JTLS-GO

Version Description Document

August 2024

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

JOINT THEATER LEVEL SIMULATION - GLOBAL OPERATIONS
(JTLS-GO 6.3.1.0)

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ABSTRACT

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

This *JTLS-GO Version Description Document (VDD)* describes the new features of the Version 6.3.1.0 delivery of the configuration-managed JTLS-GO software suite.

JTLS-GO 6.3.1.0 is a Maintenance release of the JTLS-GO 6.3 series that includes an updated repository of standard data, a demonstration scenario based in the western Pacific, as well as 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 6.3.1.0 of the configuration managed Joint Theater Level Simulation - Global Operations (JTLS-GO®) software suite. JTLS-GO 6.3.1.0 is a Maintenance delivery for the JTLS-GO 6.3 series of releases.

JTLS-GO 6.3.1.0 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 “wespac63”. There were no database format modifications between this Maintenance release and the original JTLS-GO 6.3.0.0 version. Appendix B of the *JTLS-GO 6.3.0.0 Version Description Document* summarized the database format changes made between the JTLS-GO 6.2 series and this JTLS-GO 6.3 series of the software system. Detailed descriptions of the minor Engineering Change Proposals (ECPs) implemented for this release are provided in Chapter 2.0. Chapter 3.0 summarizes the Software Trouble Reports (STR) that have been corrected and are delivered with this version of JTLS-GO 6.3.

JTLS-GO 6.3.1.0 executes on the Red Hat Enterprise Linux Version 9.4 and Oracle Linux 9.4 64-bit operating systems. The Web-Hosted Interface Program (WHIP®) user workstation interface can be executed on any 64-bit operating system from any Java-compatible Web browser.

1.2 INVENTORY OF MATERIALS

This section lists documents and software that are relevant to JTLS-GO. All JTLS-GO documents included in this delivery are provided in PDF format within 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 Analyst Guide* (JTLS-GO Document 01, Version 6.3.0.0)
- *JTLS-GO Air Services User Guide (*JTLS-GO Document 03, Version 6.3.0.0)
- *JTLS-GO Configuration Management Plan* (JTLS-GO Document 03, Version 6.3.0.0)
- *JTLS-GO Data Requirements Manual* (JTLS-GO Document 05, Version 6.3.0.0)
- *JTLS-GO Director Guide* (JTLS-GO Document 07, Version 6.3.0.0)
- *JTLS-GO Executive Overview* (JTLS-GO Document 08, Version 6.3.0.0)

- *JTLS-GO WHIP Training Manual* (JTLS-GO Document 10, Version 6.3.0.0)
- *JTLS-GO Player Guide* (JTLS-GO Document 12, Version 6.3.0.0)
- *JTLS-GO Standard Database Description* (JTLS-GO Document 14, Version 6.3.0.0)
- *JTLS-GO Software Maintenance Manual* (JTLS-GO Document 15, Version 6.3.0.0)
- *JTLS-GO Technical Coordinator Guide* (JTLS-GO Document 16, Version 6.3.0.0)
- *JTLS-GO Entity Level Server User Guide* (JTLS-GO Document 19, Version 6.3.0.0)
- *JTLS-GO Federation User Guide* (JTLS-GO Document 20, Version 6.3.0.0)
- *JTLS-GO DoD Architecture Framework* (JTLS-GO Document 22, Version 6.3.0.0)

1.2.3 Updated Documents

- *JTLS-GO Controller Guide* (JTLS-GO Document 04, Version 6.3.1.0)
- *JTLS-GO DDS User Guide* (JTLS-GO Document 06, Version 6.3.1.0)
- *JTLS-GO Installation Manual* (JTLS-GO Document 09, Version 6.3.1.0)
- *JTLS-GO Version Description Document* (JTLS-GO Document 17, Version 6.3.1.0)
- *JTLS-GO C4I Interface Manual* (JTLS-GO Document 21, Version 6.3.1.0)

1.2.4 New Documents

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

1.2.5 Delivered Software Components

JTLS-GO 6.3.1.0 may be delivered either on a CD or as a set of compressed TAR files to be downloaded. Either method includes the complete suite of software executable code and command procedures. The following software components are included with this release:

- Combat Events Program (CEP)
- Scenario Initialization Program (SIP)
- Interface Configuration Program (ICP)
- Reformat Spreadsheet Program (RSP)
- JTLS Symbols Application (JSYMS)

- Database Development System (DDS)

  Database Configuration Program (DCP)

  DDS Client User Interface (DDSC)

- ATO Translator Service (ATOT)
- ATO Generator Service (ATOG)
- ATO Retrieval Program (ATORET)
- JTLS Convert Location Program (JCONVERT)
- Count Critical Order Program (CCO)
- JTLS HLA Interface Program (JHIP)
- After Action Review Client (AARC)
- Scenario Data Client (SDC)
- Order Entry Client (OEC)
- Order Verification Tool (OVT)
- JTLS Object Distribution Authority (JODA)

  The current JODA build number is 213. Note this is a change from the original JTLS-GO 6.3.0.0 version. See Section 3.34 for details.

