

JTLS

Version Description Document

July 2016



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JOINT THEATER LEVEL SIMULATION
(JTLS 4.1.13.0)

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ABSTRACT

The Joint Theater Level Simulation (JTLS[®]) 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 Version Description Document (VDD)* describes specific features of the Version 4.1.13.0 delivery of the configuration-managed JTLS software suite.

JTLS 4.1.13.0 is a maintenance release of the JTLS 4.1 series that includes code modifications that represent corrections to known Software Trouble Reports (STRs), which 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 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 Version Description Document* (VDD) describes Version 4.1.13.0 of the configuration managed Joint Theater Level Simulation (JTLS[®]) software suite. JTLS 4.1.13.0 is a Maintenance delivery for the JTLS 4.1 series of releases. JTLS 4.1.13.0 includes the entire JTLS suite of software and the SDBKOR41 Standard Database that supports a realistic scenario based on the current Korean Peninsula theater of operations.

Detailed descriptions of Engineering Change Proposals (ECPs) and minor model enhancements implemented for this release are provided in [Chapter 2.0](#). [Chapter 3.0](#) summarizes all of the problem corrections made since the previous official release of JTLS. Finally [Chapter 4.0](#) lists all known problems that have not been fixed. Each of these known issues includes a description of the problem's impact on execution of JTLS and suggestions for avoiding or working around the issue to reduce the impact on the operational use of JTLS.

The format of the database, as well as the suggested default data, as contained the SDBKOR41 scenario, has not changed since the release of JTLS 4.1.11.0.

JTLS 4.1.13.0 executes on the Red Hat Enterprise Linux Version 5 or 6 64-bit operating systems. The Web-Hosted Interface Program (WHIP[®]) user workstation interface can be executed from any Java-compatible Web browser available on any operating system.

JTLS 4.1.13.0 is the final release of the JTLS 4.1 series. JTLS 4.1.13.0 will continue to be supported until 1 August 2017.

1.2 INVENTORY OF MATERIALS

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

1.2.1 Obsolete/Outdated Documents

No documents have been removed from the JTLS documentation suite for this release.

1.2.2 Unchanged Documents

The following documentation is provided for this release:

- *JTLS Analyst Guide* (JTLS Document 01, Version 4.1.13.0)
- *JTLS ATOT User Guide* (JTLS Document 03, Version 4.1.13.0)
- *JTLS Controller Guide* (JTLS Document 04, Version 4.1.13.0)

- *JTLS Data Requirements Manual* (JTLS Document 05, Version 4.1.13.0)
- *JTLS DDS User Guide* (JTLS Document 06, Version 4.1.13.0)
- *JTLS Director Guide* (JTLS Document 07, Version 4.1.13.0)
- *JTLS Executive Overview* (JTLS Document 08, Version 4.1.13.0)
- *JTLS Installation Manual* (JTLS Document 09, Version 4.1.13.0)
- *JTLS WHIP Training Manual* (JTLS Document 10, Version 4.1.13.0)
- *JTLS Player Guide* (JTLS Document 12, Version 4.1.13.0)
- *JTLS Standard Database Description* (JTLS Document 14, Version 4.1.13.0)
- *JTLS Software Maintenance Manual* (JTLS Document 15, Version 4.1.13.0)
- *JTLS Technical Coordinator Guide* (JTLS Document 16, Version 4.1.13.0)
- *JTLS Entity Level Server User Guide* (JTLS Document 19, Version 4.1.13.0)
- *JTLS Federation User Guide* (JTLS Document 20, Version 4.1.13.0)
- *JTLS C4I Interface Manual* (JTLS Document 21, Version 4.1.13.0)
- *JTLS DDS Training Manual* (JTLS Document 23, Version 4.1.13.0)

1.2.3 Updated Documents

- *JTLS Version Description Document* (JTLS Document 17, Version 4.1.13.0)

1.2.4 Delivered Software Components

JTLS 4.1.13.0 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. These software components are included with this release:

- Database Configuration Program (DCP)

- DDS User Interface (DDS)

In order to use the DDSC, the GlassFish domain must be re-saved as follows:

1. In the DCP, stop the GlassFish server.
2. Change the execution host and then change it back.
3. Save (After the save, the server will be left running).

- Combat Events Program (CEP)
- Scenario Initialization Program (SIP)
- Interface Configuration Program (ICP)
- Reformat Spreadsheet Program (RSP)
- Database Development System (DDS)
- Terrain Modification Utility (TMU)
- JTLS Symbols Application (JSYMS)
- Lanchester Development Tool (LDT)
- ATO Translator Program (ATOT)
- ATO Retrieval Program (ATORET)
- Convert Location Program (XCONVERT)
- 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:
 - a. Apache Server, version 2.4.12 (APACHE)
 - b. JTLS XML Serial Repository (JXSR)
 - c. Order Management Authority (OMA)
 - d. Synchronized Authentication and Preferences Service (SYNAPSE)
 - e. XML Message Service (XMS)
 - f. Total Recall Interactive Playback Program (TRIPP)

In order to use After Action Reports in the TRIPP the GlassFish domain must be re-saved as follows:

1. In the WSM, stop the AAR GlassFish server.
2. In the ICP, on the GlassFish tab, deselect, and then reselect GlassFish.
3. In the ICP, save.
4. Restart the AAR GlassFish server.

- Entity Level Server (ELS)
- JTLS Operational Interface (JOI)
- KML Operational Interface (KOI)
- TBMCS/ICC Interface Program (JTOI)
- JTLS Interface Network Navigator (JINN)
- JTLS Order of Battle Editor (JOBED)
- Technical Control Tool (TechTool)

Instructions for installing JTLS 4.1.13.0 are provided in the *JTLS Installation Manual*. Installing a previous version of JTLS prior to installing JTLS 4.1.13.0 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.

1.2.5 Released Databases

This release includes these sample unclassified databases:

- The scenario developed as the Korea Standard Database and named SDBKOR41 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 DEMSDBKOR41, which is a reduced version of SDBKOR41, has **not** been updated from JTLS 4.1.11.0 for this release and contains the most current engineering level data from the SDBKOR41 scenario.
- The scenario blank40 is the SDBKOR41 database, with all force structure data removed, can be used as a framework for building your customized database. This database has been updated and contains the most current engineering level data from the SDBKOR41 scenario.

1.3 INTERFACE COMPATIBILITY

1.3.1 Support Software

JTLS 4.1.13.0 requires the following versions of support software, including operating systems, compilers, scripting utilities, database tools, transfer protocols, and display managers.

- Operating systems for the model:

Red Hat Linux Enterprise Edition Version 5 or 6 (ES), 64-bit architecture.

CentOS Linux Version 5 and 6

Security Enabled (SE) Linux must not be enabled on systems used to execute JTLS 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 is currently not authorized.

When running JTLS on any Version 6 Red Hat Linux Enterprise Edition system, do not run the SYNAPSE and APACHE services on the same machine. This is a known Linux issue for which Red Hat has not provided a solution. The development team has made some changes to minimize the issue but for large exercises R&A suggests APACHE should run on its own machine.

The Development Team has started to investigate the impact of Version 7 Red Hat Linux on JTLS. This testing is not complete; therefore, JTLS 4.1.13.0 is not approved for use with Version 7 of Red Hat Linux.

- There are no restrictions on the operating system for client workstations, except that the operating system must have a Java-enabled web browser. JTLS 4.1.13.0 client software 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, or Windows 8 can be used only if the workstation is an external HTTP client of the simulation network.

- Java 1.7.0 Update 80 for model server machines.
- Java 1.8.0 Update 102 for client workstations.

Oracle has announced that Java 1.7.0 Update 80 is the last public update for Java 7. Java 1.7.0 Update 80 has expired as of July 15, 2015 and can no longer run the WHIP, TRIPP and DDSC via a web browser on the model server machines.

