

# JTLS-GO

## Version Description Document

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JOINT THEATER LEVEL SIMULATION - GLOBAL OPERATIONS  
(JTLS-GO 5.0.8.0)

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## ABSTRACT

The Joint Theater Level Simulation - Global Operations (JTLS-GO<sup>®</sup>) is an interactive, computer-based, multi-sided wargaming system that models combined joint and coalition resource air, land, naval, and Non-Governmental Organization (NGO) environments.

This *JTLS-GO Version Description Document (VDD)* describes the new features of the Version 5.0.8.0 delivery of the configuration-managed JTLS-GO software suite.

JTLS-GO 5.0.8.0 is a Maintenance release of the JTLS-GO 5.0 series that includes an updated SBDKOR50 Standard Database, as well as minor 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 5.0.8.0 of the configuration managed Joint Theater Level Simulation - Global Operations (JTLS-GO<sup>®</sup>) software suite. JTLS-GO 5.0.8.0 is a Maintenance delivery for the JTLS-GO 5.0 series of releases.

JTLS-GO 5.0.8.0 includes the entire JTLS-GO suite of software and the SDBKOR50 Standard Database that supports a realistic scenario based on the current Korean Peninsula theater of operations. Database modifications that were accomplished to upgrade the previous JTLS-GO Standard Database to this current version are summarized in this chapter, as well as [APPENDIX B](#). Detailed descriptions of minor Engineering Change Proposals (ECPs) implemented for this release are provided in [Chapter 2.0](#).

JTLS-GO 5.0.8.0 executes on the Red Hat Enterprise Linux Version 6 64-bit operating systems. The Web-Hosted Interface Program (WHIP<sup>®</sup>) 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 Unchanged Documents

JTLS-GO 5.0.8.0 is a bug release of the JTLS-GO system. Other than date changes, the following documents have had no significant changes since the last release of JTLS-GO.

- *JTLS-GO Analyst Guide* (JTLS-GO Document 01, Version 5.0.8.0)
- *JTLS-GO Air Services User Guide* (JTLS-GO Document 03, Version 5.0.8.0)
- *JTLS-GO Controller Guide* (JTLS-GO Document 04, Version 5.0.8.0)
- *JTLS-GO Data Requirements Manual* (JTLS-GO Document 05, Version 5.0.8.0)
- *JTLS-GO Director Guide* (JTLS-GO Document 07, Version 5.0.8.0)
- *JTLS-GO Executive Overview* (JTLS-GO Document 08, Version 5.0.8.0)
- *JTLS-GO Installation Manual* (JTLS-GO Document 09, Version 5.0.8.0)
- *JTLS-GO WHIP Training Manual* (JTLS-GO Document 10, Version 5.0.8.0)

- *JTLS-GO Player Guide* (JTLS-GO Document 12, Version 5.0.8.0)
- *JTLS-GO Standard Database Description* (JTLS-GO Document 14, Version 5.0.8.0)
- *JTLS-GO Entity Level Server User Guide* (JTLS-GO Document 19, Version 5.0.8.0)
- *JTLS-GO Federation User Guide* (JTLS-GO Document 20, Version 5.0.8.0)
- *JTLS-GO C4I Interface Manual* (JTLS-GO Document 21, Version 5.0.8.0)

### 1.2.2 Updated Documents

The following documents have been changed or improved since the last release of JTLS-GO.

- *JTLS-GO DDS User Guide* (JTLS-GO Document 06, Version 5.0.8.0)
- *JTLS-GO Software Maintenance Manual* (JTLS-GO Document 15, Version 5.0.8.0)
- *JTLS-GO Technical Coordinator Guide* (JTLS-GO Document 16, Version 5.0.8.0)
- *JTLS-GO Version Description Document* (JTLS-GO Document 17, Version 5.0.8.0)

### 1.2.3 Delivered Software Components

JTLS-GO 5.0.8.0 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)
- Database Development System (DDS)
- JTLS Symbols Application (JSYMS)
- 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 Services
  - Apache Server (APACHE), version 2.4.26
  - JTLS XML Serial Repository (JXSR)
  - Order Management Authority (OMA)
  - Synchronized Authentication and Preferences Service (SYNAPSE)
  - XML Message Service (XMS)
- Web-Hosted Interface Program (WHIP)
- Total Recall Interactive Playback Program (TRIPP)
- Entity Level Server (ELS)
- JTLS Operational Interface (JOI) OTH-Gold, Link-16, and TACELINT
- KML Operational Interface (KOI)
- JTLS Transaction Interface Program (JTOI) supporting
  - ICC 2.8.2 and 3.0.2
  - NEC-CCIS
  - TBMCS
- JTLS Interface Network Navigator (JINN)
- JTLS Order of Battle Editor (JOBE)

- Database Configuration Program (DCP)
- DDS User Interface (DDS)
- JTLS Terrain Building Program

Instructions for installing JTLS-GO 5.0.8.0 are provided in the *JTLS-GO Installation Manual*. Installing a previous version of JTLS prior to installing JTLS-GO 5.0.8.0 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.

