

JTLS-GO

Version Description Document

April 2022



DEPARTMENT OF DEFENSE
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JOINT THEATER LEVEL SIMULATION - GLOBAL OPERATIONS
(JTLS-GO 6.1.4.0)

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ABSTRACT

The Joint Theater Level Simulation - Global Operations (JTLS-GO[®]) is an interactive, computer-based, multi-sided wargaming system that models air, land, naval, and Non-Governmental Organization (NGO) functions within a combine joint and coalition environment.

This *JTLS-GO Version Description Document (VDD)* describes the new features of the Version 6.1.4.0 delivery of the configuration-managed JTLS-GO software suite.

JTLS-GO 6.1.4.0 is a Maintenance release of the JTLS-GO 6.1 series that includes an updated repository of standard data, a demonstration scenario based in the western Pacific, as well as major model functionality improvements implemented as Engineering Change Proposals (ECPs). These ECPs are summarized in Chapter 2. Code modifications that represent corrections to known Software Trouble Reports (STRs) are described in Chapter 3. Remaining and outstanding STRs are described in Chapter 4.

This publication is updated and revised as required for each Major or Maintenance version release of the JTLS-GO 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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TABLE of CONTENTS

ABSTRACTiii

1.0 INTRODUCTION 1-1

 1.1 SCOPE 1-1

 1.2 INVENTORY OF MATERIALS 1-1

 1.2.1 Obsolete/Outdated Documents..... 1-1

 1.2.2 Unchanged Documents 1-1

 1.2.3 Updated Documents..... 1-2

 1.2.4 New Documents..... 1-2

 1.2.5 Delivered Software Components 1-2

 1.2.6 Released Databases..... 1-4

 1.3 INTERFACE COMPATIBILITY 1-5

 1.3.1 Support Software 1-5

 1.3.2 JTLS-GO Cybersecurity Compliance 1-7

 1.3.3 JTLS-GO High Level Architecture Compliance 1-8

 1.4 DATABASE MODIFICATIONS 1-8

 1.4.1 JTLS-GO Using Legacy Default Symbol Set 1-9

 1.4.2 JTLS-GO Using New Default Symbol Set..... 1-9

 1.4.3 Standard Repository Changes 1-9

 1.5 INSTALLATION 1-9

2.0 ENGINEERING CHANGE PROPOSALS..... 2-1

3.0 SOFTWARE TROUBLE REPORTS 3-1

 3.1 JTLS-2022-15641 OPM REGENERATION FAILURE 3-1

 3.2 JTLS-2022-15642 SVP ERRORS 232-234 3-1

 3.3 JTLS-2022-15643 ON-DEMAND AIRBASE RANGE RINGS NOT DISPLAYED 3-1

 3.4 JTLS-2022-15644 NIT STARTING.ON.HAND VALUE INCORRECT 3-1

 3.5 JTLS-2022-15645 SENSOR/JAMMER COVERAGE NOT MAGIC MOVED 3-2

 3.6 JTLS-2022-15647 SVP WARNINGS 1449-1450 NON-FUNCTIONAL CORRECTIONS 3-2

 3.7 JTLS-2022-15648 SVP WARNING 1614 NON-FUNCTIONAL CORRECTION 3-2

 3.8 JTLS-2022-15649 ATOT MISSION SUMMARY COMAO COLUMN 3-2

 3.9 JTLS-2022-15650 SVP WARNINGS 1623, 1627 NON-FUNCTIONAL CORRECTIONS 3-3

 3.10 JTLS-2022-15651 UPGRADE THIRD-PARTY LIBRARIES DUE TO VULNERABILITIES 3-3

 3.11 JTLS-2022-15653 SVP WARNING 1635 NONFUNCTIONAL 3-3

 3.12 JTLS-2022-15654 INSUFFICIENT CAPACITY IN TRUCK CONVOY 3-3

4.0 REMAINING ERRORS..... 4-1

 4.1 DDSC - TMU LINE MODE CHANGES MULTIPLE GRIDS 4-1

 4.2 DDSC - MULTIPLE TYPES IN DDS HISTORY TABLE 4-1

 4.3 WHIP - PIPELINE NOT SHOWN ON IMT 4-1

 4.4 DDSC/WHIP/JOBE - CADRG MAP ZOOM 4-1

APPENDIX A. ABBREVIATIONS AND ACRONYMSA-1

APPENDIX B. VERSION 6.1.0.0 DATABASE CHANGES B-1

APPENDIX C. VERSION 6.1.0.0 REPOSITORY CHANGES C-1

1.0 INTRODUCTION

