JTLS-GO

Version Description Document

June 2019

DEPARTMENT OF DEFENSE
JOINT STAFF J7
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JOINT THEATER LEVEL SIMULATION - GLOBAL OPERATIONS
(JTLS-GO 5.1.2.0)

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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 5.1.2.0 delivery of the configuration-managed JTLS-GO software suite.

JTLS-GO 5.1.2.0 is a Major release of the JTLS-GO 5.1 series that includes an updated SBDKOR50 Standard Database, as well as major model functionality changes implemented as Engineering Change Proposals (ECPs), which are summarized in Chapter 2. Code modifications that represent corrections to known Software Trouble Reports (STRs) are described in Chapter 3. Remaining and outstanding STRs are described in Chapter 4.

This publication is updated and revised as required for each Major or Maintenance version release of the JTLS-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 5.1.2.0 of the configuration managed Joint Theater Level Simulation - Global Operations (JTLS-GO®) software suite. JTLS-GO 5.1.2.0 is a bug-release delivery for the JTLS-GO 5.1 series of releases.

JTLS-GO 5.1.2.0 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 “wespac51”. No database format modification have been made for this bug-release, but a static data error for allowable OTHGold Ship Types has been corrected. This does require a user to execute a correction procedure for all of their scenarios loaded in Oracle. Information on this procedure can be found on Page 1-10.

Descriptions of minor Engineering Change Proposals (ECPs) implemented for this release are provided in Chapter 2.0. An explanation of all Software Trouble Reports (STRs) corrected in this release are contain in Chapter 3.0. Details made to the JTLS-GO 5.1 engineering data repository are included in APPENDIX C..

JTLS-GO 5.1.2.0 executes on the Red Hat Enterprise Linux Version 7.6 64-bit operating systems. The Web-Hosted Interface Program (WHIP®) user workstation interface can be executed on any operating system from any Java-compatible Web browser.

1.2 INVENTORY OF MATERIALS

This section lists documents and software that are relevant to JTLS-GO. All JTLS-GO documents included in this delivery are provided in PDF format within 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 Configuration Management Plan (*JTLS-GO Document 03, Version 5.1.2.0)
- *JTLS-GO Controller Guide* (JTLS-GO Document 04, Version 5.1.2.0)
- *JTLS-GO Data Requirements Manual* (JTLS-GO Document 05, Version 5.1.2.0)
- *JTLS-GO Director Guide* (JTLS-GO Document 07, Version 5.1.2.0)
- *JTLS-GO Executive Overview* (JTLS-GO Document 08, Version 5.1.2.0)

- *JTLS-GO Installation Manual* (JTLS-GO Document 09, Version 5.1.2.0)
- *JTLS-GO WHIP Training Manual* (JTLS-GO Document 10, Version 5.1.2.0)
- *JTLS-GO Player Guide* (JTLS-GO Document 12, Version 5.1.2.0)
- *JTLS-GO Repository Description* (JTLS-GO Document 14, Version 5.1.2.0)
- *JTLS-GO Software Maintenance Manual* (JTLS-GO Document 15, Version 5.1.2.0)
- *JTLS-GO Technical Coordinator Guide* (JTLS-GO Document 16, Version 5.1.2.0)
- *JTLS-GO Entity Level Server User Guide* (JTLS-GO Document 19, Version 5.1.2.0)

1.2.3 Updated Documents

- *JTLS-GO Analyst Guide* (JTLS-GO Document 01, Version 5.1.2.0)
- *JTLS-GO DDS User Guide* (JTLS-GO Document 06, Version 5.1.2.0)
- *JTLS-GO Version Description Document* (JTLS-GO Document 17, Version 5.1.2.0)
- *JTLS-GO Federation User Guide* (JTLS-GO Document 20, Version 5.1.2.0)
- *JTLS-GO C4I Interface Manual* (JTLS-GO Document 21, Version 5.1.2.0)
- *JTLS-GO Air Services User Guide (*JTLS-GO Document 24, Version 5.1.2.0)

1.2.4 New Documents

No new documents are delivered with JTLS-GO 5.1.2.0.

1.2.5 Delivered Software Components

JTLS-GO 5.1.2.0 may be delivered either on a CD or as a set of compressed TAR files to be downloaded. Either method includes the complete suite of software executable code and command procedures. 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

Instructions for installing JTLS-GO 5.1.2.0 are provided in the *JTLS-GO Installation Manual*. Installing a previous version of JTLS prior to installing JTLS-GO 5.1.2.0 is not necessary. No other upgrade beyond installation of the compressed TAR files (or CD) is required. The software provided with this delivery is a complete release that includes all files and code required to execute JTLS-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 “repository51”. Although not useful as a scenario, it does follow all of the database requirements for a scenario, and should be loaded into your Oracle scenario table-space. With JTLS-GO 5.1.2.0, it is possible to access and copy records from the repository51 database into your own developed scenarios.
- The scenario “wespac51”, which is suitable for training and demonstrations.

1.3 INTERFACE COMPATIBILITY

1.3.1 Support Software

JTLS-GO 5.1.2.0 requires the following versions of support software, including operating systems, compilers, scripting utilities, database tools, transfer protocols, and display managers.

- Operating system for the model: Red Hat Linux Enterprise Edition Version 7.6 (ES), 64-bit architecture.

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

- JTLS-GO 5.1 has been tested with the following versions of Linux 7:

RedHat Linux 7.6 - this operating system license must be purchased, but it has been approved by the Defense Information Systems Agency (DISA) for use by U.S. Government Agencies.

Oracle Linux 7.6 - this operating system is free to download, use and distribute and is provided in a variety of installation and deployment method. It has been approved for use by US Government organizations by DISA.

CentOS Linux 7.6 - 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 5.1.2.0 has been tested on the following operating systems:

  Red Hat Linux Enterprise Edition Version 7.6.

  CentOS Linux Version 7.6.

  Windows 7 and Windows 10 can be used only if the workstation is an external HTTP client of the simulation network.

- JTLS-GO 5.1 series no longer uses Oracle Java and has moved to the latest version of OpenJDK 8, which is OpenJDK 8 Version 212. We no longer deliver the Java Runtime Environment (JRE) within the JTLS-GO delivered software tar files. Each user organization must obtain the latest version of the OpenJDK RedHat Package Manager (RPM) and install the RPM on the servers used by JTLS-GO.

- JTLS-GO database tools require use of a certified Oracle database server and the full Oracle Client installation for runtime requirements. Refer to Section 1.5.2 of this chapter for additional installation details.

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

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

- The Perl script language is used by the JTLS-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 II.5 (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 5.1 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 Information Assurance Compliance

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

One of the DoD IA requirements is that the software must implement a methodology that ensures that the end user keep the software up-to-date and all security patches are properly installed. In previous versions of JTLS, 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 releases were closely linked to the Java expiration date.

Given the currently available information, OpenJDK will not implement an expiration date. In order to fulfill the DoD IA requirement, bug releases of JTLS-GO will be released as new versions of OpenJDK are released. In a future version of JTLS-GO, all Java programs delivered will check that the latest version of Java is being used. Each local installation will be able to override the warning generated when the program detects that the latest version is not properly installed.

JTLS-GO has completed the IA program mandates and the JTLS-GO 5.1 series of releases has been granted an Authority To Operate (ATO) on DoD systems. Contact the U.S. Government Program Manager, Mr. Don Weter (donald.e.weter.civ@mail.mil).

1.3.3 JTLS-GO High Level Architecture Compliance

The JTLS-GO 5.1.2.0 release is fully High Level Architecture (HLA) compliant, and includes all the programs required to run JTLS-GO in an HLA mode. JTLS-GO uses the Federation Object Model (FOM) located in the $JGAME/data/hla directory. Federation testing of JTLS-GO is not complete, but initial tests with CAE's Gefechts Simulation (GESI) have been accomplished. Future plans include expanding the capabilities of the JTLS-GO-GESI federation, called 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 as a federation called GlobalSim. CAE's GESI constructive simulation system is designed to run complex and comprehensive exercises from the company level up to division level. The CAE 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.

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 5.1.2.0 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 the JTLS-GO 5.1 series and the previous JTLS-GO 5.0 series database structure.

To upgrade your JTLS-GO 5.0 scenario to JTLS-GO 5.1 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 5.1.0.0 formatted data from your Oracle database server into the JTLS-GO 5.1.0.0 scenario American Standard Code for Information Interchange (ASCII) text files, you must execute the JSYMS program using the procedure outlined in the *JTLS-GO DDS User Guide*, Appendix B.11. This procedure will reorganize the structure of the .gs and .scf symbols-related files.

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 5.1.2.0, 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.

1.4.3 Standard Repository Changes

The JTLS-GO 5.1 series of JTLS-GO is the first version in which R&A is delivering an unclassified data repository called “repository51”. In future major releases of JTLS-GO, APPENDIX B. will provide a summary of the data structure changes made to the data repository, No structure changes have been made is this bug release; therefore, APPENDIX B. is empty. Refer to Appendix B in the 5.1.0.0 VDD include with this release.

1.5 INSTALLATION

1.5.1 Installation Instructions

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 a new version of JTLS-GO.