#### 1.2.4 Released Databases

This release includes the following sample unclassified databases:

- The scenario developed as the Korea Standard Database and named SDBKOR50 is a large-scale, seven-sided scenario database reflecting the approximate starting positions of units involved in the Korea Peninsula theater of operations. This example scenario was developed using unclassified data sources and is consequently not completely accurate. Discrepancies among actual units and their locations are not detrimental to the intended purpose of this database, which is to provide a recognizable and realistic scenario that demonstrates the simulation capabilities and supports JTLS training.
- The scenario DEMSDBKOR50, which is a reduced version of SDBKOR50, has also been updated.
- The scenario blank50 is the SDBKOR50 database with all force structure data removed, which can be used as a framework for building your customized database.

### 1.3 INTERFACE COMPATIBILITY

#### 1.3.1 Support Software

JTLS-GO 5.0.8.0 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 6.9 (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.

A RedHat Linux documented loop-back interface problem continues to cause degraded performance issues on Red Hat/CentOS 6 systems. This issue negatively impacts JTLS services when executed on the same server as Apache.

While we expect Red Hat to eventually correct this issue, significant effort has been placed on JTLS-GO optimization to minimize impact of the problem. Still we recommend users with more than 25 concurrent WHIP/TRIPP users to avoid this Red Hat/CentOS loopback issue by running Apache and the SYNAPSE on different physical or virtual servers. For users with significantly more than 25 concurrent WHIP/TRIPP users, consider not running other JTLS services, such as the JXSR and XMS, on the same server used by Apache.

See the *JTLS-GO Installation Manual*, Appendix D for some recommended system tuning changes that can mitigate these performance issues.

STR JTLS-2017-13229 implements SSH Tunneling between Apache and the services and among the services. While testing has been conducted in the development environment, rigorous testing should be done prior to use in any exercise. Particular attention should be paid to network performance under load.

When using a Linux system as a client, if a dialog saying “Too many open files” appears, see the *JTLS-GO Installation Manual*, Section 5.5 for a work around. If this occurs on a server, see the *JTLS-GO Installation Manual*, Appendix D.

JTLS-GO 5.0 has been tested with the following versions of Linux 6:

RedHat Linux 6 - this operating system license must be purchased.

Oracle Linux 6 - this is a free and distributable version of Linux which has been approved for use by U.S. Government agencies by the Defense Information Systems Agency (DISA).

CentOS 6 - a free version of Linux 6 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 5.0.8.0 has been tested on the following operating systems:

Red Hat Linux Enterprise Edition Version 5 and 6.

CentOS Linux Version 5 and 6.

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

- Java 8 Update 144 is required for all platforms and must be used to support all workstations.

Because of recent incidents of intrusions into software systems, the United States Department of Defense (DoD) has implemented a strong and strictly enforced Information Assurance (IA) program. JTLS, as software that executes on DoD systems, must comply to the mandates of the IA program, along with all of the third party software used by JTLS-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. Java 8 has fulfilled this mandate by implementing an expiration date for its software. After a certain date, all Java related programs will stop working, whether you are connected to an open network or not.

JTLS-GO software releases are linked to the Java 8 security updates to meet this requirement. This version of JTLS-GO is released using Java 8 Update 144, which expires on 17 October 2017. A new version of JTLS-GO will be released prior to that expiration date.

- 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-2.0>HLA 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.

### 1.3.2 JTLS-GO High Level Architecture Compliance

The JTLS-GO 5.0.8.0 release is fully High Level Architecture (HLA) compliant, and includes all the programs required to run JTLS-GO in an HLA mode. JTLS-GO has moved to a new 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 continue.

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 RTI-NG-Pro-v7.0 or Pitch pRTI Evolved 4.4.2.0. However, these programs are not included in the JTLS-GO 5.0.8.0 delivery. Users may obtain a full installation package of the RTI software from either vendor: Raytheon Company (<http://www.raytheon.com>) or Pitch Corporation ([www.pitch.se](http://www.pitch.se)). For information about executing the HLA RTI Executive and other HLA-related software, refer to the appropriate HLA documentation and user guides.

## 1.4 DATABASE MODIFICATIONS

No database structure differences exist between JTLS-GO 5.0.8.0 and JTLS-GO 5.0.0.0.

Significant database structure differences exist between JTLS-GO 5.0.8.0 and any previous 4.1 series database.

To upgrade your JTLS 4.1 scenario to JTLS-GO 5.0 compatibility, see instructions listed in the *JTLS-GO DDS User Guide*, Chapter 3.1.

### 1.4.1 JTLS-GO Using Legacy Default Symbol Set

Prior to unloading your newly upgraded JTLS-GO 5.0.0.0 formatted data from your Oracle database server into a JTLS-GO 5.0.0.0 scenario ASCII file, you must execute the JSYMS program, which will reorganize the structure of the .gs and .scf symbols-related files. See the *JTLS-GO DDS User Guide*, Appendix B.11 for instructions.

### 1.4.2 Upgrading JTLS-GO Default Symbol Set

The JTLS-GO Default Symbol Set delivered with this release has been modified to use the US 2525C symbol standard and well as the NATO Joint Military Symbol [APP-6(c)] standard. If you choose to propagate this new Default Symbol Set to any of your scenarios that use the 4.1 Default Symbol Set, see the *JTLS-GO DDS User Guide*, Appendix B.12 and B.13 for instructions.

You should not make any modifications to the Default Symbol Set, but you are free to copy the Default Symbol Set and create your own set to meet your needs.

### 1.4.3 Standard Database Changes

Additional Standard Database changes that are applicable to JTLS-GO 5.0.8.0 are described in [APPENDIX B](#).