1.1 SCOPE

This *JTLS-GO Version Description Document (VDD)* describes Version 6.1.4.0 of the configuration managed Joint Theater Level Simulation - Global Operations (JTLS-GO[®]) software suite. JTLS-GO 6.1.4.0 is a Maintenance delivery for the JTLS-GO 6.1 series of releases.

JTLS-GO 6.1.4.0 includes the entire JTLS-GO suite of software, a repository of engineering level data, and a realistic demonstration scenario based on the Western Pacific theater of operations called “wespac61”. There were no database format changes made to support this maintenance release. Database modifications that were accomplished to upgrade the previous JTLS-GO database format to the JTLS-GO 6.1 series format were summarized in the VDD for Version 6.1.0.0 delivered in the documents directory.

This release is being provided on a short notice requirement because of a Joint Staff/J7 security concern with some outdated libraries being used within the JTLS-GO 6.1.3.0 release. There are no Engineering Change Proposals (ECPs) implemented for this release, but for consistency between this VDD and other provided VDDs an empty [Chapter 2.0](#) is included. A summary of all Software Trouble Reports (STRs) corrected in this Maintenance delivery are summarized in [Chapter 3.0](#).

JTLS-GO 6.1.4.0 executes on the Red Hat Enterprise Linux Version 8.4 64-bit operating systems. The Web-Hosted Interface Program (WHIP[®]) user workstation interface can be executed on any operating system from any Java-compatible Web browser.

1.2 INVENTORY OF MATERIALS

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

1.2.1 Obsolete/Outdated Documents

No documents have been deleted or become outdated as a result of this release.

1.2.2 Unchanged Documents

- *JTLS-GO Analyst Guide* (JTLS-GO Document 01, Version 6.1.2.0)
- *JTLS-GO Executive Overview* (JTLS-GO Document 02, Version 6.1.2.0)
- *JTLS-GO Configuration Management Plan* (JTLS-GO Document 03, Version 6.1.0.0)
- *JTLS-GO Controller Guide* (JTLS-GO Document 04, Version 6.1.0.0)

- *JTLS-GO Data Requirements Manual* (JTLS-GO Document 05, Version 6.1.0.0)
- *JTLS-GO DDS User Guide* (JTLS-GO Document 06, Version 6.1.2.0)
- *JTLS-GO Director Guide* (JTLS-GO Document 07, Version 6.1.0.0)
- *JTLS-GO Installation Manual* (JTLS-GO Document 09, Version 6.1.2.0)
- *JTLS-GO Player Guide* (JTLS-GO Document 12, Version 6.1.2.0)
- *JTLS-GO Repository Description* (JTLS-GO Document 14, Version 6.1.0.0)
- *JTLS-GO Software Maintenance Manual* (JTLS-GO Document 15, Version 6.1.0.0)
- *JTLS-GO Technical Coordinator Guide* (JTLS-GO Document 16, Version 6.1.0.0)
- *JTLS-GO Entity Level Server User Guide* (JTLS-GO Document 19, Version 6.1.0.0)
- *JTLS-GO Federation User Guide* (JTLS-GO Document 20, Version 6.1.2.0)
- *JTLS-GO C4I Interface Manual* (JTLS-GO Document 21, Version 6.1.2.0)
- *JTLS-GO DoD Architecture Framework* (JTLS-GO Document 22, Version 6.1.0.0)
- *JTLS-GO DDS Training Manual* (JTLS-GO Document 23, Version 6.1.2.0)
- *JTLS-GO ATO Services User Guide* (JTLS-GO Document 24, Version 6.1.0.0)

1.2.3 Updated Documents

- *JTLS-GO WHIP Training Manual* (JTLS-GO Document 10, Version 6.1.4.0)
- *JTLS-GO Version Description Document* (JTLS-GO Document 17, Version 6.1.4.0)

1.2.4 New Documents

No new documents are required for this version of the software.