- Web Services Manager (WSM)
- Web-Hosted Interface Program (WHIP) and its component programs:

  Apache Server (APACHE)

  JTLS XML Serial Repository (JXSR)

  Order Management Authority (OMA)

  Synchronized Authentication and Preferences Service (SYNAPSE)

  XML Message Service (XMS)

  Total Recall Interactive Playback Program (TRIPP)

- Entity Level Server (ELS)
- JTLS Operational Interface (JOI) for both OTH-Gold and Link-16 generation

- Tactical Electronic Intelligence (TACELINT) Message Service
- Keyhole Markup Language (KML) Operational Interface (KOI)
- JTLS Transaction Interface Program (JTOI)
- JTLS Interface Network Navigator (JINN)
- JTLS Order of Battle Editor (JOBE)
- JTLS Geographic Information System (GIS) Terrain Building Program
- JTLS Master Integrated Database (MIDB) Tool
- JTLS Version Conversion Program (VCP)

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

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

    VCP62 - Converts a JTLS-GO 6.1 database to a JTLS-GO 6.2 formatted database.

    VCP63 - Converts a JTLS-GO 6.2 database to a JTLS-GO 6.3 formatted database.

Instructions for installing JTLS-GO 6.3.1.0 are provided in the *JTLS-GO Installation Manual*. Compared to the JTLS-GO 6.2 series, the JTLS-GO 6.3 series uses a significantly different version of PostgreSQL and the Linux operating system. If an organization has not already upgraded to the JTLS-GO 6.3 version, ensure special attention is given to following the documented operating system and PostgreSQL installation procedures. No other upgrade beyond installation of the compressed TAR files or CD is required. The software provided with this delivery is a complete release that includes all files and code required to execute JTLS-GO.

1.2.6 Released Databases

This release includes the following sample unclassified databases:

- The scenario that serves as a repository of engineering level data called “repository63”. Although not useful as a scenario, it does follow all of the database requirements for a scenario, and should be loaded into your PostgreSQL scenario table-space.
- The scenario “wespac63”, which is suitable for training and demonstrations.

1.3 INTERFACE COMPATIBILITY

1.3.1 Support Software

JTLS-GO 6.3.1.0 requires the following versions of support software, including operating systems, compilers, scripting utilities, database tools, transfer protocols, and display managers.

- Operating system for the model: Red Hat Linux Enterprise Server (ES) Edition Version 9.4, 64-bit architecture.

  JTLS-GO 6.3 has been tested with the following versions of Linux 9:

  RedHat Linux 9.4 - this operating system license must be purchased.

  Oracle Linux 9.4 - This operating system is free to download, use, and distribute, and is provided in a variety of installation and deployment methods. It has been approved by Defense Information System Agency (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 be a 64-bit architecture with a Java-enabled web browser. JTLS-GO 6.3.1.0 has been tested on the following operating systems:

  Red Hat Linux Enterprise Edition Version 9.4

  Oracle Linux 9.4

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

- JTLS-GO 6.3.1.0 is delivered with the Adoptium project Temurin Java Development Kit (JDK) 1.8 Update 422 package. Both the ICP and DCP have the option for an organization to increase the maximum memory heap for the WHIP and DDSC. For large scenarios and databases, an organization should consider increasing the maximum heap size.

- JTLS-GO uses IcedTea to provide the Java Web Start capability that implements the web-enabled JTLS-GO functionality. JTLS-GO supports IcedTea version 1.8.4.

- JTLS-GO database tools require a certified PostgreSQL 15.7 database server and the full PostgreSQL installation. PostgreSQL 15.7 that has been compiled under Linux 9.4 is bundled with the JTLS-GO 6.3 release tar files. It is not necessary to use the delivered solution, but it is the easiest method to meet the requirements of JTLS-GO 6.3.1.0. There are several alternative methods available for obtaining the PostgreSQL 15.7 software. Refer to Chapter 6 of the *JTLS-GO Installation Manual* for additional installation details.

