JTLS-GO

Version Description Document

February 2021

DEPARTMENT OF DEFENSE
JOINT STAFF J7
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SUFFOLK, VA 23435-2697

**JOINT THEATER LEVEL SIMULATION - GLOBAL OPERATIONS
(JTLS-GO 6.0.2.0)**

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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 combined joint and coalition resource air, land, naval, and Non-Governmental Organization (NGO) environments.

This *JTLS-GO Version Description Document (VDD)* describes the new features of the Version 6.0.2.0 delivery of the configuration-managed JTLS-GO software suite.

JTLS-GO 6.0.2.0 is a Maintenance release of the JTLS-GO 6.0 series that includes an updated repository of standard data, a demonstration scenario based in the western Pacific, as well as some minor 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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1.0 INTRODUCTION

1.1 SCOPE

This *JTLS-GO Version Description Document* (VDD) describes Version 6.0.2.0 of the configuration managed Joint Theater Level Simulation - Global Operations (JTLS-GO®) software suite. JTLS-GO 6.0.2.0 is a Maintenance delivery for the JTLS-GO 6.0 series of releases.

JTLS-GO 6.0.2.0 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 "wespac60". Database modifications that were accomplished to upgrade the previous JTLS-GO database format to the JTLS-GO 6.0 series data format were summarized in the VDD for JTLS-GO 6.0.0.0. No data format changes were made between JTLS-GO 6.0.0.0 and this Maintenance release.

No minor Engineering Change Proposals (ECPs) are delivered with this maintenance release. For consistency with other VDDs, Chapter 2.0 is provided, but is delivered empty. All software corrections are summarized in Chapter 3.0.

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 a 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 Air Services User Guide (*JTLS-GO Document 03, Version 6.0.0.0)

- *JTLS-GO Controller Guide* (JTLS-GO Document 04, Version 6.0.1.0)

- *JTLS-GO Data Requirements Manual* (JTLS-GO Document 05, Version 6.0.1.0)

- *JTLS-GO Director Guide* (JTLS-GO Document 07, Version 6.0.0.0)

- *JTLS-GO WHIP Training Manual* (JTLS-GO Document 10, Version 6.0.0.0)

- *JTLS-GO Standard Database Description* (JTLS-GO Document 14, Version 6.0.0.0)

- *JTLS-GO Entity Level Server User Guide* (JTLS-GO Document 19, Version 6.0.0.0)

- *JTLS-GO Federation User Guide* (JTLS-GO Document 20, Version 6.0.0.0)

- *JTLS-GO C4I Interface Manual* (JTLS-GO Document 21, Version 6.0.0.0)

- *JTLS-GO Configuration Management Plan* (JTLS-GO Document 23, Version 6.0.0.0)

1.2.3 Updated Documents

- *JTLS-GO Analyst Guide* (JTLS-GO Document 01, Version 6.0.2.0)

- *JTLS-GO DDS User Guide* (JTLS-GO Document 06, Version 6.0.2.0)

- *JTLS-GO Executive Overview* (JTLS-GO Document 08, Version 6.0.2.0)

- *JTLS-GO Installation Manual* (JTLS-GO Document 09, Version 6.0.2.0)

- *JTLS-GO Player Guide* (JTLS-GO Document 12, Version 6.0.2.0)

- *JTLS-GO Software Maintenance Manual* (JTLS-GO Document 15, Version 6.0.2.0)

- *JTLS-GO Technical Coordinator Guide* (JTLS-GO Document 16, Version 6.0.2.0)

- *JTLS-GO Version Description Document* (JTLS-GO Document 17, Version 6.0.2.0)

- *JTLS-GO DoD Architecture Framework* (JTLS-GO Document 22, Version 6.0.2.0)

1.2.4 Delivered Software Components

JTLS-GO 6.0.2.0 may be delivered either on a CD or as a set of compressed TAR files to be downloaded. Either method includes the complete suite of software executable code and command procedures. 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)

- 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

- KML Operational Interface (KOI)

- JTLS Transaction Interface Program (JTOI)

- JTLS Interface Network Navigator (JINN)

- JTLS Order of Battle Editor (JOBE)

- JTLS Geographic Information System (GIS) Terrain Building Program

- JTLS Master Integrated Database (MIDB) Tool

Instructions for installing JTLS-GO 6.0.2.0 are provided in the *JTLS-GO Installation Manual*. Installing a previous version of JTLS prior to installing JTLS-GO 6.0.2.0 is not necessary. No other upgrade beyond installation of the compressed TAR files (or CD) is required. The software provided with this delivery is a complete release that includes all files and code required to execute JTLS-GO.

1.2.5 Released Databases

This release includes the following sample unclassified databases:

- The scenario that serves as a repository of engineering level data called "repository60". 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. With JTLS-GO 6.0.2.0, it is possible to access and copy records from the repository60 database into your own developed scenarios.

- The scenario "wespac60", which is suitable for training and demonstrations.

1.3 INTERFACE COMPATIBILITY

1.3.1 Support Software

JTLS-GO 6.0.2.0 requires the following versions of support software, including operating systems, compilers, scripting utilities, database tools, transfer protocols, and display managers.

- Operating system for the model: Red Hat Linux Enterprise Edition Version 7.8 (ES), 64-bit architecture.

  JTLS-GO 6.0 has been tested with the following versions of Linux 7:

    RedHat Linux 7.8 - this operating system license must be purchased.

    Oracle Linux 7.8 - 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 7.8 - a free version of Linux 7 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 6.0.2.0 has been tested on the following operating systems:

Red Hat Linux Enterprise Edition Version 7.7 and Version 7.8.

CentOS Linux Version 7.7 and Version 7.8.

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

- JTLS-GO 6.0.2.0 no longer relies on the Open Java Development Kit (OpenJDK™) to be installed at the system level using the Red Hat Package Manager (RPM). Instead, JTLS-GO 6.0.2.0 is delivered with the AdoptOpenJDK Update 282 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 to start the JTLS-GO web-enabled applications. JTLS-GO supports IcedTea version 1.8.3. The user has two possible avenues to access the supported version of IcedTea when starting a web-enabled application on the JTLS-GO Linux servers. The IcedTea 1.8.3 RPM can be installed on the JTLS-GO Linux servers, or the user can set their Browser to use the proper version of IcedTea, located in the bin_support/Linux64 directory for "jnlp" applications,

  Client machines should be setup to also use the supported version of IcedTea,

  > Note: Red Hat Linux version 7.8 continues to be distributed with IcedTea version 1.7.1. There is an available RPM for IcedTea 1.8.3, and this should be explicitly installed on the JTLS servers and client workstations. If this is not done, then HTTP unsecured communication cannot be used with Apache and Glassfish.

- JTLS-GO database tools require a certified PostgreSQL 11.8 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 6.0.2.0. There are several alternative methods available for obtaining the PostgreSQL 11.8 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 Version 3-5.2.0 (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 (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-2.0HLA 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 *JTLS-GO C4I Interface Manual* describes requirements and procedures for using the KOI capabilities.

- JTLS-GO 6.0 implements SSH Tunneling between Apache and the services and among the services. Rigorous testing should be done prior to use in any exercise, and particular attention should be paid to network performance under load.

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 implemented an expiration date. In order to fulfill this DoD Cybersecurity requirement, JTLS-GO has moved to AdoptOpenJDK, a full OpenJDK Java environment with licensing alternatives 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 prebuilt 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 Maintenance release version (JTLS-GO 6.0.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 Maintenance released versions when distributed.

Contact the U.S. Government Program Manager, Mr. Donald Weter (donald.e.weter.civ@mail.mil) to obtain the completed Cybersecurity paperwork and a current Authority to Operate certificate.

1.3.3 JTLS-GO High Level Architecture Compliance

The JTLS-GO 6.0.2.0 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 6.0.2.0 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 JTLS-GO 6.0.0.0 and the previous JTLS-GO 5.1 series database structure. There are no data format changes as a result of this Maintenance release.

To upgrade your JTLS 5.1 scenario to JTLS-GO 6.0 compatibility, see instructions listed in the *JTLS-GO DDS User Guide*, Chapter 3.1.

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 6.0.0.0 formatted data from your PostgreSQL database server into the JTLS-GO 6.0.0.0 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 6.0.2.0, 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, "repository60." 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.