1.2.5 Delivered Software Components

JTLS-GO 6.1.4.0 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. The following software components are included with this release:

- Combat Events Program (CEP)
- Scenario Initialization Program (SIP)

- Interface Configuration Program (ICP)
- Reformat Spreadsheet Program (RSP)
- JTLS Symbols Application (JSYMS)
- Database Development System (DDS)
 - Database Configuration Program (DCP)
 - DDS Client User Interface (DDSC)
- ATO Translator Service (ATOT)
- ATO Generator Service (ATOG)
- ATO Retrieval Program (ATORET)
- JTLS Convert Location Program (JCONVERT)
- 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)
 - The current JODA build number is 172.
- 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) for both OTH-Gold and Link-16 generation
- Tactical Electronic Intelligence (TACELINT) Message Service
- Keyhole Markup Language (KML) Operational Interface (KOI)
- JTLS Transaction Interface Program (JTOI)
- JTLS Interface Network Navigator (JINN)
- JTLS Order of Battle Editor (JOBED)
- JTLS Geographic Information System (GIS) Terrain Building Program
- JTLS Master Integrated Database (MIDB) Tool
- JTLS Version Conversion Program (VCP)

VCP60 - Converts a JTLS-GO 5.1 database to a JTLS-GO 6.0 formatted database.

VCP61 - Converts a JTLS-GO 6.0 database to a JTLS-GO 6.1 formatted database.

Instructions for installing JTLS-GO 6.1.4.0 are provided in the *JTLS-GO Installation Manual*. Installing a previous version of JTLS prior to installing JTLS-GO 6.1.4.0 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-GO.

1.2.6 Released Databases

This release includes the following sample unclassified databases:

- The scenario that serves as a repository of engineering level data called “repository61”. Although not useful as a scenario, it does follow all of the database requirements for a scenario, and should be loaded into your PostgreSQL scenario table-space.
- The scenario “wespac61”, which is suitable for training and demonstrations.

1.3 INTERFACE COMPATIBILITY

1.3.1 Support Software

JTLS-GO 6.1.4.0 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 Server (ES) Edition Version 8.4, 64-bit architecture.

JTLS-GO 6.1 has been tested with the following versions of Linux 8:

RedHat Linux 8.4 - this operating system license must be purchased.

Oracle Linux 8.4 - This operating system is free to download, use, and distribute, and is provided in a variety of installation and deployment methods. It has been approved by DISA for use by U.S. Government Agencies.

CentOS 8.4 - a free version of Linux 8 that has not been approved by DISA for use by U.S. Government agencies.

- There are no restrictions on the operating system for client workstations, except that the operating system must have a Java-enabled web browser. JTLS-GO 6.1.4.0 has been tested on the following operating systems:

Red Hat Linux Enterprise Edition Version 7.9 and 8.4

CentOS Linux Version 7.9 and 8.4

Windows 10, which can be used only if the workstation is an external HTTP client of the simulation network.

- JTLS-GO 6.1.4.0 is delivered with the AdoptOpenJDK 1.8 Update 322 package, which is equivalent to the current version of OpenJDK. Using AdoptOpenJDK provides two benefits:
 - a. Only the JTLS-GO account on the system servers access this version of Java. An installation site can use the JTLS-GO servers for programs other than JTLS-GO without impacting the version of Java used by other programs.
 - b. Security releases of AdoptOpenJDK software are produced on the same schedule as the Oracle OpenJDK security release procedure. An organization can expect to receive a bug release version of JTLS-GO within two-weeks of a new Java 1.8 security release. As long as a user organization installs all of the JTLS-GO bug releases, JTLS-GO can guarantee that the latest Java security release is being used on the servers. JTLS-GO no longer depends on system administration for implementing proper Java security update procedures.