Server machines cannot be upgraded to Java 8, because the Glassfish server software will not run under Java 8. To work around this problem, three new scripts have been added to run the WHIP, TRIPP and DDSC from the command line on model server Linux machines. Typing either "whip", "tripp", or "ddsc" in a terminal window will print the usage instructions.

Client machines must be upgraded to Java 8 Update 102 to run the WHIP, TRIPP, and DDSC.

- JTLS 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 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 code. It is not necessary to have a SIMSCRIPT compiler to execute JTLS, because all JTLS 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 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. This compiler is used only by U.S. Government organizations that can obtain source code and intend to re-compile any of the JTLS 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. This compiler is used only by U.S. Government organizations that can obtain source code and intend to re-compile any of the JTLS HLA component programs. The C++ Compiler version delivered with the supported versions of Red Hat Linux ES is sufficient.
- The JTLS DDS (Database Development System) application uses these open source libraries, which are delivered with JTLS:

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 C4I Interface Manual* describes requirements and procedures for using the KOI capabilities.

1.3.2 Special Consideration for the JTLS Air Tasking Order Translator (ATO-T)

The ATO-T executes in two modes:

- In the basic mode, one or more files containing the translated orders is created and the Controller is responsible for submitting an appropriate READ ORDER FILE Order that submits these orders to the model.

- In the advanced mode, the ATO-T connects to the Oracle-based Scenario Database Repository (SDR) and places the translated orders into the appropriate Order Entry Client (OEC) tables. The OEC is responsible for submitting the orders to the model.

The SIMSCRIPT and Oracle libraries needed to support both ATO-T modes are delivered as part of the JTLS software package with the permission of CACI, Inc and Oracle Corporation. The necessary SIMSCRIPT libraries are released in the ~/bin_support/Linux64/simscript directory. The Oracle libraries are released in the ~/bin_support/Linux64/oracle directory.

To run the advanced mode, users must have access to an Oracle server. Users must obtain, install, and configure the most current Oracle Full Client to use the ATO-T in the OEC mode.

1.3.3 JTLS High Level Architecture Compliance

The JTLS 4.1.13.0 release is fully High Level Architecture (HLA) compliant, and includes all the programs required to run JTLS in an HLA mode. JTLS has moved to a new Federation Object Model (FOM) located in the \$JGAME/data/hla directory. Federation testing of JTLS is not complete, but some initial tests with CAE's Gefechts-Simulation system (GESI) have been accomplished. Future plans include expanding the capabilities to fully establish the GlobalSim Federation.

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 4.1.13.0 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). 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

1.4.1 Database Upgrade to JTLS 4.1 Series

No database structure differences exist between JTLS 4.1.13.0 and any previous 4.1 series database.

There are no changes between the database structure in JTLS 4.1.11.0 and JTLS 4.1.13.0. There are no special requirements to upgrade your database for JTLS 4.1.13.0.

To upgrade your previously installed and modified JTLS 4.1.5.0 scenario or earlier for JTLS 4.1.13.0, you must unload and reload your scenario. This will recreate the modified stored procedures, database triggers, etc. Failing to do so will cause issues in DDS operations, such as renaming, copying, and deep copying existing records.

If you are upgrading to JTLS 4.1 from JTLS 4.0 or earlier, you must unload and reload your scenario after the modification is completed.

The JTLS Default Symbol Set has not changed since the initial delivery of JTLS 4.1.0.0. If this version of JTLS is your first JTLS 4.1 series installation, then the Default Symbol set must be propagated to any of your scenarios that originated under JTLS 4.0 or any previous version. Use the procedure that follows. You should not make any modifications to the Default Symbol Set.

Use this procedure to start the JSYMS program to update the Default Symbol Set used by one or more scenarios.

1. Enter the command "jsyms --edit-default" from a command prompt window. Do not use the JTLS Menu > Database Menu for this purpose. This message appears:

"!!! JSYMS Allows Editing and Saving the Default Symbol Set."
2. Select the Default Symbol Set from the drop-down menu and select OK.
3. Select Symbols from the menu bar, and select Save to update all scenarios that use the Default Symbol Set.
4. Close JSYMS.
5. Use the JTLS Menu Option 1 > 1 > 6 (Load Symbols) to load the current Default Symbol Set to your scenario account in the Oracle database.

1.4.2 Database Upgrade from JTLS 4.0 or Earlier

Users who currently possess a JTLS scenario (ASCII file set) compatible with a version earlier than Version 4.1.0.0 can use this recommended modification procedure after installing this new version of JTLS:

1. Create a new Oracle account for the scenario.
2. From the new JTLS account, load the scenario ASCII files to the newly created Oracle account.

This process creates the JTLS schema that matches the previous JTLS version. After all data are loaded to the database tables, the process modifies the schema to match the current JTLS version. For JTLS 4.1, this process supports JTLS 3.0 (or higher) series scenarios only. If your scenario version is older than 3.0, the scenario must be upgraded to Version 3.4 first, by using the JTLS 3.4 version upgrade process. Consult Section 1.5.2 of the *JTLS 3.4.0.0 Version Description Document* for details and procedures.

JTLS users must consider that the automatic modification program inserts default values to the new database fields. Also, a new JTLS version may use previously existing data fields in a different way. Consult the appropriate *JTLS Version Description Document* to identify data fields that must be updated. The Database Modify program is the first process to use to update your

databases to the new JTLS version. Changing the values in new or changed data fields is equally important.

The JTLS scenario/database modification process requires a full Oracle Client version 10.2.0.5.4 or higher installation.

1.5 INSTALLATION

1.5.1 Installation Instructions

The *JTLS Installation Manual* included in the documents compressed TAR file that is part of this JTLS delivery provides detailed instructions for installing a new version of JTLS.

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 JTLS applications. The Oracle Instant Client is not sufficient for JTLS applications because Oracle utilities, such as sqldr, 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. For the 64-bit version of JTLS, a 64-bit Oracle Client installation must be used. The JTLS scenario/database modification process also expects 10.2.0.5.4 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. 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 (10.2.0.5.4 or higher - including 11g XE) running on any Oracle-certified database server platform.

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

Refer to Chapter 5 of the *JTLS Installation Manual* for additional details pertaining to the Oracle installation.

1.5.3 Disabling Certificate Authority

Keeping with high security standards, R&A has opted to sign its web-enabled applications with a certificate from the COMODO Certificate Authority (CA). It uses the Public Key Infrastructure (PKI) to validate the digital signature. The PKI attempts to validate the certification on COMODO's servers via the Internet. Because of security issues and the expiration of versions, it is strongly recommended that Web Start technologies be signed by a CA to validate that an application being run comes from a trusted and registered source under the PKI.

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 web enabled applications will experience a significant delay in start up.

The following outlines how 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 and select 'Java'. Both Linux and Windows will display the same configuration panel.

Navigate to the 'Advanced' tab and scroll down to the 'Perform certificate revocation checks on' heading. Select the 'Do not check (not recommended)' radio button and click 'OK'. The image below illustrates the corresponding selection in the Control Panel.