> If JTLS-GO 6.0.1.0 was not installed, then the procedure to update Database triggers due to JTLS-GO 6.0.1.0 STR JTLS-2020-14976 needs to be executed after installing this version of the software. In order to update your database, perform the following:
>
> 1. Unload your scenario using the JTLS-GO Menu, Options 1 -> 1 -> 5.
>
> 2. Load your scenario using the JTLS-GO Menu, Options 1 -> 1 -> 4.

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 11.8 required to operate JTLS-GO 6.0 series of software.

2.0 ENGINEERING CHANGE PROPOSALS

No Engineering Change Proposals (ECPs) were added to this Maintenance Release of JTLS-GO.

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.

Chapter 4.0 describes STRs that remain outstanding from previous versions. These issues are being addressed and solutions will be included in future Maintenance releases in the JTLS-GO 6.0 series.

3.1 JTLS-2020-14998 Improve Generate Traffic Order

The purpose of the Generate Traffic Order is to automatically generate displaced or fleeing personnel HRUs.

The method being used made it impossible to track how many people had left cities in the conflict area and how overcrowded non-conflict area cities or displaced personnel camps had become. Because the model created the HRUs, magically placed them at a location, and told them to travel "home", the home parent unit always had the same number of people.

The order was simplified and changed. The user now puts in a parent unit and a list of HUP types that should be created. There is also a list of units to which the automatically generated traffic HRU should go. The process now works as follows:

1. An HRU is automatically created from one of the specified HUPs.

2. The HRU is immediately transferred to one of the randomly selected receiving units

3. The HRU is automatically given an order to Rejoin its parent.

The end result is that personnel leave the parent unit and travel to the receiving unit. The IMT can be used to watch the conflict cities empty out and the receiving cities fill up.

3.2 JTLS-2020-15000 DDS SVPR Corrections and Enhancements

Various corrections were made to the DDS SVPR:

• *The manual entry for SVPR Warning 1238 in the DDS Users Guide was incomplete.*

The manual text only contained the basic template data contained in the source code. The manual was updated to the proper format. It was also determined the SVPR correction actions could also be updated. The action to change the jam capable flag only applied to sensors. That warning is already reported as Warning 1206.The option as removed from Warning 1238.

• *The SVPR correction option to open the airbase table to add a POT target was invalid.*

Opening the airbase table to add a POT target was replace with an option to open the runway target table to add a new target. After doing that, the user can then use the open airbase runway table to add the new runway target.

- *The SVPR corrections for Warning 1605 did not always work.*

Warning 1605 is generated when a target range is greater than the maximum range as defined in the target category prototype data. The data is checked for targets created in the specific target table and targets that are created using a SUP/TUP Prototype. The display of the correction options was split into two different options based on how the target is created. This meant one of the options would always be invalid based on how it is created.

The correction data was modified and combined so now it uses a single correction option and within that option it decides and uses the correct part of the option based on how the target was created and whether or not it is a SUP or TUP.

3.3 JTLS-2020-15001 JTLSMenu Improperly Launches OVT GUI

The JTLSMenu script starts the Order Verification Tool (OVT) GUI but will not fork the GUI as a separate process. The JTLSMenu script remains in a waiting state for the OVT GUI to complete before allowing the user to select any other option.

The JTLSMenu script code was changed to branch execution whenever the OVT option is selected, which allows the JTLSMenu process to execute separately. The JTLSMenu process continues and will allow the user to start other processes.

3.4 JTLS-2020-15003 Air Mission And Convoy Ordered To Move Same Unit

A Transport Unit Order was sent to the CEP to move Unit A. This was immediately followed by a Mobility Mission Order to also lift Unit A. Both orders were accepted. The air mission took off and reached the Unit first. The Unit was loaded, lifted to the designated location, unloaded, and then the mission flew home. The convoy's status was PREPARING during a major portion of this time.

The convoy eventually started moving towards the pickup location (Unit A's old location) after the air mission started to return home. At the pickup location, the convoy stopped to load the Unit. On the WHIP screen, Unit A's icon was observed to "jump" from its new location (where it was dropped off by the air mission) to the location of the convoy. The convoy then transported Unit A to its designated offload location and returned to its home unit.

The CEP currently allows a Transport Unit Order and Mobility Mission Order to specify the same unit to be transported/lifted. If one order is sent after the other order executes and completes moving the unit, no problem occurs. However, a problem can occur if one order is sent while the other order is still executing.

A check is now made whenever a convoy or mobility mission starts its Resource task.

- For a convoy required to move a unit, a check is made to find a mobility mission that has already been assigned to lift the same unit. If there is such a mission, the convoy is canceled and a message is sent to the player.

- For a mobility mission required to lift a unit, a check is made to find a convoy that has already been assigned to move the same unit. If there is such a convoy, the mission is canceled and a message is sent to the player.

3.5 JTLS-2020-15005 Unit Prototype Names Truncated In IMT

The length of Tactical Unit Prototype, Ship Unit Prototype, and High Resolution Unit Prototype names was expanded from 15 characters to 25 characters in JTLS-GO 6.0. The IMT screens that displayed these names were still configured for a maximum width of 15 characters. This was causing longer prototype names to be truncated on the IMT screens.

The screen definition files were modified to permit all 25 characters to be displayed.

3.6 JTLS-2020-15006 OVT Verifies Orders With Bad Vocabulary Index

When a read order file with a bad vocabulary index was submitted to the OVT, the OVT passed verification submitting the order and crashing the CEP.

The OVT checks the index by submitting it to a vocabulary library and checking for a return value. It assumed an invalid return value would return a NULL string, when in fact an error message was returned, causing the OVT to assume the error message was the vocabulary. A new function was added to the vocabulary library to return a NULL string if the index is invalid.

3.7 JTLS-2020-15007 OMA References Wrong Field In Error Message

A WHIP user filled out a Set Individual Unit Parameter order but left the Unit field blank. When the order was sent it was rejected by the OMA and the label for the Unit field turned red. When the user clicked on the label it said that the Tactical Unit Prototype was a mandatory field and must be filled. It should have said the Unit was a mandatory field and must be filled.

The problem was discovered in the internationalization (i18n) library. As resources are loaded the code checks that the resource does not already exist in the database. If it does, it replaces the value rather than create a new resource. The check if the resource already existed was checking the number of characters in the existing resource against the just read resource. This means that the resource UNIT and UNIT_TUP were considered the same since the first four characters are identical, causing the UNIT_TUP resource value to end up in the UNIT resource.

The check for an existing resource was increased by 1 character to include the terminating character for UNIT.

3.8 JTLS-2020-15008 Order Checker Missed Element Error

The element "fill/with/all/not-equal" has an attribute that associates with the order field name, but the copied xml file had an incorrect name, and the order checker did not catch the error.

All attribute checks under the "fill/with" element were checked and corrected.

3.9 JTLS-2020-15010 Unable To Display Range Rings For Satellites

A user attempted to display range rings for sensors on satellites using the context sensitive menu on the WHIP. For satellites created by orders, the menu option was selected, but no range ring was visible. For satellites listed in the database, the menu item to display range rings did not exist, so nothing could be displayed.

This issue was caused by errors in the CEP code and in a data file used by the WHIP. In the CEP, objects called range items were not properly initialized on the JODA when satellites were created from the database. A code change was made to correct this problem.

For the WHIP, a minor change to a data file was made to ensure that the proper data element was used for the display of range rings.

3.10 JTLS-2020-15012 Nonfunctional Warning 1459 Corrections

The corrections for SVPR Warning 1459 do not always work.

Warning 1459 is reported when a unit arrives in theater and its Initial Support Unit does not have sufficient supplies for the arriving unit. The corrective actions differ depending on whether the TUP has a short supply record or no supply record at all. The corrective actions were written in a single warning (1459). Not all the actions would apply depending on which case applied, but all were written.

To fix the problem, Warning 1467 was added. Warning 1459 will now only be reported if the supply record exists but is short of what is needed and the number of corrective actions was increased. Warning 1467 will be written if there is no record for the supply category. In this manner all corrective actions should work for the specific warning.

3.11 JTLS-2020-15013 Warning 1453 Requires Additional Options

SVPR Warning 1453 needs additional options to insert or update all values.

Warning 1453 is used to determine if the unit has an adequate amount of supplies to support its home-based aircraft. The SVP makes sure that every aircraft home-based at this unit can take off at least once, no matter which load is selected.