- Windows software, X11R5 server, Motif 1.2 Library, Motif Window Manager: These items are included as part of the supported versions of Red Hat Linux ES.

- TCP/IP is required for inter-process communication between the JODA data server and all user interface programs. The version of TCP/IP included with the supported versions of Red Hat Linux ES is sufficient.

- The Perl script language is used by the JTLS-GO system and game setup scripts. The version of Perl included with the supported versions of Red Hat Linux ES is sufficient. The Perl program is typically located in the /usr/bin directory. If Perl is installed in a another location, a link should be created from the /usr/bin directory to this program.

- SIMSCRIPT III (SIMSCRIPT to C) translator/compiler: SIMSCRIPT is required for recompiling JTLS-GO code. It is not necessary to have a SIMSCRIPT compiler to execute JTLS-GO, because all JTLS-GO software executables are statically linked with the SIMSCRIPT libraries. The compiler is needed only if you are a U.S. Government organization that can obtain source code and plan to re-compile JTLS-GO SIMSCRIPT code.

- ANSI C Compiler: It is not necessary to use a C compiler to execute JTLS-GO. This compiler is used only by U.S. Government organizations that can obtain source code and intend to re-compile any of the JTLS-GO component programs. The C Compiler version delivered with the supported versions of Red Hat Linux ES is sufficient.

- C++ Compiler: It is not necessary to use a C++ compiler to execute JTLS-GO. This compiler is used only by U.S. Government organizations that can obtain source code and intend to re-compile any of the JTLS-GO HLA component programs. The C++ Compiler version delivered with the supported versions of Red Hat Linux ES is sufficient.

- The JTLS-GO DDS application uses these open source libraries:

  JFreeChart, licensed under a GNU Lesser General Public License (LGPL) by Object Refinery Limited, http://www.object-refinery.com

  JCommon, licensed under LGPL2.1 (GNU Lesser General Public License version 2.1 or later) by Object Refinery Limited, http://www.object-refinery.com

  Commons-math3-3.0.jar, licensed under Apache Software Foundation (Apache License, Version 2.0) http://www.apache.org/licenses/LICENSE-2.0HLA 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 an operational Command, Control, Communication, Computer Information (C4I) systems may be able to install and use Google Earth and configure the KOI to provide a capability that resembles C4I for observing perception Force Side data.

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

- JTLS-GO 6.3.1.0, using the JODA service, allows connections and data exchange with customer client programs. The customer client programs are linked with a set of JTLS-GO-provided API libraries that permit a TCP/IP connection between the JODA and the client program. These API libraries, called JDSP libraries, are built for Linux and Windows and allow customers to built client applications on either of these operating systems. Below are the development environments under which each of the JDSP libraries are built:

  RedHat Linux 9.4 using gcc (GCC) 11.4.1 20231218 (Red Hat 11.4.1-3.0.1)

  Windows 10 using Visual Studio 2017 version 15.9.60 and Visual C++ 00369.60000.00001-AA807

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. The concept of an expiration date has been removed from the DoD requirement, but the concept of always using the latest version of third-party software remains a strong component of DoD Cybersecurity requirements.

The following procedure has been established and approved by the JS/J7 Cybersecurity branch to meet the software update requirement:

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

- Within two-weeks of the AdoptOpenJDK release, JTLS-GO provides a bug release version (JTLS-GO 6.3.n.0) including a full Version Description Document (VDD) for download to all authorized agencies. All DoD agencies using JTLS-GO will be in full compliance with this specific Cybersecurity mandate as long as they download and use the bug released versions when distributed.

The JTLS-GO 6.3 series has been issued an Exit Gate letter and certification from the JS/J7 Cybersecurity branch. Please contact the U.S. Government Program Manager, Ms. Jessica Camacho (jessica.l.camacho.civ@mail.mil) to obtain the completed Cybersecurity paperwork.

1.3.3 JTLS-GO High Level Architecture Compliance

The JTLS-GO 6.3.1.0 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 has been accomplished. The reader should note that the JTLS-GO Development Team, to date, has not been able to test this federation. If there is interest in running this federation, please contact the JTLS-GO Help desk at jtlsgo@valkyrie.com.

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 6.3.1.0 delivery. Users may obtain a full installation package of the RTI software from Pitch Corporation (www.pitch.se). For information about executing the HLA RTI Executive and other HLA-related software, refer to the appropriate HLA documentation and user guides.