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

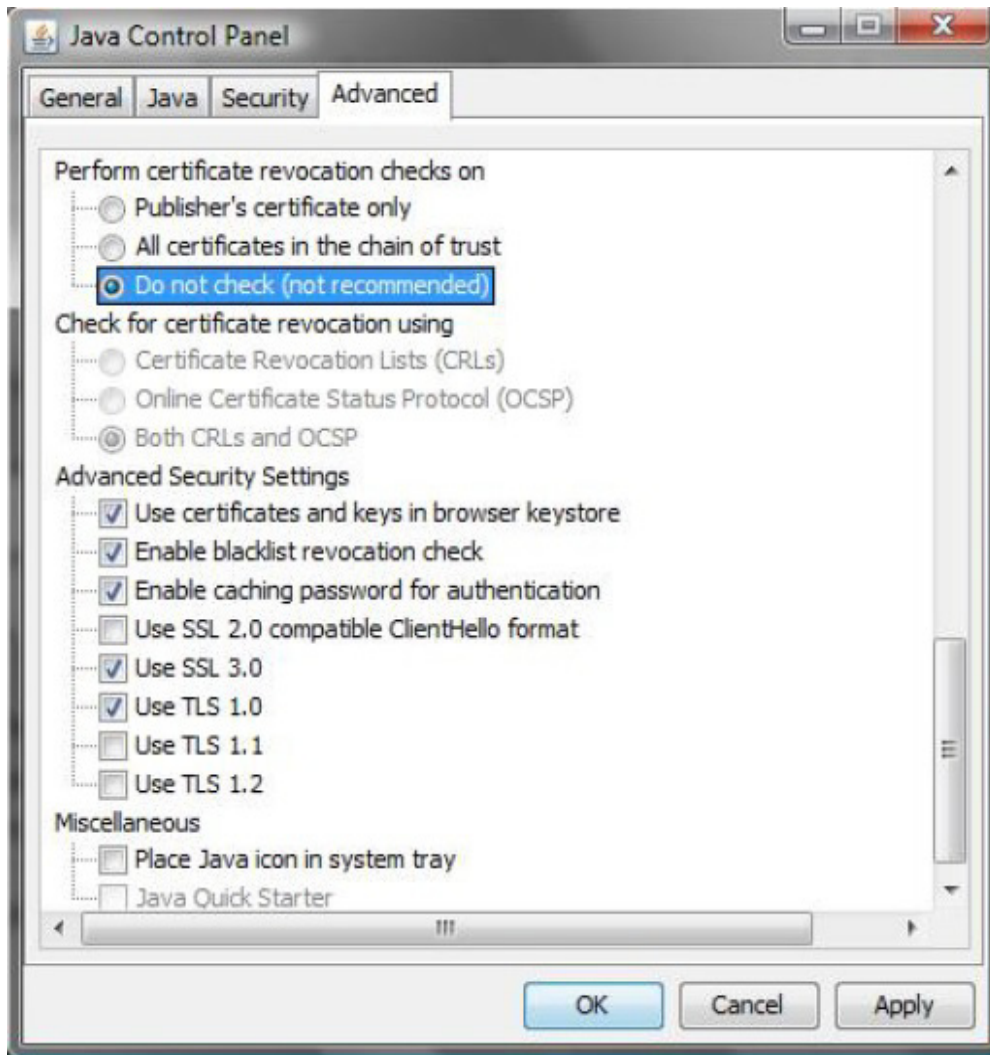


Figure 1.1 Control Panel

2.0 MINOR MODEL ENHANCEMENTS

This chapter summarizes model capabilities added to JTLS 4.1.13.0 as a result of implementing minor Engineering Change Proposals (ECPs). No major design related ECPs are delivered with JTLS 4.1.13.0.

2.1 JTLS-2015-12456 Mobile Sensors Use Assoc Unit JU Number

Summary of Model Change Request

When a Link-16 capable sensor detects a target, the Source JU number associated with the sensor is needed by the Link-16 message. Currently the model uses the following logic to determine where to look for the Source JU number when the Sensor is a Target:

If the Target is owned, the priority for the Source JU is as follows:

1. Use Owing Unit's JU Number.
2. Use the Target's JU Number.

If the Target is unowned, the priority for the Source JU is as follows:

1. Use Target's JU Number
2. Use the Associated Unit's JU Number

The desire for this ECP is to allow the Associated Unit's JU Number to also be an option for an owned, mobile target.

Design Summary

When working with an Owned Target, if the owning unit has no assigned JU Number and the target itself has no assigned JU Number, look in a third place for the JU Number, which is the target's Associated Unit.

3.0 SOFTWARE TROUBLE REPORTS

Software Trouble Reports (STRs) describe software code errors that have been discovered by JTLS users or developers and have been corrected. The following STRs have been identified for this JTLS Maintenance release.

STRs that remain outstanding from previous JTLS versions are listed and described in [Chapter 4.0](#).

3.1 JTLS-2016-12588 OPM Generation Crashes If SUP Has No POT Targets

The OPM generation process crashes if a SUP exists with no POT targets.

The OPM SUP pages contain a table labeled:

"SUP Automatically owns the following Targets".

The SIP code generating this HTML file did not consider the possibility of a SUP containing no Prototype Owned Targets (POT targets). The code was corrected. If a SUP has no POT targets, the OPM SUP page now states:

Database <scenario_name> contains no SUPs with this characteristic.

The sdbkor41 database was changed to include one SUP with no POT targets.

3.2 JTLS-2016-12600 IMT Fields Too Short For Contents

Two IMT screens - the Naval Pending Order screen and the HRU Pending Order screen - display WHIP name fields using only 20 characters. These need to hold 25 characters, since WHIP names can be up to 25 characters as allowed by the Interface Control Program (ICP).

Fields in the specified IMT xml files were expanded to 25 characters.

3.3 JTLS-2016-12601 Position Errors When Moving Units In ELS

Errors were found in the locations of ELS command objects when an aggregate unit was moved. The speed and course of the object predicted new positions for the object which differed from the published location changes. These location errors were typically about 10 meters, but were as large as 33 meters.

The ELS used routines to compute the distance and course between two locations, and to compute a new location from a starting location plus a distance and course. The algorithms used in these routines contained some approximations which were not sufficiently accurate for use with MUSE in simulating the movement of objects. The code was changed to utilize more precise algorithms for these purposes.

3.4 JTLS-2016-12602 Split Air Mission Goes Into SIMDEBUG

When a Split Air Mission order was submitted, and the mission was NOT guiding off of a unit or formation, the model went into a Warning Simdebug. The model could be continued without any ill effect, but it should not enter Simdebug under these conditions.

This error was introduced into the model when fixing the unrecoverable crash when splitting an air mission that WAS guiding off of a unit or formation. The new code incorrectly did not account for the fact that guiding off of a unit or formation was not always true. The default case was added to insure the model did not go into Warning Simdebug.

3.5 JTLS-2016-12603 Crash Modify Category Code Data

When submitting a Manage Category order, the model entered a Warning Simdebug and did not accomplish the requested changes. This is the same STR as STR-2015-12545 that was corrected in December 2015.

The code for STR-2015-12545 was corrected properly for JTLS 5.0, but was not corrected properly for JTLS 4.1. The order panel was changed to match JTLS 4.1 requirements.

3.6 JTLS-2016-12604 Game Crash Getting Location Of Naval BE Object

The model crashed due to a BE facility built with a naval unit as one of its objects. The CEP was processing a detection of the BE Facility and was gathering data on each of its objects, including the object radius. It attempted to access the TUP.Radius of the object in question since it was a unit. The crash occurred because the unit was a naval unit, and the proper attribute is the SUP.Radius.

The code was modified to check for the unit type before getting the radius. Now the code will access the SUP.Radius for a naval unit, and TUP.Radius for all other units.

3.7 JTLS-2016-12605 ELS Crash Due To Insufficient Combat Systems

The ELS crashed during initialization. The main ELS window showed a number of error messages reporting that some equipment combat systems had insufficient crew to operate the system. Following these messages, the ELS crashed in a routine that was reassigning combat systems from an aggregate unit to a high resolution unit (HRU).

This crash was only reproducible if the ELS was run without using pre-defined templates. Normally, the user is expected to create templates before using them to run the ELS. In cases where templates are not available, the ELS attempted to dynamically create them. In this instance, the templates for HRUs were missing some critical data, which prevented the initialization process from properly assigning entities.