- JTLS-GO uses IcedTea to provide the Java Web Start capability that implements the web-enabled JTLS-GO functionality. JTLS-GO supports IcedTea version 1.8.4.
- JTLS-GO database tools require a certified PostgreSQL 11.13 database server and the full PostgreSQL installation. A containerized solution, that fulfills this specification, is provided as part of the JTLS-GO download. It is not necessary to use the delivered containerized solution, but it is the easiest method to meet the requirements of JTLS-GO 6.1.4.0. There are several alternative methods available for obtaining the PostgreSQL 11.13 software. Refer to Chapter 6 of the *JTLS-GO Installation Manual* 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-GO 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 III (SIMSCRIPT to C) translator/compiler: SIMSCRIPT is required for recompiling JTLS-GO code. It is not necessary to have a SIMSCRIPT compiler to execute JTLS-GO, because all JTLS-GO 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-GO 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-GO. This compiler is used only by U.S. Government organizations that can obtain source code and intend to re-compile any of the JTLS-GO 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-GO. This compiler is used only by U.S. Government organizations that can obtain source code and intend to re-compile any of the JTLS-GO HLA component programs. The C++ Compiler version delivered with the supported versions of Red Hat Linux ES is sufficient.
- The JTLS-GO DDS application uses these open source libraries:

JFreeChart, licensed under a GNU Lesser General Public License (LGPL) 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 an operational Command, Control, Communication, Computer Information (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 *JTLS-GO C4I Interface Manual* describes requirements and procedures for using the KOI capabilities.

1.3.2 JTLS-GO Cybersecurity Compliance

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

One of the DoD 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. In previous versions of JTLS-GO, Java 8, as delivered by Oracle, fulfilled this mandate by implementing an expiration date for its software. After a certain date, all Java related programs stopped working, whether connected to an open network or not. All JTLS-GO releases were closely linked to the Java expiration date.

OpenJDK™ has not implement an expiration date. In order to fulfill this DoD Cybersecurity requirement, JTLS-GO has moved to AdoptOpenJDK, a full OpenJDK Java environment with licensing alternations allowing an application to deliver the software. The following procedure has been established and approved by the JS/J7 Cybersecurity branch:

- Within days of an Oracle Java security release, AdoptOpenJDK produces an equivalent version using infrastructure, build and test scripts to produce pre-built binaries of the OpenJDK class libraries. All AdoptOpenJDK binaries and scripts are open source licensed and available for free.

- Within two-weeks of the AdoptOpenJDK release, JTLS-GO provides a bug release version (JTLS-GO 6.1.n.0) including a full Version Description Document (VDD) for download to all authorized agencies. All DoD agencies using JTLS-GO will be in full compliance with this specific Cybersecurity mandate as long as they download and use the bug released versions when distributed.

Contact the U.S. Government Program Manager, Mr. James Blank (james.e.blank.civ@mail.mil) to obtain the completed Cybersecurity paperwork and a current Gate completion certificate.

1.3.3 JTLS-GO High Level Architecture Compliance

The JTLS-GO 6.1.4.0 release is fully High Level Architecture (HLA) compliant, and includes all the programs required to run JTLS-GO in an HLA mode. JTLS-GO currently belongs to one federation known as GlobalSim. GlobalSim is a comprehensive constructive simulation solution for joint training and wargaming that helps commanders and all levels of staff prepare for a range of operational scenarios.

The solution combines JTLS-GO with CAE's GESI constructive tactical entity-level simulation system. CAE's GESI constructive simulation system is designed to run complex and comprehensive exercises from the company level up to division level. The GESI system is used to represent a virtual battlefield, including weapons, vehicles, aircrafts, ground forces and more.

Combining JTLS-GO and GESI brings together operational and tactical level constructive simulations to prepare commanders and staff to make timely, informed and intelligent decisions across the full spectrum of operations, including conventional combat, disaster relief, and operations other than war.