1.5.2 Oracle Compatibility and Installation

A full Oracle Client installation (not Instant Client) that matches your database server version is currently a requirement for running some JTLS-GO applications. The Oracle Instant Client is not sufficient for JTLS-GO applications because Oracle utilities, such as sqlldr, imp, exp, tnsping, etc., are missing. If you have applied a patchset to your database server, the same patchset should be applied to the Oracle Client installation. A 64-bit Oracle Client installation must be used.

The JTLS-GO scenario/database modification process also expects Oracle 11.2.0.1 or higher full Oracle Client installation. Some sites NFS mount their database server as Oracle Client; other sites prefer a full install of the Oracle Client to a different directory that mounts (simple NFS will suffice) to JTLS-GO. Your system administrator can choose the appropriate installation.

Assigning the full Oracle Client installation location (or mount point) as the ORACLE_HOME in the JTLS .cshrc file allows connecting to an Oracle database server (11.2.0.1 or higher - including 11gR2 XE) running on any Oracle-certified database server platform.

Between the free Express Editions (XE) of Oracle, the 18c XE has a large footprint and a much more complex database architecture compared to the 11gR2 XE version. For test environments and scenario building purposes, or for collecting AAR data for a short period of time, installation and setup of the 11gR2 XE version would be much simpler.

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

Refer to Chapter 6 of the *JTLS-GO Installation Manual* for additional details pertaining to the Oracle installation.

As mentioned above, JTLS-GO 5.1.0.0 was delivered with an old list of OTH-Gold ship types. This problem was reported by the user and assigned an STR number of JTLS-2019-14238. The issue was fixed, but to properly implement this solution, all users must perform the procedure outlined below for each of their scenarios loaded in Oracle.

1.5.3 Special Installation Instructions

As a result of correcting some Software Trouble Reports, if this version is being used as a bug-fix release, the following additional procedures should be executed.

New OTH-Gold ship types were added to JTLS-GO, due to STR JTLS-2019-14238.

1. Execute the following command:

   cd $JTLSHOME/script/dds/version5.1/scripts/

2. Execute the following command:

   sqlplus yourScenario/OraclePassword @update_oth_gold_types.sql

3. Verify the related execution listing file under the $JDATA/scenario/ directory for errors.

4. Unload your scenario using the JTLS-GO Menu, Options 1 -> 1 -> 4

5. Verify the .srw ascii file for your scenario.

To fix the problem renaming Force Side, due to STR JTLS-2019-14267:

6. Reload the database.

2.0 ENGINEERING CHANGE PROPOSALS

This chapter summarizes model capabilities added to JTLS-GO 5.1.2.0 as a result of implementing authorized Engineering Change Proposals (ECPs).

2.1 JTLS-2019-14247 Add Selected Row Count To IMT Title

Summary of Model Change Request

There is a limit on how many rows can be selected in the Information Management Tool (IMT) when using the quick buttons. There was no indication of how many IMT rows were selected prior to the user using the quick buttons.

Design Summary

A count of selected rows was added to the IMT title bar.

2.2 JTLS-2019-14261 Change Higher Headquarters Spreadsheet Order

Summary of Model Change Request

The Change Higher Headquarters order is not available as an Order Spreadsheet in the WHIP.

Design Summary

The Change Higher Headquarters spreadsheet order was built and placed in the Unit Information IMT.

2.3 JTLS-2019-14270 Add Manage TPFDD To Order Spreadsheet

Summary of Model Change Request

The Manage TPFDD order is not available as an Order Spreadsheet in the WHIP.

Design Summary

The Manage TPFDD spreadsheet order was built and placed in the Unit Information IMT for a Controller WHIP. Two separate spreadsheets were created, a Unit Arrival Time spreadsheet and a Unit TPFDD Out spreadsheet.

2.4 JTLS-2019-14271 Add Withdraw/Delay To Order Spreadsheet

Summary of Model Change Request

The Withdraw and Delay orders are not available as an Order Spreadsheet in the WHIP.

Design Summary

The Withdraw and Delay spreadsheet orders were built and placed in the Unit Information IMT for a Player WHIP.

2.5 JTLS-2019-14307 Link-16 Allow Assignment Of JREAP Sender ID

Summary of Model Change Request

The Link-16 Message Service is able to send a unique identifier to receiving systems using the JREAP message header. These receiving systems use that value to determine where Link-16 traffic is coming from. The identifier was hard-coded which caused configuration and communication issues.

Design Summary

The JREAP Sender ID is now a configuration parameter available for modification in the Interface Configuration Program (ICP).

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; however, because of the model enhancements included with JTLS-GO 5.1.2.0, no previously-identified STRs are considered valid. Errors identified for JTLS-GO 5.1.2.0 and corrected for future Maintenance releases in the JTLS-GO 5.1 series will be documented in this chapter.

3.1 JTLS-2019-14248 HRU Targets Not Recognized As In Use

The Scenario Verification Program (SVP) was erroneously reporting HRU targets as UNUSED, when in fact they are USED.

HRU prototype targets were not processed and included in the complete target list. Code was added to the Scenario Verification Program (SVP) to mark HRU USED target category/ subcategory combinations as USED.

3.2 JTLS-2019-14251 Manage Air Mission Packages Read Order File

When submitting the Read Order File order, the user must indicate the WHIP that is submitting the orders in the file and the side of the WHIP that should be assumed to be submitting the order. This second field is required because of the new Super WHIP capability - a WHIP is no longer associated with a single side.

The issue occurs for those orders that are not being sent to a specific object. Change Side Relationship and Manage Air Mission Package orders are two such orders. For these orders, the submitting side, as specified on the order, was not properly be assigned.

The submitting Side is now properly accessed and used.

3.3 JTLS-2019-14252 Lifeboat Detects New Oil Slick Crash

An HRU lifeboat observed the creation of a new oil slick because another ship sunk. When the HRU attempted to report this oil slick, the model crashed.

This was a simple logic error and the questions used to determine the type of object that was observed were being asked in the wrong order. The order was corrected when an HRU observes a new catastrophic kill object, which can be either a downed aircraft, a ship that sinks, or an abandoned combat system. The model now asks whether the detection is an oil slick first and then determines whether it is an aircraft or an abandoned combat system if it is not an oil slick.

3.4 JTLS-2019-14253 SVPR Wrap Descriptions Option Did Not Work

The SVPR Wrap Descriptions option forced long description messages to wrap and fit within a row of the component. However, some of the messages were not wrapped.

A long message needs to include appropriate punctuation to be wrapped. Appropriate punctuation was added to a long message in the SVP-Properties.xml file.

3.5 JTLS-2019-14257 No Weapons For Transferred Targets Warning

A SAM/AAA target was transferred from a Unit to an HRU. The HRU did not have any weapons on hand for the target to use, other than the weapons carried by the target itself. A message should have been generated to warn the player when weapons are not available in the gaining HRU (or Unit).

A new routine was written to check the weapons inventory at the gaining Unit/HRU when the Transfer Target order is executed. If the transferred target is a SAM/AAA or SSM type, the source supply category for each eligible weapon to fire it checked in the gaining Unit/HRU. If the supply category on hand at the Unit/HRU does not exist or has less than the equivalent weight of one weapon, a warning message is generated that shows the transferred target, the gaining Unit/HRU, the missing targetable weapons, and the supply category sources.

3.6 JTLS-2019-14258 Inconsistent Network Type Names

There were problems for some network types in the automatic SVP corrections.

The NETWORK TYPE names used within the SVP Template were inconsistent and furthermore not consistent with those used by the SIP verification code. The NETWORK NAMES should be the same as those in the static_vocabulary file but instead were defined differently in the verify_svp.xsl file. Modifications were made to standardize the names in the verify_svp.xsl file used by the SVPR, SIP verification source code and the SVP Template file.

3.7 JTLS-2019-14260 DDS Report Browser Incorrect Time Zone

The report creation time in the DDS Report Browser should be in local time, but the browser displays "Zulu" time instead.

A new method to return the correct local time was added.

3.8 JTLS-2019-14262 SVP Corrections Missing Options

Some SVP Errors/Warnings were missing DDS Correction Options.

Correction Options were added to achieve consistency with other Errors/Warnings options.

3.9 JTLS-2019-14263 ATOT Not Including Side In ATO ID Order

The first Order generated by the ATO Translator (ATOT) for establishing the ATO ID for the current period fails the order checker from the Order Group Editor. If the user selects "Fix" and does nothing other than save the order contents, then the order passes the checker.

The ATOT was generating the ATO ID order but was not including the order field that provides the sending side name. The ATOT code was modified to enter the sending side name field whenever this order is generated.

3.10 JTLS-2019-14264 CEP Crashes From Floating Point Error

A severely weakened ground unit was attempting a Withdrawal Task. The unit's speed was zero, due to attrition.

The code that calculated ground route travel time was updated to consider a disabled unit with zero ground speed.

3.11 JTLS-2019-14265 Automatic Supply Calculation Displays SQL Errors

SQL errors were being displayed to the user, which is an information assurance issue.

The messages were removed and the user is told to inform tech control to check the server log.

3.12 JTLS-2019-14267 Force Side Renaming Fails

Renaming a Force Side fails if the Force Side is referenced from the Against Force Side data field of the Area of Operations ROE table.

The "uFORCE_SIDEp" Oracle package was corrected to fix the renaming issue. Reloading the scenario into Oracle will recreate the related renaming package and will remedy the issue.