The error messages relating to insufficient crew for combat systems was also caused by a problem in the dynamically created templates. The templates were missing information on the

unit's combat system prototype such that the code was unable to assign crew positions to the equipment in the templates.

Code corrections were made to the generation code for dynamic templates. These changes rectified the issues with insufficient combat systems in both the HRUs and the crew for equipment.

3.8 JTLS-2016-12606 Split Convoy While Loading Or Offloading

The model crashed while splitting a convoy during the load/offload procedure. The problem was that some assets that were part of the load process needed to be moved, and a local variable was not being accessed correctly.

The correct variable was accessed to solve the problem.

3.9 JTLS-2016-12607 Infinite Loop Auto-Firing

If two or more ships attempt to auto-fire on a recently detected ship, and the ships are out of ammunition, it is possible that the model will go into an infinite loop.

The problem occurred because the linked list that was being used to cycle through all ships that could legally fire was being corrupted when the firing failed because of a lack of supplies. The linked list was changed to an array which could not get corrupted as several ships attempted to automatically fire on the recently detected enemy ship.

3.10 JTLS-2016-12608 Add Ordering To DDS Download Tables

A number of DDS tables have no ordering assigned to them in the download scripts. This makes integrating data between databases very difficult. It also has the secondary effect of slowing a start for the SIP and the model.

Added ordering to a number of DDS download scripts that do not have it. The primary driver for this change was integrating Surface Air Lethality/Aircraft Target Class data between two databases. But, as mentioned in the problem description, lack of ordering also slows initialization of the model, which is optimized to expect entities to be alphabetically ordered.

3.11 JTLS-2016-12609 Decrementing Lanchester Attrition With Wrong Variable

While reviewing code for Lanchester attrition, a small error was discovered in the decrementing of unit losses. The losses from the Lanchester calculation are stored in a real variable, the cumulation of losses by all attackers and attacking combat systems. Since we do not play partial combat systems, this number is stochastically converted to an integer.

To avoid subtracting too many systems, we then compare the integral losses against the number of systems actually available. If greater, we should then decrease the integral losses and subtract that amount from the unit. However, we actually decreased the real losses and then

subtracted the integral losses from the system. This could potentially leave us with negative combat systems in a unit.

The solution was a simple code change to properly decrement the integral losses instead of the real losses.

3.12 JTLS-2016-12610 Game Crash Flying From Magic Moved Squadron

An air mission was submitted to fly from an off board squadron and conduct an air mission. While the mission was still in a Scheduled posture the squadron was magic moved onto the game board. The mission subsequently launched but when it landed the model crashed.

A deeper investigation revealed that the mission had its Off Board Flag set to the Squadron's Off Board Flag when it was created. However, when the squadron was Magic Moved the mission flag was not updated to reflect the new location of the mission. At launch time the mission is temporarily filed in the Hex's Ground Mission Set and then removed on takeoff. When the mission lands it is once again filed in the Hex's Ground Mission Set.

The problem was that at launch time the code that determines if the mission should be filed looked at the Squadron's Off Board Flag. Because the squadron was on the board the mission was filed. The code then looked at the mission's Off Board Flag to remove it, but since the mission was marked as being off board, it was assumed the mission was not in a Hex Ground Mission Set. When the mission completed and landed it knew it was on the game board and therefore attempted to file itself in the Hex's Ground Mission Set, which it was still in from the launch, and therefore crashed.

Since missions that are in Scheduled and Pre-Launch postures are not tracked via the squadron, it would be cumbersome to identify them all and update their Off Board Flag when the home squadron is Magic Moved. Instead the mission's Off Board Flag is updated to be the same as the Squadron's when the mission launches. This solves the problem of using two different values to file and remove the mission from the Hex's Ground Mission Set.

3.13 JTLS-2016-12611 Out Of Theater Targets With Turned On Status

A unit with Air Search sensor targets was TPFDD out of the game. After that, an Emission Control order was sent instructing the top unit and all subordinates to turn on their Air Search sensors. This resulted in the status of the TPFDD-out targets to switch from Out Of Theater to Turned On.

The problem was tracked down to the changing of each unit's targets, where the code did not check if the target was destroyed or out of game before turning it on or off. The same issue existed if a specific sensor was being turned on or off, though this is harder to achieve since the order does not permit this activity for destroyed or out of theater targets. The code was modified to check the current status of the target before modifying it to the user's ordered setting.

However, we still update the default status of destroyed and out of game targets so that if they are brought back into the game they will assume the last ordered status.

3.14 JTLS-2016-12612 Confusing Rejection Message On Illegal Terrain Change

A Controller attempted to make hex 168,148 dual capable. He received two messages back. The first told him he could not make the hex at 168N 148E dual capable because there were rail nodes in the hex. The second gave him a hex report which lead him to believe that his changes had been accepted, even though his WHIP did not update with the new terrain. An examination of hex 168,148 (which is not at 168N 148E) revealed that there were no rail nodes or rail arcs in the hex.

The first issue of sending the wrong location was solved by sending the actual lat/long coordinates, which the message expected, and not the hex grid. The second issue of reporting a rail node in the hex when there was none was due to a mismatch between the error status used in the code and the error status in the message. The code was changed to match the error statuses used in the message.

Additionally, since the real problem was an illegal land/water barrier assignment, a new status code reporting the correct problem was added to the message. Lastly, the issue of receiving a hex barrier report when the order was rejected was solved by tracking the acceptance/rejection of the order and only generating a hex barrier report if the order was implemented.

3.15 JTLS-2016-12613 OMA Rejects Naval Move Into Newly Modified Hex

The Controller changed a hex from land-only to dual capable. Later, a player was attempting to move a naval vessel into the hex, but the order was rejected by the OMA because the OMA believed the hex was still land-only.

The problem was that the OVT library code was not updating its internally-held terrain with the terrain changes being sent by the JODA. The library code was updated to process these JODA updates and reflect the changes in the internal terrain data.

3.16 JTLS-2016-12614 Crash Moving On Long Bridge

When a unit attempted to move over a long bridge, that was long enough that the unit could not cross the bridge one move, the model crashed. The code was attempting to show the unit moving a partial way across the long bridge.

The code that was attempting to accomplish partial moves over long bridges was removed. Long bridge movement time was not changed, but the unit stays on the WHIP at one end of the bridge and when the move is complete, the unit jumps to the other end of the long bridge.

3.17 JTLS-2016-12615 Script putt_change With No Files Copies All Files

As part of the JTLS Configuration Management tracking system, all Simscript programs have a change directory, which contains a copy of individually compiled Simscript routines. This way, when supporting an exercise off-site, it is easy to maintain a list of all routines that have changed for easier integration into the baseline code. As part of this procedure there is a shell script, putt_change, which will copy all the files from the change directory of a program and put them into a matching directory hierarchy which can be packaged and transferred back.

A small error existed in this shell program where it would copy all files in the target program when the change directory was empty.

This error is a known issue of shell behavior when using a wildcard character to loop through files. The standard solution, which has now been implemented, is to perform a check of a directory for any matching files and print an error message if none exist.

3.18 JTLS-2016-12616 CEP Crash For Rail Arc With Zero Speed

The CEP crashed while conducting a rail convoy. The crash was caused by a divide by zero error.

The CEP crashed in code which was attempting to find a railroad path between the origin and destination location. The model was attempting to estimate the time that the convoy would spend traveling along a specific railroad network arc. The maximum speed for that arc was zero, which meant that there was no speed limit for that arc. A code correction was made to set the maximum speed to a very large value when it has a value of zero. This prevents the crash from recurring.

3.19 JTLS-2016-12617 Crash With Auto Fire Missile Aimed At Poor Location

The model crashed when an auto-fired missile was being terminated because the missile was aimed at a poor perceived location for an enemy ship.