The corrective actions allow the user to update the supplies needed, but the corrective actions must be split into separate warnings to do so. Warning 1453 is now used to correct supply values

when a supply category record exists but has insufficient values. New Warning 1468 has been added to insert supply category records with the needed values where none exists.

The corrective options for both warnings were enhanced to provide the user with better choices.

3.12 JTLS-2020-15014 Error 707 Corrective Option Nonfunctional

SVP Error 707 corrective option #3, to open the Home Base table editor, does not work.

The option to open the Home Base Table editor to change the home base unit TPFDD time did not work, because the home base can be either an Airbase, Naval Unit or FARP. The option assumed it was always an airbase.

Option 3 and option 5 were identical, except that option 5 will work with any type of home base. Option 3 was removed and option 5 was reworded to include the term Home Base.

3.13 JTLS-2020-15015 Runway Targets With Overlapping JU Numbers

The SVP started to report that several database runways had overlapping JU Numbers. Runways cannot have JU Numbers.

The READ TARGET DATA routine reads in Sensor Site data and then reads in Runway data. If the last Sensor target in the Sensor Site data belonged to a Link 16 network, all of the runways in the runway table believed they also belonged to the same Link 16 network. The Link 16 Network Name and Feed Name is now cleared before starting to read the next target category data.

3.14 JTLS-2020-15016 NEC CCIS JTOI Squadron Platform

The JTOI was assigning the aircraft type value of squadrons and air missions in Northern European Command, Command Control Information System (NEC CCIS) to their owning aircraft class' name. The aircraft class' USMTF name should be used instead.

The JTOI now assigns the NEC CCIS aircraft type to the aircraft class USMTF name of squadrons and air missions.

3.15 JTLS-2020-15017 MDMT Improved Reporting

The MIDB Data Migration Tool (MDMT) only provided messages and errors to the terminal window, causing them to be lost or overlooked. The MDMT required improved reporting capabilities for messages and errors.

A message panel has been added to the MDMT that reports messages and errors to the user for improved workflow and feedback.

3.16 JTLS-2020-15018 DDS GUI Checker Added "editor/max-width" Check

The DDS GUI checker did not check if the editor/max-width attribute value in the xml file was smaller than the value of data length in the database.

A max-width value check was added to the DDS.

3.17 JTLS-2020-15020 Warning 1200 Correction Nonfunctional

SVP Warning 1200 would not work after using auto correction for Errors 205 and 207.

The warning and errors in question are part of a set that look for inconsistencies between a unit's Basic Load and Stockage Object and the unit's Carry and Storage capacities. The unit Basic Load is normally less than or equal to its Stockage Objective. After the basic load value had been set, an attempt to set the Stockage Objective failed because the new Stockage Objective value was smaller than the previously set Basic Load value.

A check was added which will add a arbitrary 5% to the newly computed storage capability if the situation occurs.

3.18 JTLS-2020-15022 C4I GRAM 2020 Issues

Various issues were discovered within the JTLS-GO C4I interface:

- *The library required for developers to build the NEC CCIS JTOI was being excluded from the delivery tar files.*

  The library required for developers to build the NECCCIS JTOI will be delivered in the Linux64 tar file.

- *The OTHGold Message Service default queue size was 100. NORCCIS is unable to process a message group of that size.*

  The OTHGold Message Service default queue size has been set to 40. A maximum value has been set to 60, with a minimum of 1.

- *The OTHGold Message Service default classification was hard-coded. The classification should be read from the scenario database.*

  The OTHGold Message Service default classification now matches the value in the scenario database.

- *NEC CCIS expects country codes in NATO-DIGRAPH format. If a scenario database is built in a different format, NEC CCIS does not recognize those default country codes.*

  The NEC CCIS JTOI was modified to output all country codes in NATO-DIGRAPH format.

- *Radar targets were failing to have their strength code properly set in NEC CCIS.*

Code for handling and mapping target strength codes was fixed.

3.19 JTLS-2020-15024 Controller Kill Aircraft Order Missing Weapon List

Two errors appeared on the JXSR panel when a user opened a Controller Kill Aircraft order. The errors were generated because the file that defines the order had identified the Air-Air weapon and the Surface-Air weapon fields as being generic JODA objects, but did not provide details of what type of object and what restrictions should be applied.

The file was modified to indicate that JODA Targetable Weapon objects are used to fill the field and that the valid types of weapons are Air-Air capable for the first field and Surface-Air capable for the second field. The OVT was also modified to identify instances of JODA object retrievals without additional information and produce an error for the developers to identify and fix the problem.

3.20 JTLS-2020-15025 Failed OPM Generation From Checkpoint

The Online Player Manuals (OPMs) could not be generated from a checkpoint, because the squadron reference ASCII code was expecting JTLS-GO 5.1 format instead of JTLS-GO 6.0 format.

The code was modified to use the proper format.

3.21 JTLS-2020-15026 DDS Network Node Names Display

After correcting an error in Edit mode, the DDS could not display networks without visible network node names. The user should be able to turn off network node names.

The default display status for network nodes was modified not to display node names on the map.

3.22 JTLS-2020-15027 No Aircraft Range Update When Aircraft Type Changed

When a Controller changed the type of aircraft at a unit, the range ring for the aircraft combat system was never updated.

The code to update the unit range data was only called from a place in the code which looked at changes to the unit's combat systems. It was not utilized when the aircraft type was changed. Modifications were made to correct this.

3.23 JTLS-2020-15029 Advanced Targetable Weapon Message Incorrect

If the Controller requested a change to the Advanced Targetable Weapon, or to show all attributes in an Air Defense class, the wrong name was shown in the message. It showed the name of the primary Targetable Weapon, and not the name of the Advanced Targetable Weapon.

A small change was made to correct this error in the code.

3.24 JTLS-2020-15030 Incorrect Variable Type

The assremtg.sim routine has a Simscript error.

There was a mismatch in the code. The local terrain grid variable should have been INTEGER2. There was no reported problem, but it may have caused a precision error as some later time.

3.25 JTLS-2020-15031 HRU Rejoin Parent Field Help

The HRU Task order help text was incorrect and copied from another order.

The incorrect help was removed and replaced with an appropriate help description.

3.26 JTLS-2020-15032 Stylesheet Vocabulary Name To Index Translation

Stylesheet templates were needed to verify the validity of vocabulary items within an XML file, or to perform translations of target subcategory names to indices. While the task was not producing a deliverable item and the templates are not required by the JTLS-GO system, the templates have usefulness for future capabilities.

The stylesheet templates were added to the existing vocabulary translation utility stylesheet.

3.27 JTLS-2020-15033 ATOT Weapon Index With User-Defined Loads

When the ATO Translator (ATOT) creates multi-target Attack package mission orders having user defined weapon loads the ATOT does not use the weapon names in the utility of the order that describes the weapon-to-target distribution for the mission. It still uses the index for the weapon in the utility.

One of the changes incorporated in JTLS-GO 6.0 was the redefinition of weapons as temporary structures. In this way, each weapon would no longer be indexed by a fixed, permanent index number. As a result, some CEP orders and utilities were changed to a referencing method that used the weapon's name rather than the weapon's index.

The ATOT, along with predefined loads, allows the user to define a specific weapon load and use it within an air mission for a multi-target attack. The order the ATOT generates for this has been changed to include the name of each weapon defined by the user in the load.

3.28 JTLS-2020-15036 Techtool Crash During Initialization

The Techtool crashed during initialization. The problem was related to shared order groups.

When the Techtool initializes, it creates the tree directories that are displayed in the Order Group Copy panel. For some reason a particular node in the tree that the Techtool was expecting went missing and threw an exception. A check is now made to restore a missing node.

While investigating the original problem, a problem was uncovered where the Techtool was unable to retrieve the correct directory path for a secure connection to a remote machine. The Techtool code was modified to correctly return the correct working directory path.

3.29 JTLS-2020-15048 Ship Unit's OTH-Gold Type Not Updated To JOI

Some naval units were feeding the wrong OTH-Gold type from the JOI to the C4I system. This piece of data actually exists on the SUP's Ship Real World (SRW) data set. To correct the issue, Senior Control modified the SUP to use the proper SRW data set. This did not result in an update of the OTH-Gold type for each of the naval unit's using the SUP, necessitating Tech Control to send a separate JDS Object Update order for each of the naval units.

Code was added to identify all naval units that are using the SUP when the SRW data set is changed and to send a JODA update with the new OTH-Gold type value. On inspection, this same data update was also required if the SRW data was changed altered. The same code was added to update the JODA naval unit value if the SRW data item was changed.