3.13 JTLS-2019-14268 JTLS HIP Processes Checkpoint Two Times

The High Level Architecture Program (HIP) processes a checkpoint from the CEP twice. This is causing the HIP to execute the checkpoint file saves two times.

The HIP actually receives two checkpoint packets from the JODA for the same checkpoint number from the CEP. The first is a notification that the CEP has begun writing its checkpoint, and the second is a notification that the CEP has completed its checkpoint saves. The HIP was not differentiating the two packets and was processing both. The HIP code was changed to process only the necessary first one for a single checkpoint.

3.14 JTLS-2019-14269 SVPR Error 951 Options

SVP Error 951 required more correction options.

Several new correction options were added to Error 951. The changes will allow the user to view the arc on the map to ensure it is correct before updating the arc distance.

3.15 JTLS-2019-14272 SVPR Warning 1927 Options

SVP Warning 1927 had no useful correction options.

Several new correction options were added to Warning 1927. The changes will allow the user to view the node on the map and decide if it should be connected to another node.

3.16 JTLS-2019-14273 SVPR Error 501 Enhancements

Error 501 does not trigger when it should. Some of the correction options have no use or do not work properly.

The correction options for Error 501 have been updated.

3.17 JTLS-2019-14274 SVPR Warning 1461 Flags Wrong Units

Warning 1461 refers to radius when it should be referring to depth. The Warning also identifies incorrect units for the intent of the Warning.

The wording of Warning 1461 was modified to properly state that the depth of the water around the port unit is insufficient to the units that are assigned to it as a port unit. The code was also modified to only identify units that are assigned to the port unit. It is understood that not all ships can enter all ports.

3.18 JTLS-2019-14275 SVPR Errors/Warnings Missing Corrections

An SVPR Error/Warning with no corrective actions was not shown in the SVPR table in DDSC.

If there were no corrective actions, the List of corrective actions was null instead of being empty. Checks for null entries were added wherever the list is used.

3.19 JTLS-2019-14276 Owning/Associated Units On Different Networks

An SVP Warning was required when a Target has both an Owning Unit and an Associated Unit, which are different, and each of the Units has its own Link-16 Track block, to ensure the two units are on the same Link-16 Network and Link-16 feed.

A new SVP Warning was added to identify targets that have no JU Source number and have both a Owning Unit and Associated Unit which do not use the same Link-16 network.

3.20 JTLS-2019-14287 SVPR Warning 1634 Has No Corrective Actions

SVP Warning 1634 did not have any corrective actions.

The Warning was modified to add appropriate corrective actions.

3.21 JTLS-2019-14288 SVPR Warning 1635 Has No Corrective Actions

SVP Warning 1635 did not have any corrective actions.

The Warning was modified to add appropriate corrective actions.

3.22 JTLS-2019-14289 SIP Crash Subscript Out Of Range

The SIP crashed because of subscript out of range in routine GET.SUBCATEGORY.NAME.

GET.SUBCATEGORY.NAME was being called from CHECK.TARGET.LINK16.PROPERTIES, which is called from CHECK.SPECIFIC.TARGET. The call to CHECK.TARGET.LINK16.PROPERTIES should only be done for Targets that may have a Link-16 capability, but the call was being done for every Target. When a minefield-type Target was passed into the routine, it did not have a subcategory type and crashed the GET.SUBCATEGORY.NAME routine.

The CHECK.SPECIFIC.TARGET routine was modified to only pass Targets that are Link-16 capable to the CHECK.TARGET.LINK16.PROPERTIES routine.

3.23 JTLS-2019-14290 Client and Server Named Action SVP Mismatch

After the SVP is run, a stylesheet combines the output of the SVP with the SVP Template, which defines all the Errors, Warnings, and corrective actions available. This XML file is made available to the DDS client.

One of the elements of a corrective action can be an SQL statement to be executed. These statements are not placed in the client's XML file, but are replaced with a unique name assigned to the action. There was a problem with the name assigned, in that it was not always unique, and when the user selected the corrective action, the server might execute a different SQL statement.

The error in the stylesheet was corrected, and the assigned unique name now follows the format used and expected by the server. The program used to ensure that the SVP Template file meets all system requirements was improved to check if there are any corrective action name duplicates.

3.24 JTLS-2019-14291 Fifth-Generation Aircraft Detection Issues

The aircraft detection algorithm allows Visual sensors to detect fifth-generation aircraft without applying the aircraft's stealth modifier to the sensor's probability of detection. This same capability should be applied to Infrared (IR) sensors.

The air mission detection algorithm now only applies the AC PROB DETECTION modifier for air search sensors of type RADAR. All others, including VISUAL and IR, use the unmodified sensor baseline probability of detection.

3.25 JTLS-2019-14292 Aircraft Carrier Real World ID Not Consistent

An SVP error exists that checks if the Type of a Ship Unit Prototype (SUP) is consistent with the Link-16 Platform Type of the SUP's Real World Data. The actual error message that was printed did not mention the SUP's Real World Data, leading to confusion about what the error was and how to fix it.

The wording of the error was modified to better reflect all aspects of the situation that caused the error.

3.26 JTLS-2019-14293 Orbiting Mission Jumped When Speed Changed

A Magic Air Ops order was sent to greatly increase a Recce mission's speed while enroute to its orbit location. When the mission arrived and began searching in its orbit, the Magic Air Ops order was sent again to reduce the mission's speed to the normal cruise speed of the aircraft type. The mission immediately jumped a great distance away from its orbit location. The mission then flew back at cruise speed to its original orbit location.

Note: This behavior did not occur every time, and was observed only for path and polygon orbit types, not single orbit points. The problem was not unique to the RECCE mission but applied to any orbiting type mission.

The problem was caused by a hidden flaw in the logic that calculated the mission's new location between its previous move event and the next scheduled move event. The logic used the previous speed to interpolate the distance traveled since the last move event along the orbit route. In certain situations in the orbiting process, the previous location and next location are identical as the mission changes course to transition toward the next location. Because the mission was traveling at a very high rate of speed, the logic computed an “intermediate” location that was actually a great distance away.

The problem was solved by replacing the use of speed to calculate the in-between location with a fractional proportion of the total distance between the previous location and the next location based on the elapsed time traveled. The true intermediate location is now calculated accurately, even if the previous and next locations are identical in the orbit.

3.27 JTLS-2019-14294 Airbase Unit In BEF Not Detected

A Recce mission was assigned to search a Basic Encyclopedia (BE) Directed Search Area (DSA). The BE Facility consisted of several BE objects, including a large airbase unit. The Recce mission consistently failed to detect the airbase unit and therefore did not include any of the unit's

combat systems or its related nearby objects in the generated Intelligence Imagery Report (IIR) for the DSA.

In this particular scenario database, most of the personnel combat systems belonging to the airbase unit were occupying various equipment shelters (i.e. bunkers and barracks), as well as tunnels. Because the detection logic is based on the size of the unit as defined by the number of personnel combat systems that are not hidden, the personnel count for the airbase unit was small. The small count made the unit difficult to detect.

The logic was changed to include personnel in equipment shelters in the total count for any Airbase, Support, or FARP unit (Other unit types still exclude personnel in shelters from the total count). If, however, any of the unit's personnel occupy a tunnel target, the count is set to 1, which makes the unit virtually undetectable.

3.28 JTLS-2019-14297 ELS Primary Controller Fixed Name In Orders

In order to link with external models, the ELS must send orders to the CEP. These orders are used to reflect the status of entities controlled by the external models. For a specific scenario, the name of the primary Controller WHIP was renamed to something other than the default "CONT_WHIP". This caused problems in the ELS because the name of the primary controller was always assumed to be "CONT_WHIP".

The ELS was modified to read the configuration file which contained information on all of the WHIPS that were defined at the start of the game. From this file, the ELS extracted the name of the primary Controller WHIP. This name was used in all places where it was previously using "CONT_WHIP". This allowed the ELS to function using any name for the primary Controller.

3.29 JTLS-2019-14298 NWARS Initialization Data Missing Frequencies

When JTLS-GO was connected to NWARS, the external model required some initialization data to match the scenario databases between the two programs. The file with these data was missing some critical information for the operating frequencies of sensors and jammers.

The starting and ending frequencies for all sensors and jammers were added to the routine which generated the NWARS initialization data.

3.30 JTLS-2019-14299 ELS Crash While Processing New Download

The ELS crashed while processing a new download from the primary JODA. This new download was requested from the JODA as part of a reinitialization of the data.

The ELS was not properly clearing out some of the existing data objects before starting a new download. These data must be cleared to eliminate the old data before the new data is received. Some additional deletes were added to supplement the existing process.

3.31 JTLS-2019-14300 JODA Range Items Initialization Errors

When the CEP started, a number of errors were reported on the JODA for range items. The model was trying to delete range items which did not exist.

The code was initially trying to delete unused range items from the game. It was incorrectly trying to remove those non-existent items from the JODA. A check was added to verify that the range items were already published on the JODA before a delete was attempted. This corrected the problem and the errors are no longer generated.

3.32 JTLS-2019-14301 BE Object Aircraft Damage Reporting Crash

The CEP crashed while it was collecting intelligence and building a damage report for a Basic Encyclopedia Object (BE). This BE object included a catastrophic kill for an aircraft.

