buttons were used to select a different UOM, but the displayed speed values never changed.*

The code to generate the OPM did not contain the proper data fields to utilize the UOM properties. The required initialization data were added to correct the OPM.

### 3.99 JTLS-2013-11812 Errors When Setting Individual Unit Combat Systems

*The order SET.INDIVIDUAL.UNIT.PARAM allowed the Controller to change the number of combat systems (CS) in a unit. Allowed changes include the CS parameters for the TO&E, the number available, in maintenance, unavailable, the number of current casualties, and the time weighted totals. When an order was submitted to change the number of unavailable systems, the model always assigned an incorrect value of -1 for that parameter.*

The code used to set the unit parameters had incorrectly assigned the unavailable value from an unrelated data field in the order. The unrelated data field always had a value of -1 because it was initialized, but never used by the order. Changes were made to correct this error.

### 3.100 JTLS 2013-11813 TACELINT Message EMLOC Field Correction

*When the JOI was used to generate TACELINT messages, the emitter location latitude/longitude data was provided in the EMITTER LOCATION (EMLOC) message set with the category of "P", which represents a probable elliptical area within which the emitter is located. When providing the latitude/longitude location data, the category of "F" must be used, which represents "FIX" or point where the emitter has been located.*

The code was modified to correct the issue.

### 3.101 JTLS-2013-11814 Fortify Issues (Unreleased Resource: Streams)

*The government identified a number of code issues using the code analyzer Fortify. This STR addresses the issue in the category "Unreleased Resource: Streams."*

Modified to close streams when no longer in use.

### 3.102 JTLS-2013-11816 No Emergency Link-16 Message For Downed Pilot

*An aircraft was shot down and a Downed Pilot HRU was created. The exercise audience was not informed via a Link-16 Emergency Message about the location of the Downed Pilot.*

This capability was not properly integrated from JTLS 4.0 into the JTLS 4.1 version. The problem was corrected.

JTLS 4.0 only had a limited Emergency Message capability. The following logic was moved into JTLS 4.1. If the mission that loses an aircraft is currently from a Link-16 capable side and has been assigned its own Source JU Number, the Downed Pilot HRU create as a result of losing the aircraft is eligible for producing a Link-16 Emergency Message. If eligible, the Emergency Message is generated using any Link-16 Force Side Commander's Source JU Number and one the available track numbers for the Force Side Commander.

This logic is not as realistic as it can or should be, but based on Project Manager guidance only the previous JTLS 4.0 logic could be moved into JTLS 4.1. An ECP for properly modeling the entire Link-16 Emergency Message capability has been added as an Engineering Change Proposal and is awaiting needed funding.

### 3.103 JTLS-2013-11817 Resave/Configure DCP GlassFish Only If Modified

*The GlassFish server was triggered to resave/reconfigure by the DCP even if it had not been modified.*



A DCP entry level flag was added to track modifications to all parameters in the entry. GlassFish resave/reconfiguration is triggered only when the DCP entry level flag is triggered.

### 3.104 JTLS-2013-11818 DCP Save on Exit Left GlassFish Running.

*If there were unsaved GlassFish domain changes when the user exited the DCP, Glassfish would remain running after the DCP exited if the user saved upon exit.*

The DCP was modified to prompt the user to choose upon exit whether to cancel the exit and save their changes, or to exit without saving. A reload button was also added to allow the user to discard any unsaved changes. The "Active" checkbox column was removed, as it had no function.

All fields are locked when GlassFish is running so as to display the current configuration. If a field has been changed without saving, the start button is disabled.

### 3.105 JTLS-2013-11819 Misleading Start Button Before GlassFish Domain Created

*Before the GlassFish domain was actually created, the DCP showed the green Start button and green Start menu item. This could mislead the user into starting a non-existent GlassFish server.*

The Start button and Start menu item are disabled (greyed out) in the DCP if the corresponding GlassFish domain has not been created.

### 3.106 JTLS-2013-11820 Create GlassFish Domain As Default If No Change Is Needed

*When performing the very first Save action in the DCP, if there was no change on the GlassFish panel, the GlassFish domain was incompletely created and thus not executable.*

The GlassFish domain will be created using all default values for the GlassFish panel the very first time the DCP is saved for a specific scenario.

### 3.107 JTLS-2013-11822 DDS Map Group Edit Working Incorrectly

*When using the DDS map's Unit/Target Edit mode, if the user selects a group of units to move to a new location, these units' relative positions were not maintained and were all moved to the same location.*

This issue was fixed previously, but was broken again while fixing the target's move issues. The broken code was identified and corrected.

### 3.108 JTLS-2013-11823 DDS Independent Targets Cannot be Moved on Map

*In the DDS, for an independent target such as a runway, the user cannot move its location on the map in the Unit/Target Edit mode.*

This issue is not limited only to independent targets, but also for unowned targets. The problem was identified and fixed.

## 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
EEI	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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ICPLogin	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 4.1.3.0 STANDARD DATABASE CHANGES**