3.30 JTLS-2020-15052 Crash Splitting Formation

An argument mismatch existed when splitting a formation and calling the routine to find a good station location for each ship. The routine to find the station location was expecting the latitude and longitude of the formation. What was sent was the desired range and bearing of the ship from the formation center. In the instance of the crash, this resulted in a latitude of 163 being sent to calculate a new location resulting in the crash when performing spherical math.

The code was changed to pass the correct arguments.

3.31 JTLS-2020-15054 Destroyed Support Unit Associated Target Crash

If a unit had one or more associated Air Defense sites and the unit had never has did any of the Air Defense Site's needed supplies, the model would crash when the unit was destroyed. The model passed the Air Defense site target to be associated with another unit and attempted to determine who should support the site's weapons requirements based on who was providing the weapon supplies to the destroyed unit. The destroyed unit never had supplies for the Air Defense site, and therefore could not determine who was previously supporting it, resulting in the crash.

The code was modified to ensure that the supply requirement exists for the destroyed unit before attempting to access it to determine if there is a specific supply chain. In the absence of either the supply requirement or a specific supply chain, the new supplier defaults to the destroyed unit's routine support unit.

3.32 JTLS-2020-15055 HRU With Same Movement Lat/Lon Crash

An HRU was performing a move of a very short distance through a minefield. When the CEP was checking if the HRU had crossed any barriers, a calculation was done between the movement vector of the HRU and the barriers in the grid. Because the HRU movement was so small, this resulted in an arithmetic underflow in the spherical math. The two locations of the HRU movement, starting and ending, were the same when examining them in the debugger, which does not show the full 64-bit real number.

The code was protected if the locations had been exactly the same, but not for almost exactly the same. Therefore, the check for sameness was switched to a function call that determines if the locations are within 1 meter, and treats them as the same if they are.

Additionally, when investigating the crash it was initially assumed the error was in a barrier with identical points, which did exist. This barrier had been created by a Controller order with a duplicate point. This should not be allowed, and to avoid it in the future, the utility file that is used to construct the points was modified to require unique locations.

3.33 JTLS-2020-15057 Negative IIR Reports Not Generated

Whenever a Non-Theater DSA Negative Collection Report was generated by the model, the resultant XML message file was improperly formatted/corrupted. The report would appear on the Message Browser with the title "Bad Message File" and was not viewable.

The XML corruption was due to data items not being properly identified as data items within the CEP code. The code was modified to add the data item designators around the data.

3.34 JTLS-2020-15059 Empty Default Resources Identified

The OMA has periodically produced an error message about trying to duplicate an empty string. The issue was isolated to loading an empty order resource from the Cancel Air Mission order. Resources are used for internationalization of the user interface and the OMA uses them to respond in the proper language and with field labels that match the user's GUI. In this case, it was discovered that the Cancel Air Mission had an empty help field.

Help text was added to the Cancel Air Mission order.

The i18m module, which is shared by many programs to handle resources, was also modified to handle the case of an empty resource. None of the resources should ever be empty and the development team has produced a checker to inform the Development Team of any future issues.

While performing the check a number of other resources were found to be empty. A few of these, like the Cancel Air Mission order, were just missing help fields and were fixed. Others indicated errors in the generation of the resources and helped us identify and correct the errors in the i18n Property Generator.

3.35 JTLS-2020-15060 Cannot Send Orders To Formation

A naval formation was disbanded and then later recreated using the same name and different ships. Once created, the operator was able to select the formation to enter it on orders, but the OMA would reject the order saying the formation was not active.

Whenever a formation is disbanded, we keep the JODA object so that the users can still see the formation name on the IMT, making it easier to reuse the formation name. However, when the formation is reused, we consider it a new formation for AAR purposes, and delete it from the JODA and recreate it with a new receiver number to uniquely identify it.

When the formation was inactivated, the JODA update was sent to all sides, but when it was destroyed, the update was only sent to Sides that were involved in the formation. Because the formation had no ships or embarked units, no Sides were sent the JODA update. When the new formation was created, we ended up with two formations with the same name. The JXSR would return the valid one to enter in the order, but the OMA would grab the invalid one when verifying the order. This was fixed by ensuring the delete object to the JODA was sent for all Sides.

3.36 JTLS-2020-15061 Order Graphic Arrowhead Too Large

The displayed arrowhead on an order's route graphics was too large in proportion to the connecting lines. This became more apparent when the map was zoomed out, and the large size of the arrowhead cluttered the route display.

The arrowhead size was reduced down to a proportionate size.

3.37 JTLS-2020-15062 Coordinate Designation For Order Spreadsheet

Orders composed in the Order Spreadsheet component incorrectly used the MGRS precision format specification in the URL to the OMA when checking or sending spreadsheet orders. Because the OMA service does the not recognize the MGRS precision format and does not need to, it prevented the spreadsheet orders from being processed.

This was corrected by properly setting the coordinate designation to be either "LatLon" or "MGRS" for the order, and not a specific MGRS precision format.

3.38 JTLS-2020-15063 WHIP Crash Opening Unit Parameter Supply Utility

The Controller utility order to set an individual unit's supply levels has several unit of measure fields. The task to set the initial value in a field instance was invoked incorrectly and caused a "BadLocationException" to occur whenever an order or utility contained several instances of the same type of field on opening it. The exception did not prevent the utility to continue functioning properly after it was up.

The task to set the field value is now performed as a background task to prevent any interference with any other tasks the order or utility panel is performing as it is being opened, and prevents the exception from occurring.

3.39 JTLS-2020-15064 Create Satellite Non-DSA Summary Report

Satellites provide IIR messages when they collect on DSAs. If the asset collects using the OBSERVED mode, no message is provided.

A new message was created and it mimics the current Air Mission collection summary report. The satellite report is generated periodically based on the database parameter IIP.MARITIME.INTEL.REPORT.PERIOD.

3.40 JTLS-2020-15065 Stop Radars From Detecting In Dual Grids

Radars are detecting in a dual-capable grid. The dual capability should interfere with radars.

Radar sensors are not allowed to collect intelligence within dual-capable grids. They can still gather information in ocean and small island grids. A flag was added to allow the user to decide whether radars should be able to collect on dual capable grids.

3.41 JTLS-2020-15066 Multi-Side Link 16 Does Not Work Properly

Duplicate Link 16 tracks were noticed in a scenario where multiple sides are feeding the same Link 16 network.

The primary error occurred when all sides lost Link 16 coverage, but one side maintained normal detection coverage, which was not being shared. The problem was solved.

3.42 JTLS-2020-15067 ASCII Checkpoint Failed Restart With Active ATO ID

The ASCII checkpoint failed to read when there was an active ATO ID.

The issue was that the change number was set to -1, which when placed in a short integer, resulted in too large a number for the ASCII write statement. The -1 came from the fact that the order sent from the WHIP was initialized. The new logic ensures that before setting the ATO Change number, that the specified number is greater than zero.

3.43 JTLS-2020-15068 Magic Move Moving HRU Caused Logic Error

An HRU that was executing a Move Task with a specified Withdrawal route caused a model error, because the HRU attempted to execute two tasks simultaneously.

When canceling an HRU Move task as a result of a Magic Move, the assigned Withdrawal route is now also deleted and canceled.

3.44 JTLS-2020-15070 Crash Sending Look Out Report Containing Dead HRU

The model crashed when an HRU was sending a period report, and the collected information included data for a foreign HRU that no longer existed.

The model saves the name of the object for just this situation, but it was not being properly used. The code was changed to use this name and not the pointer.

3.45 JTLS-2020-15071 Alter Terrain Message Cannot Be Parsed

An error occurred attempting to read an Alter Terrain Message that is being rejected.

The message format generated by the CEP was incorrect, and the problem was solved.

3.46 JTLS-2020-15073 Mission NEC-CCIS Mission Types

NEC-CCIS-generated ATOs with some mission types not recognized by the ATOT.

The following Mission Types were added to the file used to tell the ATOT how to interpret an ATO Mission Type:

- GTPT - a Ground Transport Mission, which will be created as a JTLS-GO Ground Alert Mobility Mission.

- ISR - a Reconnaissance Mission.

In addition, the Mission Type MPA, which stands for Maritime Patrol, was changed to generate a JTLS-GO Patrol Mission.