## 1.5 INSTALLATION

### 1.5.1 Installation Instructions

The *JTLS-GO Installation Manual*, included in the compressed TAR file that is part of this JTLS-GO delivery, provides detailed instructions for installing a new version of JTLS-GO. The *Installation Manual* can be found in the `/documents` subdirectory of the JTLS-GO TAR file.

With the JTLS-GO 5.0 series, there have been significant changes to the directory structure which holds the files for the Online Player Manual (OPM). Users must remove all existing files from their JTLS 4.1 or earlier version `$JGAME/{scenario}` directory before setting up their scenario for execution with the JTLS 5.0 series. Prior to running Option 3 - "Setup System for a Specific Scenario" of the JTLS-GO menu, all users must remove the existing files in their scenario game directory. Failure to clean-up the `$JGAME/scenario` directory will result in a program crash while generating the OPM (Option 4).

The JDS Protocol has changed with this release. Any users that hook to the JODA or EODA to get information on the existence and/or status of objects must recompile their code with the new JDSP header files, and link with the new JDSP libraries. Within the protocol, a force side has been added to all AAR objects, The BE Facility object has been assigned a `damage_percent` attribute, and BE Objects have been added to link targets and units to a BE Facility.

### 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.

The new 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.

### 1.5.3 Disabling Certificate Authority

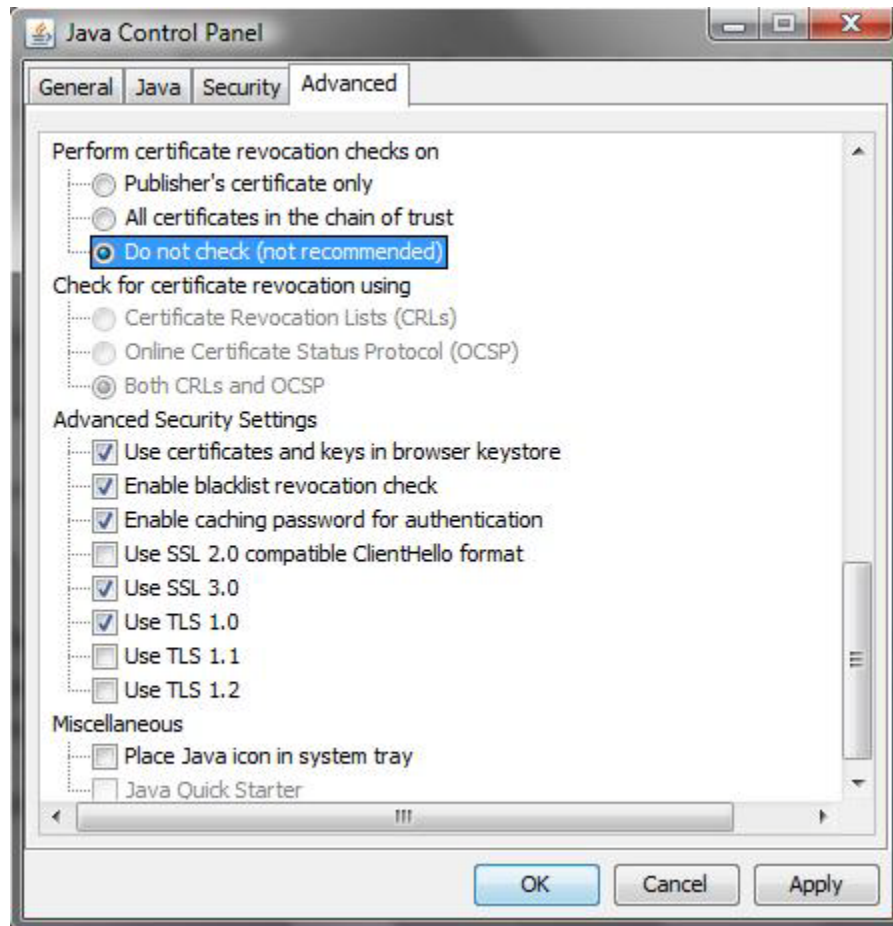
Industry standard programming practices strongly recommended that Web Start technologies be signed by a Certificate Authority (CA) to validate that an application being run comes from a trusted and registered source under the PKI. Keeping with high security standards, R&A has opted to sign its web enabled applications with a certificate from the COMODO, which uses the Public Key Infrastructure (PKI) to validate the digital signature. Local area networks, intra-nets and standalone systems that have no outside connection to the Internet must configure their installation to disable certificate revocation checks. If this step is not taken under a closed environment, the JTLS-GO web-enabled applications will experience a significant delay in start up while the PKI attempts to validate the certification on COMODO's servers via the Internet.

The following outlines the method that should be used to turn off certificate revocation checks. Again, this step should only be taken if the WHIP, TRIPP and/or DDS are going to be run in a closed environment.

Bring up the Control Panel. On Linux, typing 'jcontrol' in a terminal window will bring up the configuration panel. On Windows, go to the Windows 'Control Panel', select 'Programs' then click on 'Java'. Both Linux and Windows will display the same configuration panel.

Navigate to the 'Advanced' tab and in the list of configuration options, select the 'Do not check' radio button and click 'OK'. The image below illustrates the corresponding selection in the Control Panel.