1.4 DATABASE MODIFICATIONS

Significant database structure differences exist between the JTLS-GO 6.3 series and the previous JTLS-GO 6.2 series database structure. APPENDIX B. VERSION 6.3.0.0 DATABASE CHANGES has a summary of all database changes.

To upgrade your JTLS 6.2 scenario to JTLS-GO 6.3 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 6.3.0.0 formatted data from your PostgreSQL database server into the JTLS-GO 6.3.0.0 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 6.3.1.0, 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

The JTLS-GO Database Tea has continued to improve and expand the unclassified data repository, which has been renamed to “repository63”. 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. Specifically, significant effort has been applied to ensuring that all important Targetable Weapons have a unique Supply Category from which the weapon should be drawn. This results in the model managing a detailed weapon count of all used weapons.

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 15.7 required to operate JTLS-GO 6.3.1.0.

2.0 ENGINEERING CHANGE PROPOSALS

This chapter summarizes the minor model capabilities added to JTLS-GO 6.3.1.0 as a result of implementing authorized Engineering Change Proposals (ECPs).

2.1 JTLS-2024-16762 Assess Weapon Damage Spreadsheet

Summary of Model Change Request

A user created several Assess Weapon Damage orders targeting a group of units within a geographic area. The easiest way to do this would be the creation of an IMT order spreadsheet.

Design Summary

The IMT Assess Weapon Damage Versus Unit spreadsheet was created. This allows the user to create a series of Assess Weapon Damage orders within a given geographical area simultaneously.

2.2 JTLS-2024-16767 Allow Larger Fonts On WHIP Message Browser

Summary of Model Change Request

A user complained that the WHIP did not follow the requirements of the Americans With Disabilities Act. The font size of the messages in the message browser could not be altered. In addition, the user notes that it was difficult to read the “Optional” fields on order panels. The purpose of this ECP is to implement the needed capabilities.

Design Summary

The following improvements were implemented:

- Under the WHIP Preferences panel, in the same location that the IMT font size can be selected, the Message Browser and Report Browser font size can be selected.
- The order panels were changed. All field names are now displayed in a normal font. All mandatory fields are marked with a “Red” asterisk symbol. This follows the preferred method of distinguishing between mandatory and optional fields on web-based forms.

2.3 JTLS-2024-16773 Global Satellite Communications Needed

Summary of Model Change Request

Users may not want to represent satellite communications in detail. The ability to represent non-interdicatable global satellite communications is necessary.

Design Summary

A National Asset flag was added. Using the Assign National Asset Order, the Controller can now indicate whether a Force Side has global satellite uplink communications capability, downlink capability, both capabilities, or no communications capability. This flag impacts the global communications capability with all of the side's satellite. If the global capability is turned off, the satellite is only allowed to receive orders and provide information when it is within range of a specific Satellite Communications Target.

2.4 JTLS-2024-16781 Exercise Log Export To PDF

Summary of Model Change Request

The Exercise Log needed a way to export its data in a format that is simple to transport and review. The export also needed to be capable of specifying a maximum classification level of exported entries.

Design Summary

A function was added to export the Exercise Log data to a PDF. The Exercise Log Administrator may specify a maximum classification level at which to perform the export.

2.5 JTLS-2024-16809 Represent Unmanned Delivery Of Supplies

Summary of Model Change Request

The upcoming Contested Logistics demonstration requested to see the ability of JTLS-GO to used unmanned assets to deliver supplies. JTLS-GO already represents the delivery of supplies using Unmanned Aerial Vehicles (UAVs), but there is no capability to represent the delivery of supplies using Unmanned Land Vehicles (ULV), Unmanned Surface Vehicles (USVs), or Unmanned Underwater Vehicles (UUVs). The purpose of this ECP is to implement this capability,

Design Summary

ULVs, USVs, and UUVs are represented in JTLS-GO as HRUs. This ECP simply added two new HRU tasks to an HRU's task list:

- Pickup supplies - The user needs to specify the name of the unit from which the supplies should be picked up and the list of supplies to be picked up. The HRU will pick up as many supplies that fit on the trucks and small boats owned by the HRU, and for which the unit or any of its owned Supply Storage targets currently has on hand.

- Dropoff supplies - The user needs to specify the name of the unit to which the supplies should be delivered and the list of supplies. The HRU will give the supplies to the unit and, if necessary, the unit will distribute any supplies for which it has no storage capacity.