The model was attempting to determine if the aircraft kill was part of the specified BE object. It was computing the radius of the aircraft, and attempted to access the size using the attribute of the appropriate aircraft target class (ATC). The model was incorrectly using the index for the aircraft class instead of the ATC. This index was out of bounds and a crash occurred. The corrected index was replaced in the code and the crash was resolved.

3.33 JTLS-2019-14302 Change Mission Parameter Order Message Error

When a Player submitted the order to change one or more air mission parameters, the XMS service reported that the message could not be displayed because the content was not complete.

The code to process the order to change an air mission parameter was incorrectly adding some extra message formatting to close a group. However, no group was ever opened in the message, so the formatting was inconsistent. A change was made to correct this error and the message is now generated properly.

3.34 JTLS-2019-14303 JOI Link-16 Save Network and Feed

The Link-16 service was not saving the Link-16 Network Name and Feed Name to the preferences file, so the user would have to reset the value each time the service is started.

The Link-16 Network Name and Feed Name are now being saved to the preference file so the service can read them on startup.

3.35 JTLS-2019-14304 JOI OTHGold Failed Connection Recovery

The OTHGold Message Service would attempt to reconnect to the other host repeatedly when the connection was dropped. This would appear to happen indefinitely until the other host recovered and the service would become unresponsive.

The OTHGold Message Service now attempts to reconnect three times. If the connection has not been established, it will wait twenty seconds and attempt to reconnect. This allows the service to be responsive while attempting to reconnect.

3.36 JTLS-2019-14305 JOI OTHGold Adjust Location Formats

OTHGold supports two position formats, POS and XPOS, that users are able to toggle between. If the user changed the desired location format, objects would only report in the new format if their location was updated.

The OTHGold Message Service now updates the location format of objects immediately when the user changes their preferences. Location updates are no longer needed in order to change the reporting format.

3.37 JTLS-2019-14306 Link-16 Save Times Out

When performing a save of the Link-16 module, the save would appear to hang, despite finishing on the server side.

When performing a save of the Link-16 module, the transaction would prematurely timeout before the module could receive a response from the server. This timeout period has been extended to allow for longer save times.

3.38 JTLS-2019-14308 SVP Warning 1255 Computation Incorrect

SVP Warning 1255 message refers to five days of ground fuel, but the computation uses three days. The corrective action puts the user in the Basic Load field but the SIP is checking against the Stockage Objective field.

The computation for amount of ground fuel needed was modified to compute five days of fuel for each combat system that has a non combat fuel consumption value and if necessary the amount needed per person per day. The SVP correction action to display the TUP ground fuel supply category data item will now highlight the stockage objective field.

3.39 JTLS-2019-14309 DDSC Command Tree Unit Name Above Symbol

The unit name was shown on top of the unit symbol in the DDSC command tree. This did not occur in the DDSC logistics tree or in a WHIP.

The DDSC command tree used a single label, while the other unit trees use a separate label for the symbol and unit name. The DDSC command tree was modified to use a separate label for the symbol and unit name.

3.40 JTLS-2019-14310 Unit Detach By Fraction Order Crash

The model crashed when detaching a unit by a fraction amount.

The gaining equipment pointer variable was written using the losing equipment pointer variable. The code was corrected.

3.41 JTLS-2019-14311 IMT Screen Schema Definition Checking

IMT screen definition files, which are XML files, are checked for validity by either an XML schema definition file, which defines the allowed tags and attributes and can provide detailed restrictions on attribute values, or a stylesheet, which checks if the combination of attributes makes sense and checks many inter-XML data items, such as the validity of vocabulary entries.

The schema definition files checked that the object classes that an IMT Screen is to display were valid names, and if filter exclusion values were valid names. This was possible because of hard coding of object names and vocabulary entries into the schema definition, requiring modification to the schema whenever a new JDSP object type was to be displayed or a new vocabulary entry was needed. However, the stylesheet was already performing these checks dynamically against the JDSP XML definition and the XML vocabulary files.

The hard-coded values were removed from the schema definition file, leaving the responsibility of checking the validity of these two items to the stylesheet.

3.42 JTLS-2019-14312 Duplicate SVP Error

SVP Error 109 duplicates the function of Error 132.

SVP Error 109 checks for SUPs with an UNKNOWN name, while Error 132 checks for target category /subcategory combinations (including SUPs) with UNKNOWN names.

Error 109 has been removed from the code and from the SVP-Template.xml file.

3.43 JTLS-2019-14313 Group Spreadsheet Tasking Units

The ATO Spreadsheet Parser creates XML in groupings of one mission per tasking unit, because the tasking unit (squadron) and associated mission are provided on each row of the spreadsheet. Although the XML produced by the Parser is correct, the ATOT always distributes the missions to the first squadron whenever there is more than one squadron associated with tasking unit.

The Spreadsheet Parser code was modified. All missions for a single tasking unit are now grouped under the TaskingUnit XML tag.

During testing, a problem was found in the Sample_ATO_spreadsheet.xls file. The column for entering target name information had been deleted. The spreadsheet was also corrected and tested.

3.44 JTLS-2019-14314 CSP CAT Changed Parameters All Zeroed

If the Controller enters an order to change some Combat Arms Types data for a specific CSP, all of the unchanged data ends up as zero in the model. Some of the data cannot legally have values of zero. When they get set to zero, the model can crash.

The order panel was changed to not send zeros for unchanged data parameters. The model was altered to make sure that unchanged data did not incorrectly get altered.

3.45 JTLS-2019-14315 Error Skipped When Ignoring Warning

If the SVP is instructed not to check Warning 1314, Error 132 is also ignored.

The placement of the code to ignore Warning 1314 was placed at the top of the source code routine. When Error 132 was added, the placement of the ignore Warning check was not adjusted.

The problem was fix and tested. The routine was also optimized to process both the Error and Warning check in the same pass.

3.46 JTLS-2019-14316 WHIP Drawing Tool Duplicate Not Working

The WHIP drawing tool's duplicate option was not working while editing the slide's graphics.

Duplicating a graphic on a slide was only committed when the user exited slide editing. It has been corrected to commit the duplication while currently editing the slide's graphics.

3.47 JTLS-2019-14319 ATO Spreadsheet Parser Time Adjustment

The ATO Parser interface has the capability for the user to specify a time adjustment for an ATO. This helps in situations where the same ATO is being used over multiple days. Instead of editing the ATO and adjusting all the times the parser can be instructed to perform the adjustment. The ATO Spreadsheet Parser performs this time adjustment on all air mission. However, it does not perform the adjustment on the ATO Start and End Times or the ACO Start and End Time, requiring the operator to adjust these values manually.

The code was modified to use the adjustment date to adjust the start and end dates of both the ATO and the ACO data.

3.48 JTLS-2019-14320 Add Time Zone Indicator

In preparation for allowing use of world wide time zones, The ATO spreadsheet needs to have a time zone character.

The ATO spreadsheet was reformatted to use the time zone indicator for all times. Currently only the Zulu indicator (Z) is used. Use of other time zones will come later.

3.49 JTLS-2019-14321 Force Side Mismatch Correction

There was a mismatch between the Force Side name used in the ATO Spreadsheet and the actual Force Side name in the scenario. The immediate solution was to modify the program to read the scenario Force Side file and perform a check for the proper spelling of the Force Side name. This corrected the action but broke the rule of the parser not reading any external files except the spreadsheet data.

To avoid reading the external file, the jtlsmenu and javamenu sub programs read the Force Side file in order to present the user with the Force Side options. These were modified to send the Force Side names instead of the integer number that represents the Force Side. The parser program can now do a comparison of the spreadsheet primary force side name against the Force Side names passed in from the user selections.

3.50 JTLS-2019-14323 Spreadsheet Time Adjustment Incorrect

The time adjustment used with the ATO spreadsheet parser does not work if the month or year are different.

The time adjustment for the spreadsheet parser only works properly if the time adjustment is within the same month and year. The code was corrected to properly compute the adjusted time, even if the adjusted time is in a different month or year.

3.51 JTLS-2019-14324 ATOT Checking Potential Victim Units And JDPI

When an ATO contains a missile mission, the targeted objects of the Fire Missile order, as generated by the ATO Translator, will never have a Unit as the victim. Targets are selected properly.

The ATOT was only searching within the enemy Targets for a victim for the Fire Missile order. This has been expanded to Units and JDPIs as allowed by the Fire Missile order. A location, if specified, will always be used whenever the ATOT is unable to find an object from the other fields provided in the ATO for the mission.

3.52 JTLS-2019-14325 ATOT Missile Missions Without Warning

Whenever the ATOT produces orders for missile missions, it does not report missing tasking.

The ATOT routine for generating Fire Mission orders was modified to check for a lack of targeted objects by the missile mission. If it has no objects or an aim point location derived from the ATO data provided, an error is produced.

JTLS-2019-14326 ATOT Module - Subtype Empty When Setting Target Type

The ATOT module allowed users to select a target type without an associated subtype.

The ATOT module now automatically fills the subtype with the first item in the list.

3.53 JTLS-2019-14328 OEC Oracle 12c Undefined Symbol Lookup Error

The OEC was failing due to an undefined symbol lookup error (stat) against Oracle version 12c.