**Figure 1.1 Control Panel**

Completing this step will allow you to run the JTLS-GO web enabled applications without any external checks and launch the application without the validation delay.

#### 1.5.4 Map Vector File Format Update

The format of the files used to display outline maps on the WHIP and DDSC has changed. Files in the new format are delivered with JTLS-GO. The files are located in `$JTLSHOME/data/maps/vector` and are in XML format.

For users who desire to use any custom files that are in the JTLS 4.1 format, a conversion script called "outlineConverter" is provided. The script can either convert individual files or a directory of files. The user can also choose to convert all types of outlines or only the shoreline outline (coded 9999 in the 4.1 format).

The script has 2 usages:

- To convert a single file:

```
outlineConverter -a <map_file> [-c shoreline]
```

- To convert all files in a directory. The file extension is assumed to be .map.

```
outlineConverter -d <directory> [-c shoreline]
```

The optional “-c shoreline” argument causes only the shoreline vectors to be converted. Rivers and national boundaries no longer follow hex-edges in JTLS-GO 5.0.8.0, but are represented as distinct lines with latitudes and longitudes. These terrain features can be individually turned on and off using the WHIP filter capability. Thus, the need to represent rivers and national boundaries in the vector maps is eliminated. The ability to represent these features, as part of the vector map, has not been removed from the WHIP, but the user should consider whether these old vector features should or should not be displayed by the vector maps.

The output files are placed in the same directory as the input files.

## 2.0 ENGINEERING CHANGE PROPOSALS

This chapter summarizes model capabilities added to JTLS-GO 5.0.8.0 as a result of implementing minor Engineering Change Proposals (ECPs).

### 2.1 JTLS-2017-13249 Coordinate Converter/Map Degree-Minute Location

#### Summary of Model Change Request

The Coordinate Converter and WHIP/DDS Map Component search function did not support a Degree-Minute formatted location, as used by some Air Tasking Orders (ATOs).

#### Design Summary

The ability to process a location in the following format was added: DDDMM.mmmmW DDMM.mmmmS.

### 2.2 JTLS-2017-13269 Apache HTTP Header Logging

#### Summary of Model Change Request

HTTP header logging was required. Header logging could only be turned on by running the apache2 script directly, and the log was deleted every time Apache was started.

#### Design Summary

The ability to turn on header logging in the Interface Configuration Program (ICP) was added.

### 2.3 JTLS-2017-13270 Apache FIPS Mode

#### Summary of Model Change Request

Apache must be able to operate in FIPS mode.

#### Design Summary

The ability to start Apache in FIPS mode was added.



## 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.

### 3.1 JTLS-2017-13240 OVP Value Check For Duration Max

The SET.AIR.GENERAL.PARAMETER order had a maximum value of "60M" in the DURATION field, instead of "1H". The Order Validation Program (OVP) needed to check that the maximum DURATION value did not exceed 59M, 59S, 23H.

The OVP code was modified to add a check for the maximum value in the DURATION field.

### 3.2 JTLS-2017-13241 Ground Truth COP Relationship

The new JTLS Operational Interface (JOI) did not support a Ground Truth COP. This capability was added, but the resulting COP showed all units as friendly to one another.

The design decision was to show a relationship on the Ground Truth COP as if the JTLS-GO database parameter COP Side looked at the relationship. This design decision was implemented.

### 3.3 JTLS-2017-13242 HRU OPAREA Patrol Crashed Model

If the user submitted an HRU order to Patrol an OPAREA, the model would crash when the order was executed.

This problem was solved in JTLS-GO version 5.0.6.0, but the new code was not integrated into the released version. The problem was solved again and properly moved into the released version of the software.

### 3.4 JTLS-2017-13243 Create HRU With Magic Target Crash

A Create HRU order was submitted using a HUP that included a magically created target. The model immediately crashed.

The model crashed during the HRU activation process when the logic attempted to create the magic target. The target happened to be an SSM that required supplies. The logic needed to determine the missile inventory held by the HRU to initialize the JDS. To access the HRU's available supplies, the faction Sustainment Logistics Prototype (SLP) was needed to identify any supply categories controlled by an external model (e.g. JCATS) to be ignored. Unfortunately, the HRU Faction attribute had not (yet) been initialized, which caused the model to crash when it attempted to access the FC SUSTAINMENT LOG PROTOTYPE.

To correct this problem, the code that assigns the parent unit's Faction to the HRU Faction was moved earlier in the HRU activation process so that the logic could access the faction SLP later.

### 3.5 JTLS-2017-13245 Drop Missile Track Cleanup

**A code inspection found superfluous statements in the routine that removes missile tracks from all WHIPs on a Force Side. The routine was correctly invoked when air search radars are turned-off or the missile flies out of radar coverage on a Force Side.**

After extensive testing confirmed that the extra statements had no bearing on the drop track logic, the unneeded code was removed to avoid confusion.

### 3.6 JTLS-2017-13246 Close ASC Unit/Prototype List On Some Platforms

**On some platforms, the Automatic Supply Calculation Unit/Prototype List dialog had no "X" in the title bar, and therefore could not be closed.**

Added a "Close" button to the Automatic Supply Calculation Unit/Prototype List dialog.

### 3.7 JTLS-2017-13247 Unscheduled Java Update

**Oracle released Java 1.8.0\_144 as an unscheduled release. It fixes an error in 1.8.0\_141 that can cause Java Web Start applications to fail to start.**

Java was updated to 1.8.0\_144.