2.6 JTLS-2024-16812 IMT/DDS Tables Empty Display "No Records Found"

Summary of Model Change Request

When the IMT or DDS tables are empty because no records are queried, there is no visual indication that there is no data.

Design Summary

When no records are queried and the table is empty, the table now displays ""No Records Found" as text.

3.0 SOFTWARE TROUBLE REPORTS

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

3.1 JTLS-2024-16761 Embarked Formation Magic Move Spreadsheet

It is necessary to create the spreadsheet definition in the order definition file when defining an Information Management Tool (IMT) spreadsheet. Once the spreadsheet is defined, the IMT definition file needs to be changed to indicate which IMT columns link to the spreadsheet fields.

A change was made to the Magic Move order. The Combat Events Program (CEP) automatically cancels all of a unit's tasks when the unit is magic moved onto a formation. The Magic Move order allows the user to decide whether to cancel existing tasks. In fact, the user had no choice, because the model automatically canceled all unit tasks as a result of the magic move.

For this reason, the Magic Move order was changed to remove the “Cancel Task” option field when the user Magic Moved a unit onto a formation. This change caused an error in the IMT tables that could be used to create the Magic Move To Formation spreadsheets. These IMT definition files still indicated the “Cancel Task” field was needed for these orders.

Each of the IMT table definition files that allowed the user to select the Embark Formation Magic Move order was corrected. The link from the IMT to the order “Cancel Task” field was removed.

3.2 JTLS-2024-16763 Incorrect Spreadsheet Name In Menu File

There are three menu files that list the spreadsheets that can legally be submitted by a Player WHIP, Controller WHIP, or a Super WHIP with both Player and Controller functions. Within these files, there was one spreadsheet listed with an incorrect name.

The typographical error was corrected.

3.3 JTLS-2024-16764 Online Player Manual Corrections

Numerous errors were found in the new Online Player Manual (OPM) format.

There are too many problems to list individually. This STR corrects many routines that were producing OPM formatting errors.

3.4 JTLS-2024-16768 Crash Attempting To Create New Satellite

A Manage Satellite order was used to create a new satellite and the model crashed.

The routine to create a new satellite reserved an array during a loop, and never released that array before going on to the next iteration in the loop, causing the routine to attempt to reserve the same array and crashing.

The array is now properly released and the crash situation is avoided.

3.5 JTLS-2024-16769 Satellite Air Defense Inefficiencies

The code to have air defense fire on a satellite is closely related to the code to have air defense fire on aircraft and missiles. The satellite code needed to make more use of the existing code for aircraft and missiles.

The code was reorganized to benefit from the similarity in the logic needed to have air defense fire on a satellite, air mission, or missile. This improvement required a change to the ASCII checkpoint format for air missions and satellites.

3.6 JTLS-2024-16770 Regenerate Weapons

Air Missions may now carry energy weapons, which may be able to regenerate. This capability was not properly implemented for air missions.

The code used to regenerate energy weapons was reorganized, so it could be used for air missions as well as satellites.

Although the development team discussed implementing the capability for air defense as well as SSMs, this was not accomplished. The team felt that project management should be consulted on Air Defense and SSM weapon regeneration, because the code is different for these capabilities.

3.7 JTLS-2024-16771 Satellite Range Rings Not Properly Updated

Satellite range rings were not properly updated after energy weapon regeneration, or after the satellite was killed or damaged.

Under all three circumstances, the satellite range rings are now properly updated.

3.8 JTLS-2024-16775 Changing Satellite Payload Unneeded Code

There was a section of code that was executed for no reason when the Controller entered a Change Satellite Payload order.

The code was removed.

3.9 JTLS-2024-16776 Errors Creating Satellites Using JSAT

Some new satellites could not be created using the JTLS Satellite Service (JSAT).

Minor errors were found in the methods used to create satellites. If the satellite was created using an order to the model, the order string was using the wrong number to identify the type of order group. This was corrected.

Similarly, when inserting satellites into the scenario database, the insert command in the generated PostgreSQL script had a syntax error. The command was modified to correct this error.

3.10 JTLS-2024-16777DDSC Satellite Table Missing ATC Column

The new Satellite table did not contain the Aircraft Target Class column, even though the data parameter exists in the database table.

The Satellite table definition file was edited to add the missing column.

3.11 JTLS-2024-16778 Satellite TW Range Rings Not Displayed On Map

When a satellite owned a Targetable Weapon, the weapon range ring did not display when the user requested the WHIP display the desired rang ring.