When the missile was at the designated impact point, it determined that the ship at which it had been fired was not close to the missile's designated impact point. When this happens, the missile is turned into a bearing missile which starts to move looking for the closest ship. When the missile is terminated, the model was attempting to update the number of automatic fire missiles that were incoming to the original target ship, but that information had been lost when the missile was changed to a bearing missile.

Two things were done to correct this problem. The flag indicating that the missile was an automatically fired missile was set to "No" when the missile was transferred to a bearing missile, and updating of the number of incoming missiles was changed to the logic that changed the missile to a "fly bearing" missile.

3.20 JTLS-2016-12618 Covert HRU With No Remaining Time Until Detection Crash

The CEP crashed from a divide by zero error caused by the remaining detection time for a covert HRU being zero. If an HRU is covert to a side, it should always have a positive remaining time until detection. When that time reaches zero the HRU is detected and is no longer covert. However, a situation was encountered where these rules were not being followed.

An investigation of the situation discovered two situations where the remaining detection time might be set to zero. In the first, the Controller can explicitly set the remaining detection time to zero. In the second instance, if the database parameter HUP PROB COMPROMISE ON URGENT REPORT is zero, it will result in a remaining detection time of zero if the HRU makes an urgent report. These problems will be addressed in JTLS 5.0. To avoid the crash the code was modified to catch the situation and schedule an immediate detection.

3.21 JTLS-2016-12619 AAR Retrieval Tool Classification Shown As "UNKNOWN"

*When viewing the AAR Retrieval Tool in the browser, the classification appears on both the top and bottom as "***** UNKNOWN ***** UNKNOWN ***** UNKNOWN *****". This occurs when the DDS database is not available.*

The AAR retrieval tool was modified to retrieve scenario classification from **\$JGAME/<scenario>/checkpoint/0000/<scenario>.glo**, if the DDS database is not available.

3.22 JTLS-2016-12620 JSyms False Incorrect Password Error

Any issue connecting to the Jsyms database was reported to the user as an incorrect username or password.

The Jsyms code was modified to show the user the actual Oracle error message.

3.23 JTLS-2016-12621 Whip Notification Tool Interferes With Drag And Drop

A user was working in the order group editor, dragging individual orders into groups, when a WHIP Notification Tool (WNT) message was sent out that popped up on their screen. The user was caught right in the middle of a drag and drop. After the WNT message was closed, the user was unable to perform any more drag and drops. The user had to shut down the WHIP and restart. This was reproducible.

This has been corrected by not allowing the Notification dialog message to disrupt the user's current operation on the WHIP.

3.24 JTLS-2016-12622 Patrol Mission Jumps Long Distance

A patrol mission jumps several hundred kilometers when changing a patrol area.

The problem was caused because the Patrol mission had a bad route with two end Patrol points. The second end point was inappropriately introduced into the route when the Patrol mission was automatically assigned to prosecute a detected ship. When the user submitted a break off order to the Patrol mission followed by a change Patrol area order, the second incorrect end patrol point was encountered. The mission did not expect this second end patrol point and simply jumped to the point.

The logic was changed to so the second end patrol point was not added to the mission's route when it automatically started to prosecute a detected ship.

3.25 JTLS-2016-12623 Guiding Mission Has No Start Orbit Location

The model crashed when a ship moved while it was attempting to inform a mission scheduled to guide off that ship of its new orbit location.

The problem started when the guiding mission arrived at its Start Orbit location and immediately realized that it needed to go for fuel. A refuel location was obtained and the mission was sent to get fuel without starting its orbit procedure. When the ship moved, it attempted to find the start orbit location of the mission, but it did not exist. As a result, the mission could not be informed about its new guiding orbit location.

The problem was solved by making sure the mission's Start Orbit location route hex was placed back in its planned route as part of the refuel assignment logic.

3.26 JTLS-2016-12624 Crash Attempting To Optimize Route Over Long Bridge

The model crashed attempting to find an optimal route that used a long bridge when there were enemy units on the far side of the long bridge.

The optimization preparation algorithm correctly identified the far end of the bridge as occupied by enemy units and had marked the hex as a "Do Not Enter" location. The optimization algorithm correctly stopped the attempt to move over land into the hex, but the long bridge checks did not consider the possibility. The model crashed attempting to compute the time needed to cross the bridge. It could not do this because the far end was labeled as "Do Not Enter". The algorithm now correctly considers this possibility.

In addition, the algorithm was improved to stop looking for an optimal route if the time to travel the selected route became too large. This stops objects from starting a move that cannot possibly be completed. It was determined to be better to simply let the user know that no feasible route was possible.

3.27 JTLS-2016-12625 Ground Fuel Went To Zero Unexpectedly

A ground unit started to move and had to draw down to its basic load. It attempted to give its excess supplies to other units in the area. The result was that the other units did not take the excess, but instead gave away all of their fuel.

The problem was that the unit that started to move had somehow obtained E+20 gallons of fuel. When this was given to a unit in the area, the receiving unit came to the conclusion that it could not accept all of that fuel. The algorithm that took what it could from the available list and gave the rest back had a flaw in its logic for very large numbers.

The algorithm was attempting to prorate the supplies that it should keep against the ratio of the various stockage objectives. Mathematically this number should be less than 1.0, but the computer ended up with a value of 1.0 or 100% of the supplies should be returned. The unit returned 100% of its fuel. The algorithm then went to the end unit in the area and came to the same conclusion. That unit too gave away 100% of its fuel and so on until every unit in the area had given away all of its fuel.

A different algorithm was implemented to get around this problem. The unit will first take excess supplies to get it up to its Basic Load. The unit will then take supplies to get it up to its Stockage Objective. After this, the unit will take supplies from the list in order without attempting to prorate based on their desire for the supplies. The design team realizes that this is not an optimal algorithm, but it is better than having every unit in the area give away all of its fuel. A better algorithm will be designed and implemented in JTLS 5.0.

3.28 JTLS-2016-12626 CEP Crash Assigning New HRU Parent For Departing Unit

The CEP crashed when a Controller ordered a TPFDD out of the game of a unit that had HRUs still deployed. The CEP properly attempted to find a new parent unit to assign these HRUs to, but due to the use of an incorrect variable within a check, the game crashed.

An examination of the problem found that all units on the force side were being TPFDD out of the game. The unit involved in the crash was the last unit. The code first attempted to see if the Higher HQ of the unit could accept the HRUs, but since it was no longer in theater, having earlier been TPFDD out of the game, it was rejected. The next attempt was for the next Higher HQ, which was the side's Highest HQ, which was rejected for the same reason. The last attempt was to find any unit on the side that was on the game board and still in theater to accept the HRUs.

In this check for whether the unit was still in the theater, the wrong unit pointer was used. The unit pointer that was used had not been initialized and therefore attempting to access its own game board status, resulted in a crash. The code was changed to use the proper variable.

3.29 JTLS-2016-12627 Clicking On Map Unit Causes Java Exception

If a unit name containing a parenthesis was clicked on the map, the WHIP would generate a Java Exception. The unit would not be highlighted in the command tree.

The method of searching for a unit was changed to account for the possibility of a parenthesis in the object name.

3.30 JTLS-2016-12628 Error In J13.3 Link 16 Message Word Count

When the JOI was used to produce Link 16 messages, an incorrect word count for J13.3 (Surface Platform and System Status) messages caused warning messages to display on the ICC.

The JOI code was modified to correct the problem.

3.31 JTLS-2016-12629 Function Code On Emitter Intel Screen Not Descriptive

On the IMT Emitter Intel screen is a column for Function Code which contains an integer. Since the meaning of this integer is not known, the column does not provide any useful information.

The integer corresponds to a English_ELINT_Function vocabulary item which provides a text meaning for the code. The column was changed to use the vocabulary item to translate the integer and show the text meaning. In addition, the help field was expanded to better describe the meaning of the field.