From the JTLS-GO perspective, all software needed to run GlobalSim is included in this delivery. JTLS-GO uses the Federation Object Model (FOM) located in the \$JGAME/data/hla directory, Federation testing of JTLS-GO with CAE's GESI model have been accomplished. Future plans include expanding the capabilities of the GlobalSim federation.

The HLA RTI (Run Time Infrastructure) executive program (rtiexec) recommended for use with this release is Pitch pRTI Evolved 4.4.2.0. However, this program is not included in the JTLS-GO 6.1.4.0 delivery. Users may obtain a full installation package of the RTI software from Pitch Corporation (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

Significant database structure differences exist between the JTLS-GO 6.1 series of the software and the previous JTLS-GO 6.0 series database structure. There are no database format changes between JTLS-GO 6.1.4.0 and the initial JTLS-GO 6.1.0.0 version of the software.

To upgrade your JTLS-GO 6.0 scenario to JTLS-GO 6.1 compatibility, see instructions listed in the *JTLS-GO DDS User Guide*, Chapter 3.1.

STR JTLS-2022-15607 Grid Lower-Left Location Not Exact On Restart was included in JTLS-GO 6.1.2.0, released in March 2022.

This STR required a change to the ASCII checkpoint format. Any saved checkpoints from JTLS-GO 6.1.0.0 and JTLS-GO 6.1.1.0 will not work with JTLS-GO 6.1.3.0.

1.4.1 JTLS-GO Using Legacy Default Symbol Set

If a user organization is still using the pre-JTLS-GO 5.0.0.0 legacy default symbol set, prior to unloading your JTLS-GO 6.1.0.0 formatted data from your PostgreSQL database server into the JTLS-GO 6.1.0.0 scenario American Standard Code for Information Interchange (ASCII) text files, you must execute the JSYMS program using the procedure outlined in the *JTLS-GO DDS User Guide*, Appendix B.11. This procedure will reorganize the structure of the <scenario_name>.gs and databases symbol.scf file.

1.4.2 JTLS-GO Using New Default Symbol Set

You should not make any modifications to the Default Symbol Set delivered with JTLS-GO 6.1.4.0, but end-user organizations are free to use the Default Symbol Set in their scenarios and alter the scenario symbol set to meet specific organizational needs. Some new symbols have been created to meet end-user requirements. No previously existing symbols were deleted nor were any of the preexisting symbol names changed.

This means that the user can easily move in this new symbol set. Please follow the steps outlined in the *JTLS-GO DDS Users Guide*, Section B.13, Updating Scenario Symbol Set.

1.4.3 Standard Repository Changes

R&A has continued to improve and expand the unclassified data repository, which has been renamed to “repository61.” The DDS comparison and synchronization function can be used to determine if any of the changes delivered are of use to a JTLS-GO user organization.

1.5 INSTALLATION

The *JTLS-GO Installation Manual*, a Portable Document Format (pdf) file available for direct download, is part of this JTLS-GO delivery. It provides detailed instructions for installing the new version of JTLS-GO and the installation of PostgreSQL 11.11 required to operate JTLS-GO 6.1.4.0.

2.0 ENGINEERING CHANGE PROPOSALS

No new model capabilities were added to JTLS-GO 6.1.4.0 as a result of implementing authorized Engineering Change Proposals (ECPs).

3.0 SOFTWARE TROUBLE REPORTS

Software Trouble Reports (STRs) describe software code errors that have been discovered by JTLS-GO users or developers and have been corrected.

3.1 JTLS-2022-15641 OPM Regeneration Failure

It was not possible to re-generate the Online Player Manual (OPM) from a checkpoint, because the read code for the ASCII terrain layer data had not been upgraded, causing a crash when reading the data.

The SIP read code was fixed to mimic the checkpoint restart code in the CEP.

3.2 JTLS-2022-15642 SVP Errors 232-234

SVP Errors 232, 233 and 234 are checking the TUP to see if it can support the SAM and SSM requirements. They do not take into account the fact a unit may have specific supplies in its unit initial starting on hand value.