3.47 JTLS-2020-15075 Adding Mobility Tasks To Air Mission Does Not Work

The order panel for the Manage Air Mission Task Order was not properly set up for the user to add mobility tasks to an air mission.

The order panel was changed to use the proper Mobility Task Utility panel.

3.48 JTLS-2020-15076 Crash Creating New Zero Length Barrier

When creating a new barrier, a user submitted an order with the same location entered twice. This created a zero-length barrier arc, which eventually led to a crash.

The order should not have allowed the duplicate point. The order panel was changed to ensure duplicate points are not on the barrier list. This same fix applies to national boundaries.

3.49 JTLS-2020-15077 TRIPP Start Exits Login When No Available Replay JXSR

Logging into the TRIPP with no Replay JXSR service available caused the login window to exit altogether after informing the user about the problem. This required the user to restart the login window to attempt a re-login. The failed login would also cause the TRIPP user to be held up by the Synapse until it was timed out and was eventually made available again for login.

The login procedure changed to first make a successful connection to a Replay JXSR before the TRIPP establishes an affirmative login with the Synapse service. If the TRIPP cannot find an available Replay JXSR in the process, the login window will now stay up after the warning message and allow the user to immediately re-login once a Replay JXSR is made available.

3.50 JTLS-2020-15078 Crash When Zero Systems Visible

After an HRU engagement, the HRU was attempting to report visible combat systems, but since its opponent was dead, there were no remaining visible systems.

The routine GET SEEN SYSTEMS was rewritten, to correct this flaw and several other flaws in the logic, such as allowing the reporting HRU to see very small combat systems such as guns. The routine now ensures only systems large enough for the HRU visual sensor are reported, and the routine properly checks if there are systems available to be seen.

3.51 JTLS-2020-15082 JDS Object Update Order Link 16 Crash

The Link 16 Message Service was crashing when processing JDS Object Update orders for units that owned targets. The service was deleting the owned targets, but failed to completely clean up after itself. These deleted targets were being referenced later, causing a crash.

The Link 16 Message Service no longer deletes targets owned when the owning unit is deleted. The cleanup and reassignment of these owned targets is handled through JDS Creates and Updates automatically.

3.52 JTLS-2020-15084 Emitter IMT Screen Help Misleading

The Emitter IMT screen help information was inaccurate and misleading.

The help was updated for the entire IMT screen including the individual column help.

3.53 JTLS-2020-15086 SDC Shortens Supply Category Names

If the name of a supply category is longer than 15 characters, the SDC will cut the name length down to 15 characters prior to adding the supply category to the associated table in the database repository.

Back when the names for game objects were standardized to 25 character lengths, several changes were made to ensure the new generic name length was properly restricted for data

entry, storage and display. This included length changes to the definitions controlling the DDS, IMT and messages and various other display utilities. One change that was not made was the size variable for generic names in the JDS Protocol. This variable is used for automatically configuring database table generation and limiting name lengths within the AAR programs such as the AARC, SDC and OEC.

This variable was changed from 15 to 25 characters in the JDS Protocol configuration file. From the Protocol configuration the new 25 character length is now available to the AAR programs for limiting name lengths. After generating the code for each of the AAR programs the names are now properly limited to 25 characters.

3.54 JTLS-2020-15087 Temporary Array Not Released From CEP Memory

A CEP routine was found to reserve storage in memory for a temporary data array, but the reserved memory was not freed when the routine was finished.

A missing RELEASE statement was added to the routine to correct the problem.

3.55 JTLS-2020-15089 Link 16 Paint Network Information

Web services run through the Web Services Manager (WSM) are able to control the data displayed in their "Status" tab on the WSM. While the Link 16 connection state was painted in green or red, depending on the connection status, the Network information was not. This is critical information and should be displayed.

The Link 16 Message Service "Status" tab on the WSM has been modified to paint the Link 16 Network Name and Network Feed in green if connected and red if not.

3.56 JTLS-2020-15090 Implement Network Node Names Filter

The user needs to be able to turn network node names from the each network panel in the filter panel on and off, rather than only while in DDS edit mode.

The WHIP and DDS code was modified, implementing a new filter panel with the capability to toggle display of node names in the network filter on and off. The equivalent function in DDS edit mode was removed.

3.57 JTLS-2020-15091 OPM TTG Target Definition Not Alphabetical

Checking the OPM to determine if a specific target category/subcategory is part of a Target Type Group (TTG) is nearly impossible for the larger target subcategories, such as SUPs, because the data is listed in priority order, not alphabetical order. This data should be arranged alphabetically.

The SIP did not actually impose an ordering on the arrangement of the data. When dealing with checkpoint zero, downloaded from a DDS database, the data was arranged alphabetically and thus appeared in the OPM alphabetically. However, the CEP stores the data in priority order, and

this ordering was reflected in a checkpoint. Generating the OPMs from a checkpoint would pick up this ordering and list the items by priority.

To solve the problem the SIP was modified to impose its own ordering on the data, by target subcategory which is alphabetical for each target category.

3.58 JTLS-2020-15093 Checkpoint Load To DDS Issues

When loading an exercise's final checkpoint into the DDS to capture the Controller parametric data changes made during the exercise, two minor issues arose:

- *Controller-created tunnel targets had a length of -1 Km, when the database enforces a value of zero or greater.*

- *The network node delay time on a number of Controller created road nodes was -1.0, when the database enforces a value of zero or greater days.*

The tunnel targets defaults to -1.0 Km length, because the -1 is a default value assigned to the Player order for an unfilled field, and because the Controller did not have a way to assign the length on the order. The order was changed to allow the optional designation of a length, and the code was changed so that if the length is less than zero, it will be assigned a value of 1.0 Km, which is the database default.

3.59 JTLS-2020-15095 Unused Utility Lists

The order utilities Insert Extract Change List and HRU Movement List were not used by any order.

The unused utility panels were removed from the code base.

3.60 JTLS-2020-15096 Loop When Mission Told To Rearm No Unit Available

The model went into an infinite loop when a Mobility air mission was told to rearm after it dropped off a unit, but without specifying the optional resupply unit. When the mission finished offloading the unit, it went to rearm but there were no legal units in the area.

At this point, the mission did not know what to do and generated a message telling the player about the problem. The issue was the bad task was not canceled, so the mission repeatedly executed the same task over and over, each time coming to the conclusion there was no one available from which to rearm and generating a problem report for the user.

The rearm task under this circumstance was canceled to resolve the problem.

3.61 JTLS-2020-15098 DDS Naval Unit Table Improperly Formatted

When a user opened the Naval Unit table in the DDS, the Owned Target Count column displayed values improperly.

There was a format error in the Naval Unit table's screen definition renderer, which was corrected.

3.62 JTLS-2020-15099 DDS Combat System Table Crowded

When a user opens the Combat System table in the DDS, there are several columns at the beginning of the table which are ELS-related. Since ELS data is not relevant to most users, they should appear at the end of the table.

The screen definition file for the Combat System is modified so that the ELS-related columns are moved toward the end of the table, just before the Comment column.

3.63 JTLS-2020-15100 CCP Attributes Report Error

An error was found in the Command Control Prototype (CCP) message that was generated from the Controller Set CCP Parameter order. In the report sections that display the Density Modifiers for Terrain, Posture, and Base Value, the message template incorrectly referenced Combat Systems instead of Combat Arms Types. The Density Modifiers applied to Combat Arms Types, not Combat Systems in the CEP. The error was confined only to the generated message and was not present elsewhere in model processing.

The message template was changed to reference Combat Arms Types for the Density Modifiers.

3.64 JTLS-2020-15102 Order Field Inconsistent Data Passing HRU Control

The order to pass control of an HRU used an inconsistent method to fill an order field. This order is used to give control of an object to an external model, such as GESI.

The order panel was filled with a list of HRUs which had a side relationship of friendly or neutral. This incorrectly allowed a Player to pass control of an HRU which was not on the same side as the WHIP. The order definition was changed to only allow the user to pass control of HRUs which were on the same side as the WHIP. The Controller retained the option to pass control of all HRU in the game.

3.65 JTLS-2020-15104 Generate LOGFAS/TOPFAS Data Menu Item

Creating the LOGFAS initialization file should be removed from the setup procedure and given its own function.

A new "Generate LOGFAS/TOPFAS Data" option has been added to the JTLSMenu, but due to cybersecurity issues, the capability was inactivated. The new function has been added to the upcoming JTLS-GO 6.1 release.