3.32 JTLS-2016-12630 Identify Mismatches In ph/pk Numbers

Numerous Surface Kill Lethality (SKL) values in the database contained a non-zero Probability of Hit, but a zero Probability of Kill, for a target category/subcategory combination. The reverse was also true with some SKL values having a zero Probability of Hit but a non-zero Probability of Kill. Since these two variables are meant to work together, first determining if an object is hit and then determining if it is killed, the result of one variable being zero and the other non-zero will always mean that a kill is impossible. This is unlikely to be the intent of the database builder when one of the value is non-zero, but there is no warning in the SVP for these situations.

A warning was added for each of these two situations in the SVP.

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.

Correction of the remaining STRs, however, must be postponed to a later version due to time and resource constraints. These problems may be corrected prior to the next release of JTLS. If an immediate need arises for code corrections to remedy any of these outstanding STRs, such as an exercise planned to occur before the next release, contact the JTLS Development Team Leader. Refer to the Abstract of this document for the current address.

Code errors described in this chapter should be noted specifically because they affect the basic functionality of JTLS. Information is provided regarding the extent of the error, as well as suggestions to avoid or minimize the effects of the problem.

4.1 JTLS-0942 CEP: Air Transport Cannot Combine Wet And Dry Supplies

When both wet and dry supply categories are included in the same Transport Instructions List for an Air Transport mission, they will not be transported at the same time. The first supply category shipment type will be loaded, but the second will not. If both are included in the same Supply List, the wet category is preferred. The aircraft go through the motions as if loading and delivering the denied category, including MISREP confirmation. No pickup or delivery is made, although an empty storage area may be created. There is no documentation to support this situation, and the user is not notified of the problem.

4.2 JTLS-0956 CEP: MPP Messages For Canceled Missions In Error

If an airbase is magic moved with several squadrons on active missions that need to be canceled or with squadrons in the middle of a self lift, the subsequent message generated for the situation has several errors. The changes required are too risky during the exercise. The problem will not cause a crash, but will cause the MPP to incorrectly display the message contents.

4.3 JTLS-0961 CEP: Group Ground Move Delayed To Lead Unit

There is a problem when a group ground move is sent. The directive is delayed to the lead unit. When the lead unit learns about the move, it immediately tells the units in the follow-on group. This could lead to directives being received out of order. Assume the user sends a directive at 0100 and the CEP determines the lead unit should receive the message at 0200. The lead unit cannot receive any other directives until after 0200. The CEP ensures that directive receipt is in the same order as the user sent the directives. This is not true for the follow-on units. If the user sent an order at 0115 directly to one of the follow-on units, the follow-on unit could receive the 0115 directive prior to the order sent at 0100. If this error is causing problems for upcoming exercises, the Configuration Manager should be contacted for a code fix to solve this problem.

4.4 JTLS-0968 CEP: Inconsistency Between Regular Run And Pusher

There is a major inconsistency between a regular run and a run created using pusher. When an order with ASAP is sent, the READ KEYWORD routine sets the data parameter to TIME.V. When pusher reads in the order, TIME.V is much earlier than it was when the order arrived in the first place. For orbiting missions and alert missions, this alters when they will go off alert by a great deal. This must be fixed and made consistent. It appears that both TIME.V and order receipt time must be saved to the ci1 file to accomplish this task.

4.5 JTLS-0973 CEP: Periodic Report Air Supplies And Fuel Not Correct

The arrays which hold air supply usage are not being maintained correctly given the new MISSION RESOURCE ALLOCATION event.

4.6 JTLS-0974 CEP: Submarine Detection By Ground Sensors

A moving submarine does not get full credit for coverage time by sonars on board other ships or submarines. It gets full coverage time for airborne sensors but not ground based sensors.

4.7 JTLS-1384 Documentation: Area, Target, And Unit Report Documentation

Some users have indicated that the documentation of Area Report, Unit Report, and Target Report similarities and differences are incomplete or inaccurate. A review of this documentation is needed.

4.8 JTLS-2014-12093 CEP - HRU Reports Do Not Include Detected HRUs

Periodically, an HRU will report what it has seen. It reports units moving into and out of the area. The data is collected when it detects HRUs moving into and out of the area, but this information is not included in the generated report. This should be done in the routine GENERATE HRU REPORT.

4.9 JTLS-2014-12094 DDS/SVPR - UOM Flicker

It appears that the UOM periodically changes and then changes back in the SVPR, but it doesn't stay changed long enough to see what it changes to.

4.10 JTLS-2014-12096 APACHE/SYNAPSE Cannot Run On Same CentOS 6 Machine

When the Synapse and Apache are run on the same instance of CentOS 6 or Red Hat 6 on the same machine, the Synapse will back up. Running the Synapse and Apache on separate virtual machines or two different physical machine works correctly. The JTLS Development Team have continue to consider this a high priority item.

4.11 JTLS-2014-12098 CEP - Moved Units Do Not Remove CS From Shelters

Units moved out of a hex do not remove combat systems from shelters.

4.12 JTLS-2014-12099 SVPR - Ensure DDS Sending SVP Info To Debug

The SVP crashed while running the SVP from the SVPR, but the only sign there was a problem was that nothing was happening. The output of what was being read by the SIP was hung, without any information in the debug console or other information.

4.13 JTLS-2014-12101 SVPR - Auto-Fix Not Selecting Affected Supply Category

When auto-selecting a TUP/SUP supply category to fix, the SVPR always opens the corresponding column in the first supply category, rather than the affected supply category.

4.14 JTLS-2014-12102 DDS - SVPR Warning 1223 Empty Table

When clicking on the solution for Warning 1223 in the SVPR to bring up the CSP_CS table, an empty table is brought up instead.

4.15 JTLS-2014-12103 DDS - No Change For Default UOM For Basic Categories

Since the CEP is coded to expect a default UOM of the raw data for each basic category. The user should not be able to delete or edit these UOM.

4.16 JTLS-2014-12104 WHIP - Issues On 32 Bit Machines

WHIPs being run on a 32 bit Windows machine were using over 1 gigabyte of memory each. In addition, the WHIPs would often lock up or the Map would not respond to Sitreps, route requests, and so on. This problem will be corrected with the release of JTLS 5.0.

4.17 JTLS-2014-12106 AAR - Exception When Translating Report

When a report is rendered in the TRIPP, the report is rendered in English even if another language is selected. Two FileNotFoundExceptions are found in the GlassFish log, indicating that the language properties and default language properties are not found.

4.18 JTLS-2014-12107 WSM - Apache Status Fails When Firewall Blocks HTTP

The WSM always uses HTTP to get the Apache status even when running with HTTPS. Both ports are open on the server, so this fails when the firewall blocks HTTP.

4.19 JTLS-2014-12108 CEP - BDA Reports Inaccurate On Sheltered CS Kills

When air missions attacked airbase targets sheltered in barracks shelters and killed combat systems, the BDA Report for the attacking side showed grossly inflated numbers of combat

systems killed. The BDA report is much more accurate when killing systems by attacking the unit or a location. The false numbers only happen when killing an occupied shelter.

4.20 JTLS-2014-12110 DDS - Printing Multiple DDS Reports Needs Correction

One can print multiple DDS Reports with one print command. This is done by selecting the reports individually. With more than one highlighted, a single print command can be used. However, in the resulting print, the reports run together - the second report starts on the next line after the previous report ended. Also, it adds a line of text that looks like the last line of the first report. This added line is actually the title of the second report, left justified and inserted in a smaller font. You see the title of the second report twice, and it looks unprofessional.

4.21 JTLS-2014-12112 DDS - Oracle Error Display Dialog

A dialog currently exists in the DDS that pops up when an error condition happens. This dialog should be used to display Oracle errors as well, given that the user sees nothing happening when a command is executed and it fails for one reason or another and is confusing them. When no action is displayed, the interpretation is that the DDS is failing and not the database layer.