Many SVP warnings and errors were corrected and reworked due to the implementation of the unit-specific Initial Supply Table. Generally speaking, when the SVP is checking TUPs and their POT targets, SVP Errors are now Warnings. They are no longer considered Errors because each unit may correct the Error with its unit-specific supply data records.

As a result, Errors 232, 233 and 234 have become Warnings 1212, 1216 and 1217, respectively.

3.3 JTLS-2022-15643 On-Demand Airbase Range Rings Not Displayed

A user attempted to display UNIT RADIUS or TACTICAL INTEL range rings for airbases, using the context-sensitive menu on the WHIP. The range rings showed up on the On-Demand filter, but the range rings never displayed

The issue was caused by the WHIP not handling the airbase case. A code change was made to correct this problem.

3.4 JTLS-2022-15644 nit Starting.On.Hand Value Incorrect

The new Unit STARTING.ON.HAND values are not correctly replacing the Unit BRING.TO.THEATER values as intended in the design.

The original implementation of the design was incorrect. It treated the STARTING.ON.HAND and BRING.TO THEATER values separately and was applying the values differently in the various programs.

The Unit STARTING.ON.HAND values are supposed to replace the Unit BRING.TO.THEATER values according to the initial design. In this manner, the rest of the program code would remain the same. The code has been corrected.

3.5 JTLS-2022-15645 Sensor/Jammer Coverage Not Magic Moved

When a unit was magic moved to a new location, the model did not relocate the effective area of its sensors and jammers.

When a unit owns sensors and jammers, the location grids within range of these capabilities were designated in the CEP. If the unit was magic moved to a new location, the associated grids for sensors and jammers were not moved. This meant the unit did not make detections or influence jamming of nearby objects at the new location. Code was added to correct this issue.

3.6 JTLS-2022-15647 SVP Warnings 1449-1450 Non-Functional Corrections

The automatic corrections for SVP Warnings 1449 and 1450 do not work.

The automatic corrections assumed that the TUP or SUP already had a supply record as part of the prototype data, and that it only needed to be updated. In this case, the supply record did not exist and needed to be added.

New Warnings 1475 and 1476 were added to insert the necessary supply category record with minimum values to support the ADA site shot stockage objective.

3.7 JTLS-2022-15648 SVP Warning 1614 Non-Functional Correction

The correction to update the IIP detection record for a unit associated with SVP Warning 1614 does not work.

The automatic correction assumes that a record exists in the IIP Unit detection table. In this case there was no record for the IIP / UNIT TYPE / UNIT SIZE combination, so a record needed to be inserted and not updated.

New SVP Warning 1632 was added for records that need to be inserted.

3.8 JTLS-2022-15649 ATOT Mission Summary COMAO Column

The ATOT module's Mission Summary table's last column holds the COMAO entry for each mission. The header for this column was missing from the internationalization file, so the header text did not display properly.

The COMAO column header has been added to the WHIP's internationalization file.

3.9 JTLS-2022-15650 SVP Warnings 1623, 1627 Non-Functional Corrections

The correction to update the IIP detection record for stationary and mobile targets associated with SVP Warnings 1623 and 1627 do not work.

The automatic correction assumes that a record exists in the IIP target table. In this case there was no record for the IIP / TARGET TYPE / TARGET SUBCATEGORY combination, so a record needed to be inserted and not updated.

New SVP Warnings 1639 and 1640 were added for stationary and mobile target records that need to be inserted.

3.10 JTLS-2022-15651 Upgrade Third-Party Libraries Due To Vulnerabilities

JS/J7 has identified vulnerabilities to three third-party libraries:

- 1. jai-imageio-core-1.3.1.jar - The buffer copy does not check size of input.**
- 2. libxml2.dll - Use after free allows remote attackers to execute arbitrary code by controlling the arguments to a replaceChild call.**
- 3. xstream-1.4.18.jar - A remote attacker may be able to allocate 100% CPU time on the target system, resulting in a denial of service, just by manipulating the processed input stream.**

The libraries have been upgraded per JS/J7 recommendations:

1. The jai-imageio-core library has been upgraded to version 1.4.0.
2. The libxml2.dll library has been upgraded to version 2.09.
3. The xstream library has been upgraded to version 1.4.19.