The OEC has dependencies to Oracle 11g Instant Client library files during execution. These library files are distributed under JTLS. However, their location follows the actual Oracle Client location in the LD_LIBRARY_PATH definition in JTLS .cshrc file. This was causing the OEC execution issue if OEC was running against Oracle 12c (or higher) version. The LD_LIBRARY_PATH definition in JTLS .cshrc file was adjusted so that the location of the Oracle 11g Instant Client library files now precedes the Oracle 12c client location.

3.54 JTLS-2019-14329 Improve SVP Warning 1317

SVP Warning 1317 needs to set Pk and Min Range Pk to zero.

If an aircraft target class has no probability to engage another aircraft target class, then it makes no sense to have values in the Probability to Kill and Minimum Range PK fields. Options were added to the automatic correction options to zero these fields.

3.55 JTLS-2019-14330 Improve SVP Error 418

SVP Error 418 says that a unit is too far from its support unit. The Error needs a correction to change the unit's support unit, and does not need corrections to change the location of the unit or support unit in a table.

The correction changes for Error 418 were made.

3.56 JTLS-2019-14331 WHIP On Demand SSM Ring Missile Type

When a unit's SSM range rings were turned on, the entry in the WHIP Range Rings On Demand filter tab did not display the missile type name. When a unit owned multiple SSMs and the User turned on their on-demand Range Rings, the entries were only distinguishable if the color was changed for each displayed ring.

The name column in the On Demand tab of the Range Rings filter now displays the owning unit name, followed by a colon ":" and the missile type name.

3.57 JTLS-2019-14332 WHIP HRU Context Menu Did Not Have Supplies

The right-click context-sensitive menu for HRUs in the WHIP did not provide the option to bring up its Supplies IMT window.

The Supplies IMT window was added as an option for HRUs.

3.58 JTLS-2019-14333 Improve SVP Warning 1269

SVP Warning 1269 has a commented-out correction.

The commented-out portion of Warning 1269 checked to see if a TUP has enough supplies to fire a minimum of one shot for its Air Defense systems. If not, the correction would add a supply category record if one did not exist, or update the stockage objective only if a record did exist but the values were insufficient. This commented out code was uncommented and tested.

3.59 JTLS-2019-14334 JOI Database Country Code Format

The Database Country Code Format resides in the scenario's global file as the last item of the file. The library that performs country code translations must therefore read, and ignore, every item in the file to extract the Database Country Code Format. The read itself was being very selective about what type of data each token was, float, integer, string, etc. The code handled the read of the Adjust Surge Time as an integer, which it is in most global files, but the value is actually a float. If the scenario used a float for this value any program that used the Country Code library, such as the OTH Gold JOI, would terminate early with a warning that there was possible heap corruption.

The code was modified to treat the tokens, except the game classification which is handled as a special case, as strings removing the error and any potential other miscasting errors.

3.60 JTLS-2019-14335 Correct SVP Warning 1257

One of the corrections for SVP Warning 1257 refers to a specific Supply Category. Not all databases will have that Supply Category.

The purpose of the warning is to identify submarines with electric propulsion. Once identified, the database may also specify a recharge Supply Category for the subs. If it does, the specified Supply Category must have CL.III.NAVY specified as a special capability.

This Warning checks to make sure the recharge Supply Category has the required special capability. The wording of the output was hard-coded with the Supply Category names used in our default database, but other databases may not use the same names.

The text of the warning and the correction options were modified to look for and use the names in the database. It is possible that the database may not have a Supply Category with special capability of CL.III.NAVY. In this case the user will see the Supply Category name as “NOT-DEFINED”.

3.61 JTLS-2019-14336 ATO Parser Crashes While Reading Side File

For a scenario with more than ten Force Sides, the ATO Parser crashes while parsing a standard F068 format ATO message.

Prior to reading an ATO message, the ATO Parser program reads the side file from the scenario data. It was not initializing the number of sides in the scenario properly before attempting to fill the side data structure. The side count is now properly initialized from the JTLS-GO side count contained in the JDSP library.

3.62 JTLS-2019-14337 Correct SVP Warning 1464

SVP Warning 1464 does not work.

The first problem was that the option to set the aircraft type to zero for a unit of type SQUADRON is invalid - a unit of type SQUADRON must have an aircraft type. The second problem was in the correction. In order to remove the aircraft type from a unit, the sql command was trying to set the field to zero, when it should have been setting the field to NULL.

Both problems were corrected. Although the correction option to set a squadron unit aircraft type to NULL is there, the user will see a comment that it can not be done for that type of units. All other unit types will now have the type aircraft field set to NULL.

3.63 JTLS-2019-14338 Logging JODA Crashes Reading Stray Files

The JODA will crash during startup if a non delta or download file exists in the TRIPP directory.

The groups of strings that compose the delta or download file name are parsed by the JDSP playback library. No checking was being done by this library to ensure the proper groups exist in the name, especially when a stray file exists in the TRIPP directory. If a specific date group is missing from the file name, the JODA would crash. This library was changed to check at least the year and time group for all the files in the TRIPP directory and exit with an appropriate error log message when this error is detected.

3.64 JTLS-2019-14339 Correct SVP Warning 1322

SVP Warning 1322 compares Wet Weight (which is in Tons) versus Wet Weight, but the message says Gallons and then the correction does not make sense.

SVP Warning 1322 combines all Wet items in gallons and then converts the gallons to tons, which is how the aircraft Wet carry capacity is specified.

The Warning was corrected to present the user with the proper numbers specified in tons. A new SVP correction was added to automatically update the aircraft wet carry capacity to the computed value.

3.65 JTLS-2019-14340 JTOI ICC Add Naming Service Port

The ICC setup uses a Naming service, which has its own port number on the ICC host. This port number was hard-coded in the JTOI which caused connections to fail if the port was not set to the default.

The JTOI configuration screen has been modified to allow a user to set the port number of ICC's Naming service.

3.66 JTLS-2019-14341 SVPR Reported Errors/Warning Truncation

Some values reported by the SVPR are less than the actual value needed to correct a Error or Warning.

When the SVPR reports values in some Errors and Warnings, the value is truncated to some number of significant digits. When this happens the amount reported is actually less than the actual number.

Code as been added to numerous programs to increase the least significant digit by 1 to account for any truncation problems.

3.67 JTLS-2019-14342 JTLS-GO Documentation Updated

The JTLS-GO documentation suite needed to be updated, to account for the changes that have been made to the system since the previous maintenance release (JTLS-GO 5.1.1.0).

The JTLS-GO documentation suite has been updated.

3.68 JTLS-2019-14343 Ship Detections With Weather Interference

When a ship-to-ship detection is made, the model did not consider the weather in its probability of detection.

The ST WC FACTOR parameter was included in the computation of probability of detection.

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.

4.5 WSM - Many Messages Cause Lockup

If a service produces a large number of log or error messages in a short period of time, it can cause the WSM to lockup.

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 5.1.2.0 DATABASE CHANGES

No other database changes were made for JTLS-GO 5.1.1.0.

APPENDIX C. Version 5.1.2.0 REPOSITORY CHANGES

The following changes were made to the JTLS-GO 5.1 repository.

C.1 TUPs Added

- ABN.INF.BN_RU
- ABN.INF.REG_RU
- ABN.REGT.HQ_RU
- ADA.BDE(SR)_RU
- ADA.BDE.HQ_RU
- ADA.BN(SRAB)_RU
- ADA.BN(SRME)_RU
- ADA.BN(SRMT)_RU
- ARM.BDE.HQ_RU
- ARM.BN.T62M_RU
- ARM.BN.T72B_RU
- ARM.DIV.HQ_RU
- ARMY.HQ_RU
- AVN.BDE.HQ_RU
- BASTION.BNHQ_RU
- BASTION.BTRY_RU
- BM21.MRL.BN_RU
- CHEM.BN_RU
- ENG.BN(MD)_RU
- FA.BDE.HQ_RU
- FA.BN.2S19_RU

- FA.BN.D30_RU
- FA.BN.G6_RU
- FORCE.HQ_RU
- HET.BN.MECH_RU
- HQ.AF.SQDN_RU
- HQ.AF.WING_RU
- HQ.AF_RU
- INF.BDE.HQ_RU
- INF.BN_RU
- M1943.MTR.BTY_X
- MAINT.BN_RU
- MECH.BDE.HQ_RU
- MECH.BN(AB)_RU
- MECH.BN.BTR_RU
- MECH.DIV.HQ_RU
- MED.BDE.HQ_RU
- MED.BN_RU
- MT12.ATG.BN_RU
- MTZD.BDE.HQ_RU
- MTZD.BN_RU
- NATIONAL.DEP_RU
- NAVAL.BASE_RU
- NAVAL.HQ_RU
- NODON.BDE.HQ_RU

- POL.BN_RU
- RECON.BN(AD)_RU
- RECON.BN(MD)_RU
- SA20A.BN_RU
- SA21.BN_RU
- SA21.BTRY_RU
- SCUDC.BDE.HQ_RU
- SCUDC.SSMBTY_RU
- SF.BBE.HQ_RU
- SF.BN_RU
- SIGNAL.BN_RU
- SILKWOR.BNHQ_RU
- SILKWORM.BTY_RU
- SPF.CO_RU
- SPT.BDE.HQ_RU
- SPT.BN_RU
- SS26.BDE.HQ_RU
- SS26.BN.HQ_RU
- SS26.SSM.BTY_RU
- T100.ATGUNCO_RU
- T120.MORTBTY_RU
- TAB.BTRY_RU