### 3.8 JTLS-2017-13248 SSH Tunneling Option Not Enabled

**The SSH tunneling capability implemented by JTLS-2017-13229 was not enabled in the ICP.**

The SSH tunneling option was fully enabled in the ICP.

### 3.9 JTLS-2017-13251 Javamenu "Close This Menu" Numbering

**The Javamenu menus are nested. There are several child menus, such as the "Database" menu or the "Federation and Services Support" menu. Under these menus are other nested menus, such as the "Scenario Data Repository Menu". To close each menu, the user selects the menu option "Close This Menu", which should be enumerated with an 'X'. However, some of the "Close This Menu" options continue enumeration with previous menu options.**

"Close This Menu" options in various Javamenu child menus were corrected to be enumerated with an 'X'.

### 3.10 JTLS-2017-13252 JOI OTHGold Comments, Controller Side

**Several JTLS Operational Interface (JOI) issues were corrected:**

1. The OTHGold comments field failed to accept spaces.
2. When editing a text field, the interface would overwrite the uncommitted value if it had not been edited in the last 1.5 seconds.
3. Configuration text fields would accept lowercase letters, but would replace them with uppercase letters on an update.
4. When configured from a controller side, the OTHGold service would report all units as friendly.
5. Updates would cause the summary tables to be reordered with no apparent logic.
6. The interface managed its own count of active, total, and sent tracks, which lead to inconsistencies.

The previous issues were corrected as follows:

1. The comments field now supports spaces.
2. Message configuration text fields that have focus (i.e. the cursor is active in that field) and have been edited will only be overwritten with a new value after 60 seconds of inactivity.
3. Message configuration text fields now enforce that all text is uppercase.
4. The controller side OTHGold now uses the default COP side to determine relationships for objects.
5. Internal structures for holding track objects have been modified. This should provide more consistent behavior when updates are processed from the service.
6. The HUP/SUP/TUP/Convoy/Aircraft Type filter tables previously had an "All" row that would allow the user to modify the selection of all rows at once. The "All" row has been replaced with a toggle button.
7. When a track was set to no-update, an asterisk "\*" was added to the track's status value. For example, "Active\*". Because the no-update field is now an independent column in the summary table, the asterisk has been removed.
8. Track counts are now delivered with updates from the service. The service delivers two values for each object type: the total number of objects and the number of objects that are able to be sent.
9. Added an 'all' option to the OTHGold console 'list' command to generate a list of all objects in the OTHGold database.

### 3.11 JTLS-2017-13253 SITREP Exception When Clicking On Satellite

**When a Satellite object was selected to retrieve a Situation Report (SITREP), an exception dialog came up with an ArrayIndexOutOfBoundsException message.**

The SITREP renderer was failing to find the object value for the Satellite object. The object's index value in the static vocabulary data was not matching the JODA. The static vocabulary index was updated to reflect the correct index.

### 3.12 JTLS-2017-13254 SVP Seems To Run Too Long

**After moving in new terrain data, the database builder reported the Scenario Verification Program (SVP) process would not finish.**

A close review of the routines for checking the terrain identified a section of code that was being executed in the wrong place. This was causing what appeared to be a loop in the code. Had it been left to run, it would have eventually completed. The code was rearranged to be more efficient and the time to run the SVP was significantly reduced.

### 3.13 JTLS-2017-13255 Java Findbugs Fixes

**The Java code is being scanned by the Findbugs static code analyzer.**

Various issues found by Findbugs scans were corrected in the Java code.

### 3.14 JTLS-2017-13264 Model In Debug When Deleting Entry From TTG

**The model went into the debugger, but did not crash, when the Controller attempted to remove a type of target from the Target Type Group.**

There was a mismatch between the order that was sent to the game and what the game was expecting. The order panel was changed to match the code.

### 3.15 JTLS-2017-13265 Unused Field In SEP Order

**The Set Environmental Parameter Order referred to an old database parameter that no longer exists in JTLS. It was doing no harm, but was confusing to the Controller.**

The field was removed from the order. No code change was required for this STR.

### 3.16 JTLS-2017-13266 SEP Order Blank Message

**The Set Environment Parameters order was sent with an Other Factor Transmission Loss specified. The Player message generated in response was blank.**



The routine that produces the Player message referenced the wrong field from the order XML panel. The code referenced a field that wasn't used, which caused the blank message to be printed. The error was corrected to reference the field that corresponds to the transmission loss so that the value is printed.

### 3.17 JTLS-2017-13267 Error 653 Not Reporting If Warning 1632 Ignored

**Error 653 was never checked if the user told the SVP to ignore Warning 1632.**

The error was corrected. The check concerning whether Warning 1632 should be ignored was moved in the code, so Error 653 could still be checked.

### 3.18 JTLS-2017-13271 Order Duration Fields Compound Max Time

**If a order's Duration field has a limit set to 1H30M, then the minute spinner was always limited to 30M. This didn't allow entering a 45M duration, which should be a legal value. The National Asset Pass order has a 1H30M limit.**

The duration field editor was expanded to handle max duration values set as a compound max time value such as 1H30M, as is specified in the order definition file. This allows orders like the National Asset Pass order to have all legal duration values be entered and not be limited.