The WHIP code used to display Satellite object Targetable Weapon range items was corrected. Satellites that own Targetable Weapon now display the firing range of each type of weapon.

3.12 JTLS-2024-16780 WHIP Country Code Preference Change

Changing the Country Code WHIP preference did not convert the country code displayed in the Message Browser messages.

The WHIP was not reading the default country code on start, and that also incorrectly showed a default setting of “null” in the user's country code preference.

The WHIP was changed to read in the default country code on start.

3.13 JTLS-2024-16782 Remove Unused Exercise Log Link

An unused link was created for the exercise log deployment.

The link created by the create_wej_links script was removed.

3.14 JTLS-2024-16783 Exercise Log Short Classification Length

The maximum length of an Exercise Log classification short name was 3 characters. This was not realistic.

The short name for Exercise Log classification values has been increased to 100 characters.

3.15 JTLS-2024-16784 Consistent Use Of TG Range Attribute

Every defined database target has a TG RANGE attribute, which has a different meaning for each type of target. For sensors, air defense sites, communications sites, and jammers, this attribute represents a physical limitation on the target range. If this parameter is zero, the model assumes there is no physical limitation, and the target range is determined solely by the engineering data for its specific target subcategory.

If TG RANGE is set, then the actual range capability of the target is the minimum between the physical capability of the target (TG RANGE) and the subcategory specified range.

When changing the subcategory specified range of a target, the relationship between the engineering data and the TG RANGE parameter was faulty.

The code to determine the actual range of a target was centralized. The correct range for each target is now properly displayed.

It is important that users check the range values of all of their emitting targets. If the desire is to have the target always refer to the subcategory engineering data, the TG RANGE of the target should be set to 0.0.

3.16 JTLS-2024-16785 Manual Pair Rejection Stops Intercepting Mission

While heading to its orbit location, an aircraft mission carrying air-to-air weapons was ordered to intercept an enemy aircraft. The Manual Pair order was rejected, with a message stating the mission “does not carry any weapons that can kill such a track”.

The interceptor mission then stopped moving. It current Move task sequence number changed from 0 to 5 causing the mission to stop moving.

When an interceptor aircraft carries air-to-air weapons, and none of the weapons have positive PH/PK against a specific aircraft target category, a Manual Pair order is always properly rejected. However, the logic postponed the mission's currently executing task. New code was added to restart the postponed task when the mission was not assigned to the intercept.

3.17 JTLS-2024-16787 Crash Recording AAR Repair On SAM Target

A SAM’s Fire Control Sensor was damaged. The model crashed when an attempt was made to report to the After Action Report (AAR) that this sensor was entering maintenance.

When AAR repair/maintenance data collection is enabled, three routines will be called to record an object as it goes through the repair/maintenance cycle:

- AAR ENTER MAINTAINENANCE - an object is entering the maintenance queue.
- AAR START REPAIR - repair/maintenance has started on the object.

- AAR ENTER MAINTAINENANCE - repair/maintenance completed.

Objects passed to these routines include Combat Systems, Targets, and Naval Units with hull damage. One of the arguments passed to all three routines is the pointer to a Combat System. This will be NONE if the object undergoing repair is not a Combat System.

At the start of each routine there are checks to determine which types of objects to exclude from the AAR database (as specified by the SET AAR COLLECTION FLAGS order). Checks for Combat Systems did not check whether the Combat System argument was NONE before proceeding with the actual check. This caused the CEP crash. All three routines now check the Combat System argument for NONE.

3.18 JTLS-2024-16788 Inactive SDR Displays AAR options

When the Exercise Log is activated, but the associated Scenario Data Repository (SDR) schema is inactive, AAR options are also included in the Apache starting index page. Clicking these AAR options only reaches error pages.

The AAR actions are now included in the index page only when SDR schema is activated.

3.19 JTLS-2024-16789 Remove Misleading Database Initialized Message

When the Exercise Log is activated, the Interface Configuration Program (ICP) checks if its database has been initialized. If not, a warning message says “database is not initialized”, as desired. However, if the ICP database is already initialized, it also displays a message saying “database is initialized”. This is misleading.

The misleading message was removed. Warning messages now appear only when there is an issue.

3.20 JTLS-2024-16790 Fix Splash Screen Overflow Text

The WHIP, TRIPP, and DDSC splash screen copyright notice text flowed off the text area.

The scripts that generate the WHIP, TRIPP, and DDSC splash screens have been adjusted for longer copyright notices.