4.22 JTLS-2014-12114 DDS - Add New Validator To Check For "NotOffspring"

Current validators for fields like "HHQ" cannot verify that the assigned unit is not an "offspring" of the unit that is being modified. Even though this type of mistake can be caught by SVP eventually, it still can have ill effect to components like Command Hierarchy once the data committed to the database. It needs to be caught and prevented.

4.23 JTLS-2014-12116 DDS - Railroad Name Remains On Map After Deletion

If a user deletes a Railroad Network from the Map, the Name remains displayed. It stays even if Railroad Edit Mode is exited and reentered. Stopping and restarting the DDS is necessary to remove the Railroad Network Name from the Map.

4.24 JTLS-2014-12117 DDS - Map Create Railroad Network Works Deceptively

When you select the "New Railroad" button in the DDS, the cursor becomes a "pointing finger," allowing you to select a location on the map to place the first Railroad node. However, after you place the first node, the cursor reverts to its default appearance. One expects that selecting a new location will place the next node there, but no matter what location you select, the second node is always created on the hex due east of the first node.

4.25 JTLS-2014-12119 DDS - Columns Data From Another Table Not Updated

Some tables have columns whose data is retrieved using a "Select" statement that queries data from another database table (e.g. the formation column in the naval unit screen). For these columns, when DDS does a flashback version query for the updates, Oracle does not report any

update if the actual update occurs in the other table. Therefore, these columns' data are not updated in the DDS.

4.26 JTLS-2014-12121 DDS - Drag/Drop Problems Modifying Rail Networks

When clicking and dragging a Node or an Arc, one has to be careful to make sure the correct item is selected. One can, for example, drag an arc completely away from its endpoint nodes. In addition, Java exceptions can occur when the correct item is not selected.

4.27 JTLS-2014-12122 DDS - No Spaces in Long Name After Hierarchy DeepCopy

A user cannot enter spaces in the long name replacement string after a Hierarchy Deep Copy, although spaces are allowed in long names.

4.28 JTLS-2014-12123 DDS - Add UIC Replacement Option In Hierarchy DeepCopy

The short name replacement string should be added to the UIC, so that hand-editing UICs after a Hierarchy DeepCopy is not necessary.

4.29 JTLS-2014-12125 DDS - Editing Location Fields XX-60-60.ON Can Be Entered

It is possible to enter a location such as 10-60-60.ON in a location field in the DDS, The location field text formatting functions needs to be improved.

4.30 JTLS-2014-12126 AAR - Aircraft Kill Summary Report Time Format

AAR reports can contain times, but these are currently being generated using the url time format, which is difficult to read by the end user. These times need to be output in a more user friendly format.

4.31 JTLS-2014-12131 DDS - Add Report Title To Report

All DDS Reports should have titles. If a user prints out several reports, it is difficult to know what each report contains. The title should help with this.

4.32 JTLS-2014-12132 DDS - Confusing Report Popup Menu Item

The bottom of the report browser popup menu has part of the stylesheet name (e.g., 01-dcr). This is confusing.

4.33 JTLS-2014-12133 DDS - Reports Order Help Text Needs Improvement

DDS report orders help text needs improvement.

4.34 JTLS-2014-12136 DDS - TMU Different Algorithms For Polygons, Areas

The DDS TMU Map Polygon algorithm is different from the TMU Area algorithm. In other words, drawing a rectangular Polygon does not result in the same area having its attributes changed as does drawing a rectangular Area of exactly the same size.

4.35 JTLS-2014-12140 DDS - Flight Paths Difficult To See

Flight Paths are difficult to see because the default color is white. The color should be changed to Cyan. Cyan is currently the color used to display OPAREAs, so the default OPAREA color should be changed to Orange. This change should be made in both the DDS and the WHIP for consistency.

4.36 JTLS-2014-12143 DDS - REPORTS - Rename the MUSE report to DIS.

The MUSE Report should be renamed to the DIS (Distributed Interactive Simulation) Report. The report is no longer just used for MUSE. There are several other models that need to know the current set of DIS codes in a specific scenario.

4.37 JTLS-2014-12144 DDS - Exception While Opening TUP From SVPR

An exception occurs when opening a TUP from the SVPR. The exact circumstances have still not been identified, and so a correction could not be implemented.

4.38 JTLS-2014-12145 DDS - Exception Logged With No Stack Trace

A ClassCastException in the DDS was logged, but no Stack Trace was saved. The exact circumstances have still not been identified, and so a correction could not be implemented.

4.39 JTLS-2014-12146 DDS - Cannot Delete Illogical Pipeline Arc From Map

You cannot delete an illogical Pipeline arc from the Map. An illogical Arc is one that would create an illogical flow. An example of an illogical flow would be one connecting nodes: A to B to C to A. The Map will not let you create Arc C to A. But you can create that illogical arc in the Pipeline Arc table. IF you do so, the arc will show up on the Map and exist in the arc table, and you cannot delete it from the Map. You must use the table to delete it.

4.40 JTLS-2014-12147 DDS - Flight Path With Min Altitude Higher Than Max

When you create a Flight Path between two Nodes, you are asked to assign a Minimum and a Maximum altitude along the path. You can assign a Minimum that is greater than the Maximum. You cannot do this in the Table, but the Map allows it.

4.41 JTLS-2014-12148 DDS History Table Missing Record Identifier

The DDS keeps track of when data is changed in a table history table. If an attribute of a child table is changed, the history table does not list exactly what is changed. For example, assume

you change the quantity of a CL.V supply category with which an SSA Target. This supply information is in a child table for the SSA target type table. The problem is that this one change generates a single history record which properly indicates the old value and the new value, but does not list what SSA SC category record was changed.

4.42 JTLS-2014-12264 CEP - Naval Mine Damage Documentation Obsolete

The discussion of Naval Mine Damage in the Analyst Guide is obsolete. It does not address the use of lanes nor the current variables used in the determination of encounter and damage.

4.43 JTLS-2014-12265 DDS - Need "Not In" Validator For Composite Unique Key

Currently, the "not in" validator has limited capability, meaning it can only check for single column. But many database tables have composite unique keys, which can take up to N number of columns. Therefore to check their uniqueness, the current "notin" validator is not sufficient. It needs to be expanded or a new validator needs to be introduced that can check uniqueness for multiple columns. This problem will be corrected in JTLS 5.0.

4.44 JTLS-2014-12266 WSM - Reloading Database While Starting Service Lockup

If the ICP database is reloaded while a service is starting, the WSM appears to freeze for a period of time.

4.45 JTLS-2014-12270 WHIP - Message Browser Moves With New Message

If the user selects a message and then scrolls down, the Message Browser jumps to the selected message when the next message arrives.

4.46 JTLS-2014-12272 WHIP - Incorrect Behavior Selecting Multiple Messages

If a number of messages are selected using the shift key in the WHIP Message Browser, and an attempt is made to select more, the second batch begins with the last message selected in the first batch, thus excluding many messages from the first batch.

4.47 JTLS-2014-12275 DDS - Mouse Panning Documentation Needed

New documentation on how to use the Mouse Panning map mode needs to be added to the DDS User Guide.

4.48 JTLS-2014-12277 DDS - NB Map Filter Does Not Turn NB On/Off

National Boundaries and hex barriers are not displayed on the DDS map.

4.49 JTLS-2014-12278 DDS - Targets Gone When Parent Unit's Name Changed

On the DDS Command Tree, when a Unit name changed on the 'Reset Tree' mode, all or a part of Targets under the Unit disappeared.

4.50 JTLS-2014-12279 DDS - Remove Reference Field From Report Orders

The reference field for report orders appears to be unused, but is required to be filled in. It should be removed.