### 3.19 JTLS-2017-13272 JOI WSM Log Message

**The JOI often writes large messages to a network connection. This is allowable by the JOI and the connected C4I system. However, the JOI log in the WSM receives a standard warning report for the need to increase its buffer, as well as a very large text from the message that caused the buffer increase. Most of the content from the very large message is not required in order to investigate anything that may be causing other problems.**

The JDSP routine responsible for delivering the warning about the need to increase the message buffer was modified. It now only writes the first 50 bytes of the message that caused the buffer increase along with the report that the buffer was increased.

### 3.20 JTLS-2017-13273 Code Variable Cleanup

**Several model routines had variables that were not proper defined or unneeded.**

As part of our continual code cleanup these issues were addressed. No functional changes resulted from this cleanup.

### 3.21 JTLS-2017-13274 Spreadsheet ATO Targeting

**The Spreadsheet ATO process is not properly targeting units.**

Several of the routines in the spreadsheet parser were corrected to properly read the spreadsheet data and fill in the xml data used by the WHIP ATO Translator (ATOT) module.

### 3.22 JTLS-2017-13275 OTHGold Edit Track

**Users were unable to modify the command level and side relationship for tracks from the OTHGold WHIP module.**

Added an interface element that handles track modification for command level and side relationship, accessible from the Summary panel.

A bug was also fixed that affected SUB type objects. When setting the side relationship for SUB type objects, their force code would change to that of a SURFACE type object.

### 3.23 JTLS-2017-13276 IMT Search In JOBE Not Functioning

**The IMT Search was not always functioning in the JTLS Order of Battle Editor (JOBE).**

The JOBE search function issue was corrected.

### 3.24 JTLS-2017-13277 Moving Naval Units In JOBE

**When the user would select a Naval Unit and its Unit-owned Target, the user was incorrectly informed that the Target could not be moved because the parent Unit was not selected.**

The check to see if the parent Unit was selected was corrected.

### 3.25 JTLS-2017-13278 ATOT Aircraft Type Error When Not Linked

**Prior to the data check phase of the ATO translation, the user is able to link the type of aircraft for each mission to the available aircraft types in the scenario. The user can do this by linking the MTF aircraft type to the available JTLS aircraft types, using the ATOT interface in the WHIP. If this link is not done the ATOT reports Error 515 during the check phase for the mission, which states that the mission uses an inappropriate aircraft type that is not available from the associated squadron.**

The ATOT was not making sure that the linking had been accomplished before checking the aircraft type for the mission. The ATOT was modified to only check for the error condition when the linking was accomplished for the mission's aircraft type.

### 3.26 JTLS-2017-13279 DDSC File Menu Items Not In Assigned Order

**The DDS Client's 'File' menu did not display its menu items in the assigned order.**

The listing order of the file menus and menu items are now being properly indexed according to their assigned priority so they appear in the order expected. The 'Contents' menu item under the 'Help' menu was assigned a priority to appear before the 'About' menu item.

### 3.27 JTLS-2017-13280 Crossing National Boundary Accuracy

**Users complained that ships told to move up to a restricted national boundary were refusing to move there, Similarly ships told to move just over the restricted national boundary sometimes moved.**

One small issue was discovered when a unit starts a two grid move in which the unit starts on the grid line of one grid and the national boundary was in the next grid. This problem was solved by taking the situation into account.

More importantly, the code was acting exactly as expected. Users were viewing the map using the Mercator projection. When viewing the national boundary, especially when the segment is long, become distorted. The user thought the unit was being told to stay on the proper side of the boundary, but in reality when looking at the map using the orthographic projection, the naval unit was in fact being told to cross the boundary.

This is an important training issue for users. When viewing polylines (barriers and national boundaries) the WHIP's orthographic projection is the only accurate representation of the polyline segment.

### 3.28 JTLS-2017-13281 Network SVP Error/Warnings Improved

**The expansion of worldwide movement networks in JTLS-GO (rail, road, river, air and sealane) necessitated an increase in and minor reorganization of the SVP Errors and Warnings.**

#### **Specific Problems:**

- **Most network SVP errors/warnings should fall under categories 900/1900, rather than 600/1600. This action will permit the lengthy movement network checks to be ignored when the "Check Terrain" box is deselected.**
- **Network arcs that cross were incorrectly interpreted as a feasible location to traverse to a connected arc, even though there is no node at the intersection point or connection. Arcs may traverse to a new arc only at its node endpoints.**
- **Checks for any Crossing River Arcs used plane geometry rather than the JTLS standard of spherical geometry (Great Circle) to determine arcs.**
- **Checks required for any crossing sealane or air corridor arcs without intersection nodes.**

- **Hard coded network type names such as "Sealanes" are passed into the SVP rather than variables.**
- **Error 953 was incorrectly ignored when Warning 1932 was selected to be ignored.**

Movement network check "Warning 1901 Overlapping Network Arcs" was added to prevent any network arc from crossing another arc without a node at the intersection point. This specific check is computationally intensive and very time consuming for a user running the SVP. Movement Network checks in general are unnecessary once the terrain/network data has been verified.

Movement networks errors/warnings now fall under Terrain group (900/1900). This action allows users the option to bypass both terrain and network checks during an SVP check. Overall SVP computation time will be radically reduced.

Pipeline and IADS networks will remain under the Target category (600/1600), and National Boundaries and Barriers will remain under the General Modeling Parameters (100/1100).