3.21 JTLS-2024-16791 Exercise Log - Minor Fixes

Several minor fixes for the Exercise Log were necessary:

The following minor fixes were made:

- Updated packages for security vulnerabilities.
- Made Add Classification placeholder texts more descriptive.

- Redirected to admin home if already logged in and on successful login.

3.22 JTLS-2024-16792 WHIP Submission To Exercise Log

The WHIP is able to submit orders to the Exercise Log for reference. The values used by the WHIP were not synchronized with the data tables used by the Exercise Log.

The values used by the WHIP to submit Exercise Log entries have been updated to match the data tables used by the Exercise Log.

3.23 JTLS-2024-16793 Generated Templates Not Saved By ELS

Templates were used by the ELS to disaggregate units. If a specific template file did not exist, the ELS generated one at the start of execution. The ELS crashed when restarting from a checkpoint because a generated template was not found.

When the ELS created templates during runtime, those templates were not saved to disk. Changes were made to ensure that generated templates are saved for access during restarts.

3.24 JTLS-2024-16795 DDSC Cannot Add New Unit

When trying to add a new ground unit in the DDSC, an error message said the unit cannot be created because the C4I Name cannot be null.

The C4I Name of a unit was newly introduced in JTLS-GO 6.3.0.0, and is defined as mandatory.

The C4I Name field is now added to all of the unit tables' Add and Copy dialogs, so that when creating a new unit, or copying an existing one, the user has to specifically give the unit a C4I Name.

3.25 JTLS-2024-16796 DCP/ICP Exercise Log Initialization Check

When the user activates the Exercise Log schema in the DCP or ICP without first initializing the Exercise Log database, the corresponding Glassfish server will not properly start and the schema will not be activated.

In order to prevent the user from activating the Exercise Log schema before it has been initialized, the DCP and ICP now check to see if the specified database has been initialized. If the database has not been initialized, an error message will inform user of the case, and the schema will not be activated.

3.26 JTLS-2024-16797 OPM Apache Password Directory Access

The OPM Apache password management was too strict, blocking access to everything except a few white-listed directories. There were non-white-listed directories, such as the icons and JavaScript directories, that are needed to properly render the OPM page in the browser.

The ICP code for generating the Apache OPM password management was modified, so that valid users have access to all necessary directories.

3.27 JTLS-2024-16798 Incorrect Air Mission Range Ring Names

The names for the range rings of sensors and jammers were listed in the context sensitive menus for air missions. These names included the use type for the emitter, and the status of On or Off. The status was not correct, and did not change when the emitter was turned on or off.

The code to assign the name of the range ring was only executed when the item was initially created. The name was never updated when attribute changes were processed.

Code was changed to correctly assign the name according to the on/off state of the emitter.

3.28 JTLS-2024-16799 Alter Data SQL Files Don't Work

JTLS-GO 6.3.0.0 moved from PostgreSQL 11 to PostgreSQL 15. As a result of this move, JTLS-GO had to implement a unique row identifier, called “row_id”, for every JTLS-GO PostgreSQL table. The Alter Data capabilities were not changed to include this new row_id requirement.

The Alter Data Program was corrected to include row_id in the Standard Query Language (SQL) files created by the following Alter Data functions:

- Automatically Create JTLS-GO Bridges
- Automatically Create JTLS-GO GESI Bridges
- Automatically Add LOGFAS RIC Codes
- Automatically Update LOGFAS RIC Codes

3.29 JTLS-2024-16800 ELS Crash Processing Air Mission Updates

The ELS crashed while executing an event to process air mission updates.

The code was attempting to cancel an event which was being executed. No cancellation was necessary, and the code was corrected to prevent the crash.

3.30 JTLS-2024-16803 HRU Patrol Via Route Rejected

A Player attempted to order an HRU to Patrol along a specified route through an ocean terrain grid. The HRU Task order did not pass the checker and could not be submitted to the game. The HRU Task order was accepted only if a Polygon or OPAREA was specified.

The HRU Task order template incorrectly referenced the Ground Route utility to hold the specified route points. The Order Management Authority recognized that the points were in water terrain, and rejected the order.

The HRU Task template was corrected to use the HRU Route utility, which permits movement through both water and land terrain.

Note that the HRU must still possess a small boat to move through water.

3.31 JTLS-2024-16806 WHIP Coordinate Converter Copy Not Working

When running the Coordinate Converter in the WHIP or DDSC on Windows, the "Copy to Clipboard" option failed to copy the coordinate selected.

This was due to differences in how Windows and Linux handle mouse events (such as button clicks or releases) for the popup option.