C.2 TUPs Deleted

- T100.ATGBN_KP

C.3 TWs Added

- RIM174.SM6.AIR

C.4 TWs Deleted

- RIM174.SM6.SUR

C.5 Supply Categories Added

- CL.V.SA-LR-RIM174.SM6.AIR

C.6 Supply Categories Deleted

- CL.V.SS-RIM174.SM6.SUR

C.7 UOMs Added

- RIM174.SM6.AIR

C.8 UOMs Deleted

- RIM174.SM6.SUR

C.9 SALs Added

- RIM174.SM6_SAL

C.10 ADA Classes Added

- RIM174SM6(MK41)

C.11 SKLs Added

- RIM174.SUR_SKL

C.12 Pks Added

- RIM174.SUR_PK

C.13 Phs Added

- RIM174.SUR_PH

C.14 AKs Added

- RIM174.SUR_AK

C.15 Combat Systems Added

- 120M.GRADER-ENG3
- 9T234.TRANSLOADER-EQP.SP
- 9T244.TRANSLOADER-EQP.SP
- AGM114N.GRD_AT.LR.TA
- BMP2M.AT14EM-IFV.ATLHLATC
- BTR80AK.30MM-IFV.HA
- BTR80K.14.5MM-APC.HA.TW
- CIS.SNIPER.12.7MM.M82A1
- CIS.SOF.DEMO
- CIS.SOF.RIFLEMAN.AK74M
- CIS.SOF.SPT.TROOP.AK74M
- CONCRETE.MIXER_EQUIP.SP
- FIRTINA.155-ART.(SP)MHVT
- INFENG-SPWPN.ARMBRUST
- INFENG-SPWPN.RPG22
- INFENG-SPWPN.RPG27
- INFENG-SPWPN.RPG7V
- INFENG-SPWPN-RPO-A
- JP.INFANTRYMAN.TYPE89
- JP.SOF.DEMO
- JP.SOF.M4.SOPMOD
- JP.SOF.SNIPER.M24
- JP.SOF.SUPPORT.TROOP.M4

- JP.SUPPORT.TROOP.TYPE89
- KM513-TRK.TANKER
- KM517-TRK.LT.CGO
- KM711_TRK.CGO
- M70.60MM_MTRDISM50-60
- NK.DEMO
- NK.INFANTRYMAN.TYPE88
- NK.SOF.DEM
- NK.SOF.RIFLEMAN.TYPE98
- NK.SOF.SPT.TROOP.TYPE98
- NK.SUPPORT.TROOP.TYPE88
- NK.SUPPORT.TROOP.TYPE98
- OPFOR.BACKHOE-ENG2
- OPFOR.FORKLIFT-EQUIP.SP
- OPFOR.SOF.DEMO
- PRC.INFANTRYMAN.TYPE56
- PRC.SOF.DEMO
- PRC.SUPPORT.TROOP.TYPE56
- ROK.INFANTRYMAN.K2
- ROK.SUPPORT.TROOP.K2
- RPK74.5.56MM-CREW.WPN
- TOYOTA.HMV. 12.7MM-VEH-NA
- TYPE10.120MM-TANK.AFHS
- TYPE65.82MM-ATG.MNC

- TYPE65-1.82MM-ATG.MNC
- TYPE90.60MM_MTRDISM50-60

C.16 Jammers Added

- BMP1KSH.COM.JAM
- BTR80.COM.JAM

C.17 Sensors Added

- 1L219_LGB
- 1L220U_LGB
- GIRAFFE.AMB_LAA
- HJ62C_LGL
- SLC-2E_LGB
- YLC-48_LGB
- ZOOPARK-1_LGB

C.18 SSMs Added

- CJ10.VLS(6)
- CJ10.VLS(8)

C.19 SUPs Added

- TYPE55.DDG_CN

C.20 SUPs Deleted

- OIL.RIG_GEN
- OIL.RIG_MOBILE
- OILPLATFORM

C.21 REAL WORLD SHIP Table Values Added

- ABU.SRW

C.22 REAL WORLD SHIP Table Values Deleted

- AGL.SRW

C.23 SUP Table REAL.WORLD.IDENTIFIER

Changed REAL.WORLD.IDENTIFIER in the SUP Table from WAGL.SRW to ABU.SRW for the following SUPs:

- ALCYON_FR
- ARMORIQUE_FR
- CHEF.DE.CAUX_FR
- HAKUUN_JP
- HATSUHIKARI_JP
- HIMEHIKARI_JP
- HOKUTO_JP
- KASHTAN_AGL_RU
- KOUN_JP
- NAHAHIKARI_JP
- PROVENCE_FR
- SALVAGE_CL
- SHOKO_JP
- SURIYA_TH
- YANNAN_CN
- ZUIUN_JP

C.24 Updated All TUP RECOGNITION NAMES:

C.25 Changed Air Defense Altitude Ranges for:

- ALBATROS(1)L - Changed Air Defense Alt Range from 13 to 15km

- ALBATROS(2)L - Changed Air Defense Alt Range from 13 to 15km
- ALBATROS(3)L - Changed Air Defense Alt Range from 13 to 15km
- ASTER15VLS.LCHR - Changed Air Defense Alt Range from 29.6 to 30km
- ASTER30VLS.LCHR - Changed Air Defense Alt Range from 119.6 to 120km
- CHAPARRAL(SP)VE - Changed Air Defense Alt Range from 12 to 9km
- CROTALE(R440)MT - Changed Air Defense Alt Range from 14.6 to 10km
- CROTALE(SP)VEH - Changed Air Defense Alt Range from 14.6 to 10km
- CROTALE(VT-1)MT - Changed Air Defense Alt Range from 11 to 12km
- CROTALE.NG(SP)V - Changed Air Defense Alt Range from 11 to 12km
- EURO-SAAM - Changed Air Defense Alt Range from 59.5 to 120km
- HN-5C(SP)VEH - Changed Air Defense Alt Range from 4.4 to 4.2km
- HQ-16.BTRY - Changed Air Defense Alt Range from 45 to 40km
- HQ-2B.BN - Changed Air Defense Alt Range from 31.5 to 34km
- HQ-7(FM-80)FU - Changed Air Defense Alt Range from 11 to 12km
- IHAWK.3TEL.PLT - Changed Air Defense Alt Range from 36 to 40km
- IHAWK.4TEL.PLT - Changed Air Defense Alt Range from 36 to 40km
- LD-2000(SP)VEH - Changed Air Defense Alt Range from 3.5 to 3km
- MICA-EM.VLS - Changed Air Defense Alt Range from 19.9 to 20km
- MICA-IR.VLS - Changed Air Defense Alt Range from 19.9 to 20km
- MISTRAL1(MP)TM - Changed Air Defense Alt Range from 5.8 to 6km
- MISTRAL1(SP)VEH - Changed Air Defense Alt Range from 6.2 to 6km
- MISTRAL2(MP)TM - Changed Air Defense Alt Range from 6 to 6.5km
- MISTRAL2(SP)VEH - Changed Air Defense Alt Range from 6.4 to 6.5km
- NASAMS.FU - Changed Air Defense Alt Range from 22.5 to 20km

- NIKE.BTRY - Changed Air Defense Alt Range from 116.25 to 155km
- PANTZYR-S1(SP) - Changed Air Defense Alt Range from 12 to 18km
- RAPIER.BF(T)FU - Changed Air Defense Alt Range from 8.5 to 8km
- RAPIER.DF(T)FU - Changed Air Defense Alt Range from 8.5 to 8km
- RAPIER.FSC(T)FU - Changed Air Defense Alt Range from 8.5 to 8km
- RIM162(MK29) - Changed Air Defense Alt Range from 18.5 to 18km
- RIM162(MK41)MOD - Changed Air Defense Alt Range from 18.5 to 18km
- RIM162(MK56) - Changed Air Defense Alt Range from 18.5 to 18km
- RIM174SM6(MK41) - Changed Air Defense Alt Range from 240 to 370km
- RIM7(MK29)1.L - Changed Air Defense Alt Range from 15 to 16km
- RIM7(MK29)2.L - Changed Air Defense Alt Range from 15 to 16km
- RIM7(MK48)1.L - Changed Air Defense Alt Range from 15 to 16km
- RIM7(MK48)2.L - Changed Air Defense Alt Range from 15 to 16km
- RIM7M(SKYGD)SEC - Changed Air Defense Alt Range from 18 to 16km
- RIM7MP(MK41)MOD - Changed Air Defense Alt Range from 15 to 16km
- SA-10B.BTRY - Changed Air Defense Alt Range from 60 to 75km
- SA-10C.BTRY - Changed Air Defense Alt Range from 72 to 90km
- SA-10D.BTRY - Changed Air Defense Alt Range from 112.5 to 150km
- SA-10E.BTRY - Changed Air Defense Alt Range from 150 to 200km
- SA-11(SP)SECT - Changed Air Defense Alt Range from 32.4 to 32km
- SA-12A.BTRY - Changed Air Defense Alt Range from 60 to 75km
- SA-12B.BTRY - Changed Air Defense Alt Range from 80 to 100km
- SA-17.BTRY - Changed Air Defense Alt Range from 45 to 42km
- SA-20B.BTRY - Changed Air Defense Alt Range from 300 to 200km