3.66 JTLS-2020-15105 MDMT Message Fix

When importing Targets from a CSV file into the MDMT, a message is displayed that reports how many targets were successfully imported. This message was improperly formatted.

The target import message was reformatted to display properly.

3.67 JTLS-2020-15107 GSS Called Before Initialized

One piece of data that the Geo-Spatial Service (GSS) uses to efficiently communicate with the CEP is the unique identifier for each Terrain Layer. This data is made available for the GSS by the CEP after all of the initialization data has been read in.

However, depending on the scenario, the CEP may make calls to the GSS before all of the initialization data has been read in, such as when placing coverage markers for radiating targets. Since the Terrain Layer unique identifiers are not yet available to the GSS, the GSS sends back identifiers of zero, which causes the CEP to crash.

As a standard rule, initialization data files for external programs are all written by the CEP after all the data has been read. But because the GSS is used before this point in CEP initialization, it was necessary to move the writing of its initialization file. The initialization file is now written as soon as the CEP reads in the terrain data.

Additionally, while fixing this error it was discovered that when the Terrain ASCII data is read on a restart, it was reporting to the terminal console that the Terrain ASCII data was being written. This minor issue was also corrected.

Additionally, when the GSS is not being run, a message was previously written to the screen saying a connection to the GSS failed when the CEP first started and when the ASCII modeling parameter data was read. In both these instances, the CEP has just been assigned a value for the GSS settings and attempts to inform the GSS if it is up. In the case of the GSS not being up this debug message has now been suppressed of the GSS is not being used.

3.68 JTLS-2020-15108 Wrong Supply Category For Personnel

An error was discovered in the routine COMPLETE.THE.MISSION. It was discovered that the wrong supply category was being used for personnel.

While looping through the Air Mission Supply Set, the routine was searching for the supply category with an index that matched the integer .SPECIAL.SUPPLY.PERSONNEL. The routine should have been looking for the supply category with an SC.SPECIAL.CAPABILITY equal to .SPECIAL.SUPPLY.PERSONNEL. This has been fixed.

3.69 JTLS-2020-15109 Manage ULN Show Going Out As Broadcast

The manage ULN show option was generating a message and sending it out as a broadcast message. The generated message is designed as a directed message.

The code was changed to make the message a directed message.

3.70 JTLS-2020-15112 CEP Ran Out Of Memory Computing Optimal Route

A tester entered a value of 56 for the Ground End Overlap Factor and 20 for the Ground Half-Width Factor. The result for a 300 KM move was that a convoy was searching an area of 33,900 KM by 12,000 KM for an optimal route. The model ran out of memory attempting this computation.

The order panel should have limited the various end-overlap factors and half-width factors to a maximum of 2.0. The maximum was changed and the help was improved so the user better understands the meaning of the database parameter. It was noted that the database builder could also enter a large value. A temporary SVP check was created to make sure the parameter is not too large to cause model issues.

3.71 JTLS-2020-15114 Unused Utility Priority CS List

An order utility called Priority CS List was not used by any order.

The unused utility panel was removed.

3.72 JTLS-2020-15115 Pickup From Ground Unit Transport Instructions

A Directed Resupply convoy order was created, and the convoy was told to pick up supplies from a ground unit and drop off the supplies to a different ground unit. The transport instructions list could be created, but the order was rejected because the pickup unit was a ground unit.

Within JTLS-GO, there is a rule that the model will never automatically take supplies from a ground unit. This rule should not apply to an order in which a unit wants to specifically pick up supplies from a ground unit. The order constraint that was causing the problem was removed from the utility panel.

The model also needed to be changed to allow the convoy to pickup from a ground unit.

3.73 JTLS-2020-15118 Lat/Long Pickup/Dropoff Incorrect Task Order

If the user indicates that a convoy should pick up supplies from a unit and at the same time drop off supplies at the same unit, the model ensures that the drop off occurs before the pickup. This ensures that the convoy has room for the newly planned supplies to be loaded.

If the user creates an order task list that picks up and drops off supplies and no unit is specified, the model incorrectly switched the pickup and dropoff tasks.

If two sequential tasks have no unit specified, then the location of the two tasks are now checked. If the location is identical, then the drop off continues to occur first. If the two locations are not the same, the task check is not made and the ordering submitted by the user is implemented.

3.74 JTLS-2020-15119 Inconsistent SSA Target Creation

The supplies contained in a Supply Storage Area target were not the same if the target arrived at game start, if it arrived after game start, or was created by a Player during game play.

The code was changed to show consistent behavior, no matter whether the target arrives at game start or after game start.

During testing, several other problems were found and corrected in OPM generation:

- For supply storage targets created as external events, if the target had only default supplies and no additional supplies, the code would enter debug.

- If the target was to be created as an external event, the external event manual page only showed the additional supplies, not the default supplies. It should have shown all the default supplies plus any additional supplies in the event.

- Problems were found in the supplies for targets if the target had additional supplies in addition to the default supplies. An error in the code also caused the writing of checkpoint data for the future creation of supply storage targets as external events to be incorrect.

3.75 JTLS-2020-15124 Move Checkpoint To Shadow Game Scripts

The JTLSMenu contains an option to move a checkpoint from an exercise game to a shadow game when the two games are on the same file system, such as an NFS system. However, NATO and a number of NATO countries that use JTLS-GO set up their shadow games on an independent file system, so the delivered JTLS-GO procedure does not meet their needs.

Usually, when supporting an exercise for these organizations, the Technical Controller ends up writing scripts to perform the procedure, which end up being deleted at the end of the exercise, which is a poor utilization of engineering time.

The two scripts that were written for one exercise were saved and placed into the $JTLSHOME/ script directory as templates for users. These scripts require minor modifications for each site and exercise. Directions on the use of the scripts has been added to Section 12.3 of the *JTLS-GO Technical Coordinator Guide*.

3.76 JTLS-2020-15126 Mission Task Sequence Number Change Error

An air mission was created and scheduled to launch at a future time. The mission included an Orbit in its task list. The Player attempted to force the mission to launch earlier than its scheduled time by using the Manage Air Mission Tasks order to change the Orbit task sequence number to occur before its Begin (launch) task. The CEP incorrectly accepted the change request, which led to a crash.

The CEP was modified to not allow a mission task to be moved before the Resource or Begin (launch) tasks. If a Player attempts to change the task sequence number to a value less than the Resource or Begin task sequence number, the request is denied and a message is sent to the Player.

Note: The correct method to change the launch time of a scheduled mission is to alter the Start Task Time of the mission's first primary task. The model will then appropriately adjust the mission's Resource Task and Begin Task time automatically.

3.77 JTLS-2020-15128 TRIPP Performance Improvement On Launch

Whenever the TRIPP exited on a time other than the start time, the Replay JXSR held onto the game time of that run in its state, but not the associated data. In addition, when the TRIPP started, it always sent a request to the Replay JXSR to reset the game time to the beginning. This caused the Replay JXSR to correlate its internal data and time state, but resulted in a performance hit as the TRIPP came up.

The Replay JXSR was modified to additionally hold on to the data from the last TRIPP run, and the TRIPP no longer sends the initial request to reset the game time to the start, thus improving the time it takes for the TRIPP to come up.

3.78 JTLS-2021-15129 Political Country DDSR Repository Migration

When migrating a political country using DDS Data Repository tool, the process did not migrate the country polygon data. This resulted in SVP errors.

Country polygon data was not specified for post-processing as one of the special migration rules. Those data are now included. Area of Operation, Weather Front, and Barrier data have also all been added for post processing.

3.79 JTLS-2021-15131 Weather Front Inconsistent Data During Save

When taking an initial checkpoint, the Weather Front called "TYPHOON" wrote out inconsistent data for the checkpoint. The attribute "WF.EXPECTED.DIRECTION" was being written out as ".0000" when it should have been "300".

When reading in the Weather Front table data during a game start, the attribute "WF.EXPECTED.DIRECTION" was being converted to an integer using the routine GET.INTEGER.FIELD. It is now being converted using the routine GET.REAL.FIELD.

3.80 JTLS-2021-15132 SVP Invalid Column Name Error Misleading

An invalid column name was used in the SVP Template file, which specifies the error messages and actions associated with each SVP Error and Warning. A column name appeared in the SVP Template file that does not appear in the DDS GUI file for the corresponding table. The column that was specified is valid within the DDS tables, but had not yet been entered into the DDS GUI file. The resultant error message did not make this distinction.