The issue was corrected by universally handling the right-click option on a selected coordinate. Windows captures the event on a mouse press, while Linux systems captures on a mouse release. Both of these events were implemented.

3.32 JTLS-2024-16807 Fix Range Ring Types For SDC

The Scenario Data Client (SDC) is used to place all JDSP objects obtained from the JODA into the SDR SDC tables. When the SDC inserted Range Ring items, the SDC reported an error for an unknown Range Ring Type.

The issue was that several new Range Ring Types were added in JTLS-GO 6.3.0.0, and these new types had not been added to the Static Vocabulary XML file.

The new Range Ring Types were added to the static_voc.xml file.

3.33 JTLS-2024-16808 AAR Maintenance/Repair Data Collection

There are two ways to control the collection of data to the After Action Reports (AAR):

- Through the ICP and the AAR Filtering Interface (AFI), where the user can turn on/off data collection to a specific AAR table in the SDR database. Data collection is turned on by default for all of the AAR tables.
- Use the Controller Set AAR Collection Flags order. This order allows the user to restrict collection for maintenance/repair data to specific objects (such as targets, aircraft, or hull hits on naval units).

Turning on/off collection for maintenance/repair data worked using the first method (AFI). However, the second method (Controller order) did not stop the CEP from sending the data to the AAR maintenance/repair table.

The code used to turn on/off the collection of maintenance/repair data was improperly implemented. This error has been fixed.

In addition, the layout of the Set AAR Collection Flags order was fixed to properly show the Maintenance Repair Flag as a group, not a field.

3.34 JTLS-2024-16810 Some WHIP Objects Did Use Range Ring Data

When Range Rings were implemented, the model changed all desired range rings to the new Range Ring Items. The WHIP did not use all of these new JDSP structures. In some cases, it incorrectly used the old JDSP attributes.

Under all circumstances, the WHIP now gets range ring data from the new Range Item objects. Although it is the goal of the JTLS-GO Development Team not to change the JDSP protocol within a given version series, to ensure that other programs do not make the same mistake, the JDSP was changed to remove the old range attributes.

3.35 JTLS-2024-16811 AAR/DDS-Hosted Exercise Log Proxy Support

The DDS and AAR are able to deploy independent instances of the Exercise Log. These instances share the same database, so they can be run at the same time without fear of conflicting data.

In some cases, it is necessary to proxy the DDS services through a live game's Apache instance. In that case, it was not possible to host and access both the DDS and AAR-hosted Exercise Log instances through the Apache proxy at the same time.

This fix allows both the AAR and DDS-hosted Exercise Log instances to be accessed through a single Apache with a proper proxy configuration.

The Exercise Log control script was renamed from exlog-launcher to exlogctl to better reflect this functionality.

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.

The following list of issues is known and have not been fixed in time to make it into this release of JTLS-GO 6.3.1.0.

4.1 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.

4.2 MHE Targets Loading Air Mission Can Cause a Crash

MHE targets should be avoided for loading and unloading air missions. It is suggested that the database be set to “Do Not Use” for Air Missions.

4.3 The JTLS-GO Strategic Lift Missions Are Not Working Properly

Strategic Lift Missions, used to move TPFDD assets into the Theater and report the results to a real-world TPFDD processing system, has not been updated to work within JTLS-GO 6.2.

4.4 Tactical Ground Formation Attacks Do Not Work

The ability to send a Tactical Ground Formation on an Attack mission has been temporarily disabled due to reliability issues.

4.5 ATOT Spreadsheet Lacks Detailed Field Checking

The ATOT Spreadsheet Parser has been found to have numerous issues within the Spreadsheet format that are not caught and cause the spreadsheet parser to crash. Fixing the uncovered issues are being worked and should be fixed prior to the next maintenance release of the JTLS-GO 6.3 series.

4.6 Moving Combat System Supplies Can Reduce Unit Strength To Zero

If a user does a mandatory transfer of Combat System supplies from one unit to another, the providing unit can be emptied out and exist without any Combat Systems or personnel. This situation needs to be thoroughly and properly handled.

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 6.3.0.0 DATABASE CHANGES

Refer to the JTLS-GO 6.3.0.0 Version Description Document (VDD) for the list of database changes between the JTLS-GO 6.2 series and the JTLS-GO 6.3 series.

APPENDIX C. VERSION 6.3.1.0 REPOSITORY CHANGES

No significant changes were made to the JTLS-GO 6.3.1.0 repository.