Numerous network errors/warning were added or moved.

### 3.29 JTLS-2017-13282 Recalled Managed DSAs Order Duration Field

**When recalling a saved Manage DSAs order that has 'Collection Frequency' set to group option 'Multiple Times', the 'Time Between Looks' duration field was not being displayed, even though the group option was selected. Subsequently clicking on the 'Multiple Times' option showed the duration field with the correct saved value, but on the recall the duration field is always hidden. The issue did not interfere with checking and sending the order as the value was there though the field was not visible.**

On a recall of a saved order, the saved group selections are performed in the order that the groups are defined in the order definition file. The Manage DSAs order definition had the 'Collection Frequency' child group appearing before its parent group 'DSA Options', causing the 'Collection Frequency' saved option to be set before the 'DSA Options' was set causing an undoing of the 'Collection Frequency' displayed fields. The order definition was changed to define the groups in sequence of defining the parent group first then the child groups to correct the display of the recalled order.

### 3.30 JTLS-2017-13283 Canceled Amphib Assault Crash

**An amphibious assault operation using small boats owned by the assaulting ground unit was canceled using the Manage Formation Tasks order. The CEP immediately crashed.**

The logic that terminates the amphibious operation assumed the small boats involved in the assault wave always belonged to the naval vessels executing the operation. In fact, the small boats belonged to the USMC unit that was assaulting the beach. The logic attempted to access the small boat array which is an attribute of naval units only. The small boat array is non-existent

in a ground unit. Accessing the non-existent array caused the crash. The logic was corrected to handle this situation by adding the small boats (COMBAT.SYSTEM.AMPHIB) back to the owning ground unit equipment inventory. Only small boats belonging to naval units are added back to the small boat array, as always.

### 3.31 JTLS-2017-13284 Crew Time Exceeded Message

**An air mission was placed on the wrong side of a national boundary. It could not get home, and the mission ran out of crew time. The mission repeated the out of crew time message over and over again.**

The situation was solved by marking the mission when it runs out of crew time, so it does not continue to report the issue.

### 3.32 JTLS-2017-13285 Crew Time Exceeded Message Missing

**An Air Mission in flight was canceled by the model due to excessive Aircrew time. This action was performed correctly, but the following messages were missing:**

- 1. A message was sent to the WHIP for the home squadron, but not the separate WHIP controlling the air mission.**
- 2. The excessive aircrew time reason and timestamp was missing from the Mission Report.**

The WHIP terminal ID of the Air Mission was added to the problem message recipients. Excessive aircrew time problem was added to the air mission report.

### 3.33 JTLS-2017-13286 Error In SITREP Panel For Satellites

**When a user clicked on a Satellite object on the WHIP, the resulting SITREP showed an error in that window. The error reported a bad object type.**

For the aggregate model, object data are stored in the JODA. Every class of object is assigned a reference integer. This integer value is shared between the WHIP, the JODA, the CEP, and other component programs. When the JODA program was modified, the integers for the object classes may or may not change if one or more objects are added or removed from the code. For objects displayed on the WHIP, the integers associated with those types of objects must not change when JODA modifications were made.

In the case of the Satellite objects, the JODA build process was not assigning a fixed value for the integer associated with satellites. This problem was remedied by changing the protocol to use a fixed integer value for the satellite type.

### 3.34 JTLS-2017-13287 Changing Sealane Node Location Not In JODA

**If the Controller changes the location of a sealane node, the JODA does not get updated.**

There was an argument mismatch between the model code and the JODA update routine. The problem was corrected.

### 3.35 JTLS-2017-13288 Delete Sealane Arc Crash

**A Controller Manage Movement Networks order was submitted to delete an existing sealane network arc, which caused the CEP to crash.**

A flaw in the logic did not initialize the network name if the network type was sealane or flightpath. The network name was used to retrieve the pointer to the network itself. Because the name was blank, no pointer could be retrieved. When the logic then attempted to retrieve the pointer to the arc to be deleted, the model crashed because the network pointer was null. The error was corrected by properly initializing the network name for sealane & flightpath arcs. Note this error did not exist for rail, road, or river networks.

### 3.36 JTLS-2017-13289 Crash Canceling Ship Wait Task

**The model crashed when a ship that was in a formation could not find a suitable station location, because the formation moved into water too shallow to support the unit.**

When a ship cannot find a good station location, it goes into a wait state, waiting for help from the user to tell it what to do. The user attempted to simply cancel the naval formation's wait task in this situation. The logic was not prepared for this option.

The solution to this problem was approached from several different angles.

1. The user is not allowed to delete an executing wait task for a naval unit that is in a formation. A naval unit in a formation has one for four status values:
  - Enroute - which means it has not physically joined the formation
  - Reposition - which means that the naval unit is moving to assume a new station location.
  - On station - which means the ship is where it is supposed to be. In this circumstance the unit should not have an executing task because the formation is responsible for the tasks
  - Waiting - which means the ship is in a hold waiting for the formation to move into deeper water. It has an executing Ground Wait task. This is the task which no longer can be canceled.

This solved the immediate crash problem.

2. In testing this fix, it was noted that the user could not remove a ship that was in a wait state from a formation. This problem was also solved.