The error message was switched from saying the column in not valid for the table to specifying that it does not appear in the associated DDS GUI file.

3.81 JTLS-2021-15133 Logging JODA Crashes During First Startup

Before the CEP is started for the first time for a new game, the Logging JODA crashes during its startup.

For a newly created scenario, many of the files produced by the CEP have not been created prior to starting the CEP for the first time. One file, the ".run" file, is created by the CEP and remains for every start or restart thereafter. When the user attempts to start up all the services for the game, including a Logging JODA, and this ".run" file has not been created, the logging JODA sets an internal run number to an erroneous value and crashes as a result.

Since this crash would only occur when the ".run" file was not available, the Logging JODA code was changed to catch the situation and wait for the ".run" file to be made available. As soon as the CEP generates this file, the Logging JODA starts without a problem.

3.82 JTLS-2021-15134 Column Mapping Conversion Exception

The location column names described in the DDS GUI file are not always the same as the column names in the database, and must be converted to the column names used in the database. The Column Mapping Conversion performs this conversion process. After performing this process, the DDS GUI checker crashed when checking the maximum width of those column names due to a null pointer exception.

The conversion code was modified to correct the problem.

3.83 JTLS-2021-15136 Air Movement Report Crash

An Air Transport order was submitted that directed a mission to launch from its home base, pick up supplies at a different base, and then return home to unload. While the mission was loading supplies at the pickup base, an Air Movement Report was requested just as the LOAD_SUPPLIES task completed. The CEP crashed while attempting to generate the Air Movement Report.

When the Air Movement Report started to generate, the model had just finished the LOAD_SUPPLIES task and had only the MSN_COMPLETE task remaining in the queue. The report logic attempted to access the successor to the current task. Because the current task was the MSN_COMPLETE task, there was no successor task. The model crashed attempting to determine if the non-existent successor task was a REFUEL or REARM task in order to calculate the take off time.

The problem was corrected by adding a check to ensure the successor task exists before attempting to access it.

3.84 JTLS-2021-15138 Order Field Cursor Drop Down Unit Menu Field

Whenever the user typed in a unit search in the order field, the unit performed an auto-completion, and the cursor was positioned to the end of the search. This caused the user to have to move the cursor back to the beginning to conduct a new search.

The cursor was corrected to be positioned at the start, and the user can conduct the search more efficiently.

3.85 JTLS-2021-15139 Improve Warning 1425

A resolution option should be added to Warning 1425, to set the Prototype Supply Category Reorder Level value to xxxx.

The resolution option was added to Warning 1425.

3.86 JTLS-2021-15140 Checkpoint Satellite Route Data Improperly Saved

The ASCII checkpoint procedure was not saving satellite data correctly. Each route point record was not on its own line. The entire route data set for a single satellite was on a single line.

The code did not correctly start a new line at the end of each route point record. The code was corrected.

3.87 JTLS-2021-15141 Improve Warning 1118

Warning 1118 identified combat systems used by HUPs as being unnecessary and allows the user to remove them.

Warning 1118 checks every combat system against every TUP and SUP and, if the combat system is not used, notifies the user and presents options to remove the combat system. There are cases where the combat system is needed by a HUP but has not been given to a TUP or SUP. Attempting to delete the combat system generates an error under these circumstances.

The code has been modified to also look for the combat system in all the HUPs before reporting it as unneeded.

3.88 JTLS-2021-15142 Set ADA Parameter Order Crash

The Controller Set ADA Parameter order was submitted to show the parameters for the STINGER(SP)VEH target class. The model crashed attempting to generate the report for the Message Browser.

The model incorrectly assumed the STINGER(SP)VEH was capable of using an advanced Targetable Weapon. The report attempted to write the name of the advanced weapon by referencing the weapon's pointer which did not exist. The problem was corrected by first checking to see if the advanced Targetable Weapon exists for the ADA target class before writing its name in the report. If it does not exist, "NONE" is written in place of the name.

3.89 JTLS-2021-15143 English IIR Message Title Confusing

When the exercise audience views the English version of the IIR message, the message say Intelligence Information Report. This confuses the intelligence cell and the correct terminology "Imagery Interpretation Report" should be used.

All three IIR English-version messages were changed to use the appropriate terminology.

3.90 JTLS-2021-15145 Single Path OAS Mission Crash

This problem was first seen and solved as part of STR JTLS-2020-14935 in September 2020. During this test situation, an extremely short single path orbit OAS mission with auto-assign of Yes was created in a target-rich environment. The model crashed because the mission had no route.

When the mission fired its weapons and postponed its current Orbit Task, its single path orbit route was not updated properly, the mission ran out of route points before it fired all of its weapons. Properly updating its planned route when its move task was postponed to fire its weapons solved the problem.

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 represents a major release of new functionality, remaining outstanding errors have been considered to be obsolete and no longer relevant to JTLS-GO and have been removed from consideration for correction at this time. In future maintenance releases, outstanding errors related to JTLS-GO will be listed in this chapter, with information provided 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

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
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 6.0.0.0 DATABASE CHANGES

Refer to Appendix B in the JTLS-GO Version 6.0.0.0 VDD. No database format changes were needed to this Maintenance release.

APPENDIX C VERSION 6.0.0.0 REPOSITORY CHANGES

The following changes were made to the JTLS-GO 6.0 repository.

C.1 New Aircraft Class:

- BAYRAKTAR.TB2.UAV

- HH60W.JOLLY.GREEN.II

C.2 Aircraft Class Changes:

- Changed APACHE.AH1 Maximum Altitude Range from 592km to 203km

- Changed APACHE.AH1 Maximun Range from 1008km to 537km

- Changed APACHE.AH1 NAP Range from 830km to 349km

C.3 New Aircraft Loads:

- 2L-UMTASX38AR70X2.CIRIT.LG

- 34APAMX34ATAMX8APAA_CRV-RKT

- 38APAMX38APAA_CRV-RKT

- 4A114KX4A114MX16APAMX16ATAMX6APAA_CRVRKT

- 4L-UMTAS

- 60ATAMX8APAMX8APAA_CRV-RKT

- 8A114KX16APAMX16ATAMX6APAA_CRV-RKT

- 8A114LX16APAMX16ATAMX6APAA_CRV-RKT

- 8A114LX30ATAMX4APAMX4APAA_CRV-RKT

- 8A114MX16APAMX16ATAMX6APAA_CRV-RKT

- 8A114MX30ATAMX4APAMX4APAA_CRV-RKT

- BAYRAKTAR.TB2.DEF

C.4 New Naval Units:

- DAEGU_KR

- DOSAN.CHANGO_KR

- HANSANDO_KR

- KUMANO_JP

- MARINETTE_US

- MOBILE_US

- SPEY_GB

C.5 New SUPs:

- 30FFM.(30DX)_JP

- B.ADULYADEJ_TH

- BUNGA.LIMA_MY

- DAEGU_KR

- DOSAN.CHANGHO_KR

- ENDURANCE_TH

- FUSU.(TYPE908)_CN

- HANSANDO_KR

- KERIS_MY

- KRABI.(OPV)_TH

- M36_TH

- M58_TH

- MAHARAJA.LELA_MY

- MIN.JIANG(FMLB)_TW

- PAN.SHI_TW

- PATTANI_TH

- SHANG.(093G)_CH

- SHANGHAI.3_CN

- SOVREMENNY.MOD_CN

- SUI.(TYPE95)_CN

- TOR.991_TH

- TOR.994_TH

- TOR.997_TH

- TUN.AZIZAN_MY

- TYPE.071E_TH

- TYPE.S26T_TH

- YUNG.JIN_TW

C.6 SUP Changes (Updated POT Table):

- AGGRESSIVE_TW

- ALLIANCE_TW

- ANCHORAGE_TW

- HAI.LUNG_TW

- JIANGDAO_CN

- JIANGHU.1_CN

- JIANGHU.5_CN

- JIANGWEI.2_CN

- JING.CHIANG_TW

- JING.CHIANGM_TW

- KAOHSIUNG_TW

- KIDD_TW

- KNOX_WTA_TW

- KSS-2_KS

- KUANG.HUA.6_TW

- LA.FAYETTE_TW

- MWW.50_TW

- NEWPORT_TW

- PFG-2_TW

- SHANG_CN

- WU.YI_TW

- YARROW_TH

- YUEN.FENG_TW

C.7 New SSMs:

- NSM(4)