- SA22.GREYHO(SP) - Changed Air Defense Alt Range from 12 to 18km
- SA-2B.BN - Changed Air Defense Alt Range from 30.6 to 34km
- SA-2D.BN - Changed Air Defense Alt Range from 38.7 to 43km
- SA-2F.BN - Changed Air Defense Alt Range from 46.8 to 58km
- SA-3A.BN - Changed Air Defense Alt Range from 22 to 15km
- SA-3B.BN - Changed Air Defense Alt Range from 22.5 to 25km
- SA-4A.BTRY - Changed Air Defense Alt Range from 61.2 to 50km
- SA-4B.BTRY - Changed Air Defense Alt Range from 42.5 to 50km
- SA-5A.BN - Changed Air Defense Alt Range from 112.5 to 150km
- SA-5C.BN - Changed Air Defense Alt Range from 225 to 300km
- SA-7A(MP)TM - Changed Air Defense Alt Range from 3.2 to 3.4km
- SA-8A(SP)VEH - Changed Air Defense Alt Range from 15 to 9km
- SA-8B(SP)VEH - Changed Air Defense Alt Range from 15 to 10km
- SA-9B(SP)VEH - Changed Air Defense Alt Range from 8 to 4.2km
- SADRAL.M1.LCHR - Changed Air Defense Alt Range from 6.2 to 6km
- SADRAL.M2.LCHR - Changed Air Defense Alt Range from 6 to 6.5km
- SA-N-1.LCHR - Changed Air Defense Alt Range from 27 to 24km
- SA-N-12.LCHR - Changed Air Defense Alt Range from 42.5 to 42km
- SA-N-3A.LCHR - Changed Air Defense Alt Range from 27 to 30km
- SA-N-3B.LCHR - Changed Air Defense Alt Range from 51 to 55km
- SA-N-5.LCHR - Changed Air Defense Alt Range from 3.4 to 4.2km
- SA-N-6B.6L.CX - Changed Air Defense Alt Range from 60 to 75km
- SA-N-6C.6L.CX - Changed Air Defense Alt Range from 72 to 120km
- SA-N-6C.8L.CX - Changed Air Defense Alt Range from 72 to 120km

- SA-N-7.LCHR - Changed Air Defense Alt Range from 27 to 30km
- SEA.CHAPARRAL - Changed Air Defense Alt Range from 12 to 9km
- SEADART.LCHR - Changed Air Defense Alt Range from 36 to 40km
- SHAHINE(SP)VEH - Changed Air Defense Alt Range from 14 to 10km
- SIMBAD.M1.LCHR - Changed Air Defense Alt Range from 5.8 to 6km
- SIMBAD.M2.LCHR - Changed Air Defense Alt Range from 6 to 6.5km
- SM1RIM66(MK13)L - Changed Air Defense Alt Range from 34.2 to 40km
- SM1RIM67(MK10)L - Changed Air Defense Alt Range from 54.4 to 64km
- SM2.BLK3A(MK41) - Changed Air Defense Alt Range from 180 to 166.7km
- SM2.BLK3B(MK41) - Changed Air Defense Alt Range from 180 to 170.4km
- SM2.BLK4(MK41) - Changed Air Defense Alt Range from 180 to 370.4km
- SM2RIM156(MK41) - Changed Air Defense Alt Range from 180 to 129.6km
- SM2RIM66(MK41)M - Changed Air Defense Alt Range from 120 to 170.4km
- SM3.BLK1B(MK41) - Changed Air Defense Alt Range from 150 to 700km
- SM3RIM161(MK41) - Changed Air Defense Alt Range from 150 to 1203.8km
- STARBURST(MP)ML - Changed Air Defense Alt Range from 3.8 to 7km
- STARSTREAK(SP)V - Changed Air Defense Alt Range from 7.3 to 7km
- STINGER(SP)VEH - Changed Air Defense Alt Range from 6.2 to 8km
- STINGERA(MP)TM - Changed Air Defense Alt Range from 5.4 to 8km
- STINGERBC(MP)TM - Changed Air Defense Alt Range from 5.8 to 8km
- T93KINSAM(SP)VE - Changed Air Defense Alt Range from 5.4 to 5km
- TIEN.KUNG1.FU - Changed Air Defense Alt Range from 55.3 to 70km
- TIEN.KUNG2.BTRY - Changed Air Defense Alt Range from 96 to 150km

C.26 Changed Air Defense TW Ranges for:

- ASTER-15 - Changed TW Range from 29.6 to 30km
- ASTER-30 - Changed TW Range from 119.6 to 120km
- CHAPARRAL-J - Changed TW Range from 12 to 9km
- CROTALE(R440) - Changed TW Range from 14.6 to 10km
- CROTALE(R440) - Changed TW Range from 14.6 to 10km
- CROTALE(VT-1) - Changed TW Range from 11 to 12km
- CROTALE(VT-1) - Changed TW Range from 11 to 12km
- HQ-2B - Changed TW Range from 31.5 to 34km
- HQ-7(FM-80) - Changed TW Range from 11 to 12km
- I-HAWK - Changed TW Range from 36 to 40km
- I-HAWK - Changed TW Range from 36 to 40km
- LD-2000(30MM) - Changed TW Range from 3.5 to 3km
- MICA-EM.VL - Changed TW Range from 19.9 to 20km
- MICA-IR.VL - Changed TW Range from 19.9 to 20km
- MISTRAL1(MP) - Changed TW Range from 5.8 to 6km
- MISTRAL1(SP) - Changed TW Range from 6.2 to 6km
- MISTRAL2(MP) - Changed TW Range from 6 to 6.5km
- MISTRAL2(SP) - Changed TW Range from 6.4 to 6.5km
- AMRAAM.SAM - Changed TW Range from 22.5 to 20km
- NIKE - Changed TW Range from 116.25 to 155km
- SA-22(57E6) - Changed TW Range from 12 to 18km
- RAPIER.MK2 - Changed TW Range from 8.5 to 8km
- RAPIER.MK2 - Changed TW Range from 8.5 to 8km

- RAPIER.MK2 - Changed TW Range from 8.5 to 8km
- RIM162.ESSM - Changed TW Range from 18.5 to 18km
- RIM162.ESSM - Changed TW Range from 18.5 to 18km
- RIM162.ESSM - Changed TW Range from 18.5 to 18km
- RIM174.SM6 - Changed TW Range from 240 to 370km
- RIM7M.SKYGUARD - Changed TW Range from 18 to 16km
- SA-10B.GRUMBLE - Changed TW Range from 60 to 75km
- SA-10C.GRUMBLE - Changed TW Range from 72 to 90km
- SA-10D.GRUMBLE - Changed TW Range from 112.5 to 150km
- SA-10E.GRUMBLE - Changed TW Range from 150 to 200km
- SA-11.GADFLY - Changed TW Range from 32.4 to 32km
- SA12A.GLADIATOR - Changed TW Range from 60 to 75km
- SA-12B.GIANT - Changed TW Range from 80 to 100km
- SA-17.GRIZZLY - Changed TW Range from 42.5 to 42km
- SA-20B.GARGOYLE - Changed TW Range from 300 to 200km
- SA-22(57E6) - Changed TW Range from 12 to 18km
- SA-24.GRINCH - Changed TW Range from 8 to 6km
- SA-2B.GUIDELINE - Changed TW Range from 30.6 to 34km
- SA-2D.GUIDELINE - Changed TW Range from 38.7 to 43km
- SA-2F.GUIDELINE - Changed TW Range from 46.75 to 58km
- SA-3A.GOA - Changed TW Range from 22 to 15km
- SA-3B.GOA - Changed TW Range from 22.5 to 25km
- SA-4A.GANEF - Changed TW Range from 61.2 to 50km
- SA-4B.GANEF - Changed TW Range from 42.5 to 50km

- SA-5A.GAMMON - Changed TW Range from 112.5 to 150km
- SA-5C.GAMMON - Changed TW Range from 225 to 300km
- SA-7A.GRAIL - Changed TW Range from 3.2 to 3.4km
- SA-8A.GECKO - Changed TW Range from 15 to 9km
- SA-8B.GECKO - Changed TW Range from 15 to 10km
- SA-9B.GASKIN - Changed TW Range from 8 to 4.2km
- SA-N-1.GOA - Changed TW Range from 27 to 24km
- SA-N-12.GRIZZLY - Changed TW Range from 42.5 to 42km
- SA-N-3A.GOBLET - Changed TW Range from 27 to 30km
- SA-N-3B.GOBLET - Changed TW Range from 51 to 55km
- SA-7B.GRAIL - Changed TW Range from 3.4 to 4.2km
- SA-N-6B.GRUMBLE - Changed TW Range from 60 to 75km
- SA-N-6C.GRUMBLE - Changed TW Range from 72 to 120km
- SA-N-6C.GRUMBLE - Changed TW Range from 72 to 120km
- SA-N-7.GADFLY - Changed TW Range from 27 to 30km
- CHAPARRAL-J - Changed TW Range from 12 to 9km
- SEADART.B - Changed TW Range from 36 to 40km
- SHAHINE - Changed TW Range from 14 to 10km
- MISTRAL1(MP) - Changed TW Range from 5.8 to 6km
- MISTRAL2(MP) - Changed TW Range from 6 to 6.5km
- SKYSWORD1.SAM - Changed TW Range from 8 to 9km
- RIM66.SM-1.MR - Changed TW Range from 39.8 to 40km
- RIM67.SM-1.ER - Changed TW Range from 54.4 to 64km
- RIM66.SM-2.BIII - Changed TW Range from 127.5 to 170.4km