### 3.37 JTLS-2017-13290 Airbase And Squadron Independent Squadron

**The independent squadron portion of the Airbase and Squadron DDS report was missing the faction.**

The faction was added to the independent squadron portion of the Airbase and Squadron DDS report.

### 3.38 JTLS-2017-13291 Missing Life Rafts

**Downed pilots in water grids were missing life rafts.**

In order for a possible downed pilot in a water location to survive, the aircraft must be carrying life rafts as designed in the database. Currently the SVP does not check the squadron to see if it has enough life rafts for every aircraft.

The SVP was modified and tested to perform the additional check. The new SVP warning is Warning 1462.

### 3.39 JTLS-2017-13292 Naval Ports Should Be Accessible To All Ships

**There was an issue getting a naval unit to sail into a naval port. Eventually the problem was discovered that the water depth around the port unit was not sufficient to allow the naval unit to enter.**

An SVP warning has been added whenever a naval unit on the same side as a port unit can not approach within the radius of the port unit because of water depth. The port units are defined as any unit in the database that is specified as the home base for a naval unit. The premise of the warning is that all ships on a side should be able to enter all ports on the same side. If this is not true, the database builder can ignore the warning. Otherwise they are provided with the option to view the Ship Unit Prototype data, which defines the minimum operation depth for the ship, or the terrain data to correct the issue.





## 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.

### 4.6 Strategic Airlift Does Not Work

Users should not submit Strategic Airlift Orders

### 4.7 Tactical Ground Formation Attacks Do Not Work

Users should not submit Tactical Ground Formation Attack orders. Tactical Ground Formation moves work fine.

#### 4.8 Materiel Handling Equipment (MHE) Does Not Work

The use of Materiel Handling Equipment (MHE) has been temporarily disabled in the model.

#### 4.9 Port Amphibious Operations Do Not Work

Users should not submit an order to do an amphibious assault or an amphibious pickup with the Port Option. The user should simply indicate that “Beach” operations are desired or Magic Move the unit off of the formation at an appropriate time.

#### 4.10 Multiple Point Ground Group Move Results Not Consistent

A Move order was submitted to a ground unit with a specified route consisting of three points. Four other ground units were specified as part of the group move (not a TGF move). After the lead unit completed its third Move task and the other units finished their movement, the position of the other units varied significantly from their starting locations relative to the lead unit before the first move began. The reason this happened is that when the group leader starts its move, it makes note of the relative position to each of the units in the group. Not all units were complete with their first move; therefore, the relative positions did not match the starting relative positions. To solve this problem, insure that all units have completed a previous group move before giving a second group move order.

## 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

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BADGE	Bilateral Air Defense Ground Environment (used by Japan Defense Agency)
BAI	Battlefield Air Interdiction
BDA	Battle Damage Assessment
BDE	Brigade
BN	Battalion
C3	Command, Control, and Communications
C3I	Command, Control, Communications, and Intelligence
C4I	Command, Control, Communications, Computers, and Intelligence
CA	Civil Affairs
CADRG	Compressed ARC Digitized Raster Graphics
CAP	Combat Air Patrol
CAS	Close Air Support
CAT	Category
CCF	Central Control Facility
CCP	Command Control Prototype
CCU	Controller Change Unit
CEP	Combat Events Program
CMDR	Commander
COP	Common Operational Picture
CP	Combat Power
CS	Combat System
CSP	Combat System Prototype
CTAPS	Contingency Tactical Air Planning System
CTG	Commander Task Group
CTRL	Control keyboard command
DCA	Defense Counter Air
DCL	Digital Command Language
DDS	Database Development System
DEMSDB	Demonstration Standard Database
DISA	Defense Information Systems Agency
DIV	Division
DMA	Defense Mapping Agency
DoD	Department of Defense
DOS	Days of Supply

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DPICM	Dual Purpose Improved Conventional Munitions
DS	Direct Support
DSA	Directed Search Area
DTG	Date Time Group
EC	Electronic Combat
ECM	Electronic Counter Measure
ECP	Engineering Change Proposal
EEI	Essential Elements of Information
ELINT	Electronic Intelligence
ELS	Entity Level Server
EODA	Entity Level JTLS Object Data Authority
ETA	Estimated Time of Arrival
FARP	Forward Arming and Refueling Point
FLP	Fire Lethality Prototype
FLOT	Forward Location of Troops
FOL	Forward Operating Location
FWL	Frederick W. Lanchester (originated a differential equation model of attrition)
GAL	Gallon
GCCS	Global Command and Control System
GRTE	Ground Route
GS	General Support
GSR	General Support Reinforcing
GUI	Graphical User Interface
HARM	High-speed Anti-radiation Missile
HE	High Explosive
HELO	Helicopter
HMMWV	High Mobility Multipurpose Wheeled Vehicle
HQ	Headquarters
HRU	High Resolution Unit
HTML	Hypertext Markup Language
HTT	High resolution unit Target Type
HUP	High resolution Unit Prototype
ICM	Improved Conventional Munitions
ICP	Interface Configuration Program

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ICPLgin	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

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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

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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.)



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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
TACELINT	Tactical Electronic Intelligence
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

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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 5.0.8.0 STANDARD DATABASE CHANGES**

No new changes were made to the Standard Database (SDB) for this maintenance release.



## **APPENDIX C. Version 5.0.8.0 DATABASE CHANGES**

No changes were made to the JTLS-GO 5.0.8.0 database for this maintenance release.