- YJ12A.SHIP.4VLS

C.8 SSM Changes:

- Added TW YJ82.ASCM(SUB) to SSM TT533LI.WIRE

C.9 New Sensors:

- GIRAFFE.4A_SAA

- OPY-2_SAA

- OPY-2_VGN

- WARTSILA_VGN

C.10 New Supply Categories:

- CL.V.AS-AR70X2.CIRIT.LG

- CL.V.SA-MR-FK3

- CL.V.SA-MR-HQ12A

- CL.V.SA-MR-HQ12C

- CL.V.SA-MR-HQ22

- CL.V.SA-SR-HHQ-7

- CL.V.SA-SR-HHQ-7A

- CL.V.SA-SR-HQ-7

- CL.V.SA-SR-HQ-7B

- CL.V.SA-MR-LY80

C.11 New UOMs:

- AR70X2.CIRIT.LG

- FK-3

- HHQ-7

- HHQ-7A

- HQ-12A

- HQ-12C

- HQ-22

- HQ-7B

- LY-80

C.12 New Combat Systems:

- ACV-M2-AMPHIB

- ACV-MK19-AMPHIB

- PCL171.122MM-ART.(SP).LTO

- SH15.155MM-ART.(SP).MHVO

C.13 New Small Boats:

- ACV-M2

- ACV-MK19

C.14 New SALs:

- FL3000N_SAL

- LY-80_SAL

C.15 SAL Changes:

- KS-1_SAL renamed to HQ-12_SAL

- LY-60_SAL renamed to HQ-64_SAL

C.16 New TWs:

- AR70X2.CIRIT.LG

- FK-3

- HHQ-7(CSA-N-4)

- HHQ-7A(CSA-N-4)

- HQ-12A

- HQ-12C

- HQ-22

- HQ-7B(CSA-7)

C.17 TW Changes:

- HQ-2B Changed Rg from 34km to 35km

- HQ-2J Changed Rg from 30.6km to 34km

C.18 TWs Renamed:

- ASPIDE.2000.SAM to ASPIDE.2000

- CSA-6A(LY60) to HQ-64A(LY-60)

- CSA-6B(LY60) to HQ-64B(LY-60)

- CSS11(DF16) to DF16(CSS11).HE

- CSS18.M3(DF26) to DF26(CSS18.M3).HE

- CSS2(DF3) to DF3(CSS2).NUC

- CSS3(DF4) to DF4(CSS3).NUC

- CSS4.M1(DF5) to DF5(CSS4.M1).NUC

- CSS4.M2(DF5A) to DF5A(CSS4.M2).NUC

- CSS5.M1(DF21) to DF21(CSS5.M1).HE

- CSS5.M2(DF21A) to DF21A(CSS5.M2).HE

- CSS5.M4(DF21C) to DF21C(CSS5.M4).HE

- CSS5.M5(DF21D) to DF21D(CSS5.M5).HE

- CSS6(DF15) to DF15(CSS6).HE

- CSS6.M1(DF15) to DF15(CSS6.M1).HE

- CSS6.M2(DF15A) to DF15A(CSS6.M2).HE

- CSS7(DF11) to DF11(CSS7).HE

- CSS7.M1(DF11) to DF11(CSS7.M1).HE

- CSS7.M2(DF11A) to DF11A(CSS7.M2).HE

- CSS8.HE(M7) to M7(CSS8).HE

- CSS9(DF31) to DF31(CSS9).NUC

- CSS9A(DF31A) to DF31A(CSS9A).NUC

- CSS-X-10(DF41) to DF41(CSS-X-10).NUC

- DF11.CHEM to DF11(CSS7).CHEM

- DF11.FAE to DF11(CSS7).FAE

- DF11.ICM to DF11(CSS7).ICM

- DF11A.CHEM to DF11A(CSS7.M2).CHEM

- DF11A.FAE to DF11A(CSS7.M2).FAE

- DF11A.ICM to DF11A(CSS7.M2).ICM

- DF15.CHEM to DF15(CSS6).CHEM

- DF15.ICM to DF15(CSS6).ICM

- DF15A.CHEM to DF15A(CSS6.M2).CHEM

- DF15A.ICM to DF15A(CSS6.M2).ICM

- DF15B.CHEM to DF15B(CSS6.M3).CHEM

- DF15B.HE to DF15B(CSS6.M3).HE

- DF15B.ICM to DF15B(CSS6.M3).ICM

- DF15C.HE to DF15C(CSS6.M4).HE

- DF16A.HE to DF16A(CSS11.M2).HE

- DF21.CHEM DF21(CSS5.M1).CHEM

- DF21.ICM to DF21(CSS5.M1).ICM

- DF21A.CHEM toDF21A(CSS5.M2).CHEM

- DF21A.ICM to DF21A(CSS5.M2).ICM

- DF5B.NUC to DF5B(CSS4.M3).NUC

- DF5C.NUC to DF5C(CSS4.M4).NUC

- DF-ZF.HGV(DF17) to DF17(DF-ZF.HGV)

- FL3000N(HQ10) to HHQ-10(FL3000N)

- HHQ-16 to HHQ-16(CSA-N-16)

- HHQ-9A to HHQ-9A(CSA-N-9A)

- HHQ-9B to HHQ-9B(CSA-N-9B)

- HQ-16 to HQ-16(LY-80)

- HQ-16B to HQ-16B(LY-80)

- HQ-2B to HQ-2B(CSA-1B)

- HQ-2J to HQ-2J(CSA-1J)

- HQ-61 to HQ-61(CSA-2)

- HQ-7(FM-80) to HQ-7(CSA-4)

- HQ-9 to HQ-9(CSA-9)

- KS-1(CSA-12) to HQ-12(KS-1)

- LY60(HQ64) to HQ-64(LY-60)

- M11.HE(DF11) to M11(DF11).HE

- M7.CHEM to M7(CSS8).CHEM

- M7.ICM to M7(CSS8).ICM

- M9.M1.HE(DF15) to M9.M1(DF15).HE

C.19 TWs Deleted:

- ASPIDE.SAM

- CSA-12(KS-1)

- CSA-21(SA-21)

- CSA-9A(HQ-9A)

- CSA-9B(HQ-9B)

- DF11.HE

- DF11A.HE

- DF15.HE

- DF15A.HE

- DF16.HE

- DF21.HE

- DF21A.HE

- DF21C.HE

- DF21D.HE

- DF26.HE

- DF3.NUC

- DF31.NUC

- DF31A.NUC

- DF4.NUC

- DF41.NUC

- DF5.NUC

- DF5A.NUC

- HHQ-10

- LY-80

- M7.HE

C.20 Updated Tables

- C3 Quality Rating Table Updated

- Weapon Delivery Capability Table

C.21 New ADA Classes:

- FK-3.BTRY

- HHQ-7.8.LCHR

- HHQ-7A.8.LCHR

- HQ-12A.BTRY

- HQ-12C.BTRY

- HQ-22.BTRY

- HQ-7B(CSA-7).SEC

C.22 ADA Classes Renamed:

- CSA-6A.BTRY to HQ-64A.BTRY

- CSA-6A.SEC to HQ-64A.SEC

- CSA-6B.BTRY to HQ-64B.BTRY

- CSA-6B.SEC to HQ-64B.SEC

- FL3000N.12.L to HHQ-10.12.LCHR

- FL3000N.18.L to HHQ-10.18.LCHR

- FL3000N.24.L to HHQ-10.24.LCHR

- FL3000N.4.L to HHQ-10.4.LCHR

- FL3000N.8.L to HHQ-10.8.LCHR

- HHQ16.32VLS to HHQ-16.32VLS

- HQ-7(FM-80)FU to HQ-7(CSA-4).SEC

- HQ-9.BTRY to HQ-9(CSA-9).BTRY

- HQ-9A.BTRY to HQ-9A(CSA-9A).BTRY

- HQ-9B.BTRY to HQ-9B(CSA-9B).BTRY

- KS-1.BTRY to HQ-12.BTRY

- LY-60.FIRE.UNIT to HQ-64.BTRY

- SA-20A.BTRY to SA-20A(CSA-20).BTRY

- SA-21.BTRY to SA-21(CSA-21).BTRY

C.23 ADA Classes Deleted:

- CSA-12.BTRY

- CSA-20.BTRY

- CSA-21.BTRY

- CSA-9A.BTRY

- CSA-9B.BTRY

- LY-80.BTRY