3.11 JTLS-2022-15653 SVP Warning 1635 Nonfunctional

The SVPR correction to display the target record for Warning 1635 is not displaying anything.

The target in question was a POT target, and Warning 1635 always assumed the Targets were built in the target tables, rather than as POTs. A new SVP Warning 1641 has been created to handle the missing JU Numbers for targets that were created from the TUP/SUP POT tables.

3.12 JTLS-2022-15654 Insufficient Capacity In Truck Convoy

A Directed Resupply order was submitted to generate a truck convoy. The convoy created by the model did not have enough trucks of sufficient capacity to carry the specified supplies, even

though there were plenty of trucks available at the support unit. As a result, the convoy delivered only a partial load of supplies.

The model correctly determined the required trucks to transport all the specified supplies when assessing the feasibility of the player order, but the process that actually assigned the trucks to the convoy lacked all needed information to implement the convoy as planned. Specifically, the process knew only the total number of cargo, tanker, and HET trucks to assign, but not their specific transportation classes (i.e. 2.5 ton vs 5.0 ton truck, etc).

Because the information was incomplete, the logic simply grabbed the first cargo trucks available up to the number required, without regard to their capacities. The result was the wrong truck assets were assigned to the convoy and couldn't carry all the specified supplies. This problem was corrected by adding logic to access the number of trucks required by transportation class as originally determined by the convoy planning module.

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.

As JTLS-GO 6.1.0.0 represents a major release of new functionality, all outstanding errors have been reviewed. If the error could not be reproduced, it was considered obsolete and no longer relevant to JTLS-GO. These errors have been removed from consideration for correction at this time. This chapter contains the remaining errors that could be reproduced. As development team assets become available, these remaining known issues will be corrected.

In future maintenance releases, newly uncovered outstanding errors related to JTLS-GO will be listed in this chapter, along with information regarding the extent of the error, as well as suggestions to avoid or minimize the effects of the problem.

4.1 DDSC – TMU Line Mode Changes Multiple Grids

When using the line mode in the TMU, more grids than the ones the line passes through are changed. This can also cause a warning about trying to change multiple layers to appear.

4.2 DDSC – Multiple Types In DDS History Table

If records for more than one table type are selected in the DDS History table, “History Details” will display details for only one type.

4.3 WHIP - Pipeline Not Shown On IMT

A pipeline being operated by a non-detected unit is not shown in the pipeline IMT.

4.4 DDSC/WHIP/JOBE - CADRG Map Zoom

When using the CADRG map projection, if the width of the map is less than the height, the zoom tool does not work correctly.

APPENDIX A. ABBREVIATIONS AND ACRONYMS

Terms are included in this Appendix to define their usage in JTLS-GO 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

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

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

ICPLLogin	Interface Login Program
ID	Identifier
IFF	Identification Friend or Foe
IIP	Intelligence Information Prototype
IMT	Information Management Tool
INFO	Information
INTEL	Intelligence
JCATS	Joint Conflict And Tactical Simulation
JDA	Japan Defense Agency
JDPI	Joint Desired Point of Impact (formerly DMPI: Desired Mean Point of Impact)
JDS	JTLS Data System
JDSP	JTLS Data System Protocol
JEDI	JODA Entity Data Identifier
JMCIS	Joint Maritime Combat Information System
JMEM	Joint Munitions Effectiveness Manuals
JODA	JTLS Object Distribution Authority
JOI	JTLS Operational Interface
JPL	Jet Propulsion Laboratory
JRSG	Joint Rapid Scenario Generation (formerly JIDPS: Joint Integrated Database Preparation System)
JSDF	Japanese Self-Defense Force
JTLS	Joint Theater Level Simulation
JTLS-GO	Joint Theater Level Simulation - Global Operations
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
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
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
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 6.1.0.0 DATABASE CHANGES

No changes were made to the JTLS-GO 6.1 database.

APPENDIX C. VERSION 6.1.0.0 REPOSITORY CHANGES

No significant changes were made to the JTLS-GO 6.1 repository.