- STARBURST(MP) - Changed TW Range from 3.75 to 7km
- STARSTREAK(SP) - Changed TW Range from 7.3 to 7km
- STINGER-B_C(SP) - Changed TW Range from 6.2 to 8km
- STINGER-A.SAM - Changed TW Range from 5.4 to 8km
- STINGER-B_C.SAM - Changed TW Range from 5.8 to 8km
- TYPE93.KIN.SAM - Changed TW Range from 5.4 to 5km
- TIEN.KUNG1 - Changed TW Range from 55.25 to 70km
- TIEN.KUNG2 - Changed TW Range from 96 to 150km

C.27 Deleted the following Air Defense Altitude Zones for:

- AKASH.BTRY - 0-33FT, 34-50FT
- ALBATROS(1)L - 0-33FT
- ALBATROS(2)L - 0-33FT
- ALBATROS(3)L - 0-33FT
- BARAK8.16VLS - 0-33FT
- BARAK8.8VLS - 0-33FT
- BARAK8.SP.VEH - 0-33FT
- CHAPARRAL(SP)VE - 0-33FT
- CROTALE(R440)MT - 0-33FT
- CROTALE(SP)VEH - 0-33FT
- CROTALE(VT-1)MT - 0-33FT
- CROTALE.NG(SP)V - 0-33FT
- CSA-20.BTRY - 0-33FT
- CSA-21.BTRY - 0-33FT, 34-50FT
- HHQ-10.16VLS - 0-33FT

- HHQ-10.24VLS - 0-33FT
- HHQ-10.8VLS - 0-33FT
- HHQ-9A.6VLS - 0-33FT
- HHQ-9B.6VLS - 0-33FT
- HN-5B(MP)TM - 0-33FT, 34-50FT, 51-150FT
- HN-5C(SP)VEH - 0-33FT
- HQ-16.BTRY - 0-33FT
- HQ-17(SP)VEH - 0-33FT
- HQ-2B.BN - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT, 301-1000FT
- HQ-2J.BN - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT, 301-1000FT
- HQ-61.BTRY - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT
- HQ-61.LCHR - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT
- HQ-7(FM-80)FU - 0-33FT, 34-50FT
- HQ-9.BTRY - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT, 301-1000FT, 1001-2000FT, 2001-5000FT, 5001-7000FT, 65001-80000FT, 80001-100000FT
- IHAWK.3TEL.PLT - 0-33FT, 34-50FT, 51-150FT, 151-200FT
- IHAWK.4TEL.PLT - 0-33FT, 34-50FT, 51-150FT, 151-200FT
- JAVELIN(MP)TM - 0-33FT
- KS-1.BTRY - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT, 301-1000FT
- LY-60.FIRE.UNIT - 0-33FT, 34-50FT
- LY-80.BTRY - 0-33FT, 34-50FT
- MICA-EM.VLS - 0-33FT
- MICA-IR.VLS - 0-33FT
- NASAMS.FU - 0-33FT

- NIKE.BTRY - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT, 301-1000FT, 1001-2000FT
- PANTZYR-S1(SP) - 0-33FT
- PATRIOTGEM.BTY - 0-33FT, 34-50FT, 51-150FT, 151-200FT
- PATRIOTGEM.PLT - 0-33FT, 34-50FT, 51-150FT, 151-200FT
- PATRIOTPAC2.BTY - 0-33FT, 34-50FT, 51-150FT, 151-200FT
- PATRIOTPAC2.PLT - 0-33FT, 34-50FT, 51-150FT, 151-200FT
- PATRIOTPAC3.BTY - 0-33FT, 34-50FT, 51-150FT, 151-200FT
- PATRIOTPAC3.MEP - 0-33FT, 34-50FT, 51-150FT, 151-200FT
- PATRIOTPAC3.PLT - 0-33FT, 34-50FT, 51-150FT, 151-200FT
- PL-9C(SP)VEH - 0-33FT, 34-50FT
- PL-9N.LCHR - 0-33FT, 34-50FT
- QW1(MP)TM - 0-33FT, 34-50FT
- RBS70(MP)TM - 0-33FT
- REDUT.8VLS - 0-33FT
- RIM162(MK29) - 0-33FT
- RIM162(MK41)MOD - 0-33FT
- RIM162(MK48)2.L - 0-33FT
- RIM162(MK56) - 0-33FT
- RIM174SM6(MK41) - 0-33FT
- RIM7(MK29)1.L - 0-33FT
- RIM7(MK29)2.L - 0-33FT
- RIM7(MK48)1.L - 0-33FT
- RIM7(MK48)2.L - 0-33FT

- RIM7F(SKYGD)SEC - 0-33FT, 34-50FT
- RIM7M(SKYGD)SEC - 0-33FT, 34-50FT
- RIM7MP(MK41)MOD - 0-33FT
- SA-10B.BTRY - 0-33FT, 34-50FT
- SA-10C.BTRY - 0-33FT, 34-50FT
- SA-10D.BTRY - 0-33FT
- SA-10E.BTRY - 0-33FT
- SA-11(SP)SECT - 0-33FT, 34-50FT
- SA-12A.BTRY - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT
- SA-12B.BTRY - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT, 301-1000FT, 1001-2000FT
- SA-13A(SP)VEH - 0-33FT, 34-50FT
- SA-13B(SP)VEH - 0-33FT
- SA-14(MP)TM - 0-33FT, 34-50FT
- SA-15(SP)VEH - 0-33FT
- SA-16(MP)TM - 0-33FT
- SA-17.BTRY - 0-33FT, 34-50FT
- SA-18(MP)TM - 0-33FT
- SA2.BN - 34-50FT, 51-150FT, 151-200FT, 201-300FT, 301-1000FT
- SA-20A.BTRY - 0-33FT
- SA-20B.BTRY - 0-33FT, 34-50FT
- SA-21.BTRY - 0-33FT, 34-50FT
- SA22.GREYHO(SP) - 0-33FT
- SA-24(MP)TM - 0-33FT

- SA-2B.BN - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT, 301-1000FT
- SA-2D.BN - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT, 301-1000FT
- SA-2F.BN - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT
- SA3.BN - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT, 301-1000FT
- SA-3A.BN - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT, 301-1000FT
- SA-3B.BN - 0-33FT, 34-50FT, 51-150FT
- SA-4A.BTRY - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT, 301-1000FT
- SA-4B.BTRY - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT
- SA-5A.BN - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT
- SA-5C.BN - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT
- SA-6.BTRY - 0-33FT, 34-50FT
- SA-7A(MP)TM - 0-33FT, 34-50FT, 51-150FT
- SA-7B(MP)TM - 0-33FT, 34-50FT
- SA-8A(SP)VEH - 0-33FT, 34-50FT, 51-150FT
- SA-8B(SP)VEH - 0-33FT, 34-50FT
- SA-9A(SP)VEH - 0-33FT, 34-50FT, 10001-13000FT
- SA-9B(SP)VEH - 0-33FT, 34-50FT
- SA-N-1.LCHR - 0-33FT, 34-50FT, 51-150FT
- SA-N-10.LCHR - 0-33FT
- SA-N-12.LCHR - 0-33FT, 34-50FT
- SA-N-3A.LCHR - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT
- SA-N-3B.LCHR - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT
- SA-N-4.LCHR - 0-33FT, 34-50FT
- SA-N-5.LCHR - 0-33FT, 34-50FT

- SA-N-6B.6L.CX - 0-33FT, 34-50FT
- SA-N-6C.6L.CX - 0-33FT, 34-50FT
- SA-N-6C.8L.CX - 0-33FT, 34-50FT
- SA-N-7.LCHR - 0-33FT, 34-50FT
- SA-N-8.LCHR - 0-33FT, 34-50FT
- SA-N-9.SILO - 0-33FT
- SEA.CHAPARRAL - 0-33FT
- SEADART.LCHR - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT
- SEAWOLF(GWS25)L - 0-33FT
- SEAWOLF(GWS26)L - 0-33FT
- SHAHINE(SP)VEH - 0-33FT, 34-50FT
- SKYSWORD1(SP)VE - 0-33FT, 34-50FT
- SM3.BLK1B(MK41) - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT
- SM3RIM161(MK41) - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT
- SPADA.FIRE.SECT - 0-33FT
- STARBURST(MP)ML - 0-33FT
- STARSTREAK(SP)V - 0-33FT
- STINGER(SP)VEH - 0-33FT
- STINGERA(MP)TM - 0-33FT
- STINGERBC(MP)TM - 0-33FT
- T91KINSAM(MP)TM - 0-33FT
- T93KINSAM(SP)VE - 0-33FT
- THAAD.BTY - 0-33FT, 34-50FT, 51-150FT, 151-200FT
- TIEN.KUNG1.FU - 0-33FT, 34-50FT, 51-150FT, 151-200FT

- TIEN.KUNG2.BTRY - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT, 301-1000FT, 1001-2000FT
- TIEN.KUNG2.SILO - 0-33FT, 34-50FT, 51-150FT, 151-200FT, 201-300FT, 301-1000FT, 1001-2000FT
- TYPE81TANSAM.FU - 0-33FT, 34-50FT