4.51 JTLS-2014-12280 JTLSConsole - Needs Recall Command Similar To Xterm

The JTLSConsole needs a library for managing command history.

4.52 JTLS-2014-12281 SVPR - Error Corrective Action Finds Target, not JDPI

The corrective action for Error 634 centers the map on a target of the same name as the JDPI, rather than the intended JDPI.

4.53 JTLS-2014-12282 WHIP - On Demand Range Ring Remained After Deletion

An on-demand weapon range ring was added and then deleted, but remained visible until the next screen update.

4.54 JTLS-2014-12284 SVPR - Various Error/Warning Issues

A number of issues have been noted in the format of the SVPR Errors and Warnings, including Warnings 2000-2008 being documented but not implemented anywhere, a number of Error and Warning numbers not currently being used, and many Errors and Warnings requiring a minor correction or clarification.

4.55 JTLS-2014-12285 AAR/DDS Reports - User Added Reports Documentation

New documentation on how to create custom AAR and DDS reports needs to be added.

4.56 JTLS-2014-12286 CEP - Improper Calculation Manifest Processing Time

The routine MANIFEST.PROCESSING.TIME specifies that all manifests take one hour to load or offload. This routine needs to be made more robust, and examine the contents of the manifest, the A/C load/offload time, and the possibility of using MHE. Additionally, the 4th argument within the calls to this routine, which specifies whether it is a loading or offloading event, need to be standardized.

4.57 JTLS-2014-12287 DDS - Oracle Error Windows When DDS Reconnects

With DDS sessions up at two separate workstations, the primary DDS user shut down and restarted GlassFish for the scenario. The DDS at the second workstation lost, and then attempted to re-establish connection (as it should have). However, at the DDS that was up during the GlassFish stop and restart, a pop-up "Oracle Error" window was displayed.

The problem was that NUMEROUS versions of this error window are present, and clicking to close each window simply reveals more error windows, even though the DDS is by now reconnected. The error window probably came up every time the DDS tried to update some table. This error window should, if possible, only be displayed once.

4.58 JTLS-2014-12288 AAR - Target Damage History Report Missing Table

The Target Damage History detailed report outputs the data as a block quote, rather than the expected table.

4.59 JTLS-2014-12289 CEP - Amphibious Assault Crash

When two ground units, magic moved onto a naval formation, were ordered to conduct an amphibious assault using vehicles and helicopters (which were magic moved onto the formation after having their Naval Qualified flag changed to YES), the CEP crashed. This problem is related to but separate from JTLS-2014-12154, which has been fixed in release 4.1.9.0.

4.60 JTLS-2014-12290 CEP - Amphibious Assault Not Completing

Out of two ground units, magic moved onto a naval formation, and ordered to conduct an amphibious assault using vehicles and helicopters (which were magic moved onto the formation after having their Naval Qualified flag changed to YES), one ground unit completed the assault, while the other (which arrived onto the game board through a port) never assaulted. This problem is related to but separate from JTLS-2014-12154, which has been fixed in this release.

4.61 JTLS-2014-12291 AAR - Add AAR Documentation

New documentation on how to run AAR reports needed to be added to the WHIP Training Manual.

4.62 JTLS-2014-12292 ICP - Saving Caused Connect Request to CEP

The JXSR execution host was changed while the JXSR is running, and then changed back. When the ICP was saved and the WSM was refreshed, the CEP crashed. It appears the JXSR sent a new connection request.

4.63 JTLS-2014-12293 WSM - Add Web Services Documentation

New GlassFish documentation, adding instructions for modifying a game in progress (such as adding new WHIPs or moving web services to a different host) needs to be added to the Technical Controller's Guide.

4.64 JTLS-2014-12295 DDS - SQLException With Copied TUP

When copying a TUP and attempting to fill in the number of location transponders on the copy, an error message pops up, saying that "this feature is still in development. This is an error expected by the development team. It is not necessary to report this error." This error is caused by attempting to insert a null value in a field that cannot hold a null character.

4.65 JTLS-2014-12296 SVPR - Warning To Find CEP Crash, Never Generated

Warning 1137 states: Database Entity ENTITY.NAME, index INDEX, should have at least one record. The absence of at least one record for a permanent entities causes a CEP Crash during start. It happens, for example, when the CEP tries to reserve certain arrays using a zero length. There is SIP code to generate this Warning, but the Warning will never be generated. The SIP first crashes during Read, for the same reason the CEP would crash during its Read.

The resolution to this problem involves four actions:

- The DDS should prevent removal of the last remaining record for selected tables holding Permanent Entity data.
- The DDS should perform checks for selected tables being empty whenever a Download is generated from the DDS. Tables could have been emptied by direct sql statements.
- The SIP read code should, when reading the record count file, cease execution if any zeros are found. It will generate a message to the execution window saying why.
- Warning 1137 should be removed.

4.66 JTLS-2014-12297 WHIP - Coordinate Converter Cannot Find Lat/Lon

As with the WHIP IMT windows, the Coordinate Converter tool should allow users to locate a Lat/Log point on the Map, but it currently does not.

4.67 JTLS-2014-12298 DDS - History Table Field Not Updated For POT Targets

The DDS History Table "Record Identifier" field was not updated for SUP/TUP POT targets.

4.68 JTLS-2014-12299 DDS - Strange Behavior In Hierarchy DeepCopy

A ground unit had 10 ground subordinates and 1 depot subordinate (Hierarchy A). When Hierarchy Copy was performed (from the Command Hierarchy window) it only copied the top unit and the subordinate depot. After using this copy as Hierarchy B, and just copying the individual subordinate units and re-parenting them under Hierarchy B, a successful Hierarchy Copy of Hierarchy B in its entirety was able to be performed.

4.69 JTLS-2014-12300 SVPR - Auto-Fix Terrain Problems Nonfunctional

The SVPR was unable to auto-fix mismatched barriers.

4.70 JTLS-2014-12301 CEP - No Divert When Friendly Air Refuel Flag Changes

Commented out code exists in the routine CHANGE.REFUEL.FLAG when the Friendly Refuel Flag for a tanker mission is switched to NO. The code appears to have been commented out because it was causing an infinite loop, but there may be a problem with foreign missions that are heading for the tanker when the flag changes not diverting elsewhere.

4.71 JTLS-2014-12303 WHIP - TRIPP Running With Shut Down Web Services Lock

The TRIPP will sometimes freeze when running with web services shut down.

4.72 JTLS-2014-12304 WHIP - New WHIP Pushed When Running Security Exception

A security exception is thrown when a WHIP component is used for the first time after a new WHIP is pushed while the WHIP is running.

4.73 JTLS-2014-12305 WHIP - Route Deselected Using Context Menu Stays

A route that was deselected using the context-sensitive menu stayed on the map. The route could be removed using the routes filter panel for demand routes.

4.74 JTLS-2014-12306 WHIP - Deadlock While Saving Map Filters

The WHIP froze while trying to save map filters.

APPENDIX A. ABBREVIATIONS AND ACRONYMS

Terms are included in this Appendix to define their usage in JTLS 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
EEL	Essential Elements of Information
ELINT	Electronic Intelligence
ELS	Entity Level Server
EODA	Entity Level JTLS Object Data Authority
ETA	Estimated Time of Arrival
FARP	Forward Arming and Refueling Point
FLP	Fire Lethality Prototype
FLOT	Forward Location of Troops
FOL	Forward Operating Location
FWL	Frederick W. Lanchester (originated a differential equation model of attrition)
GAL	Gallon
GCCS	Global Command and Control System
GRTE	Ground Route
GS	General Support
GSR	General Support Reinforcing
GUI	Graphical User Interface
HARM	High-speed Anti-radiation Missile
HE	High Explosive
HELO	Helicopter
HMMWV	High Mobility Multipurpose Wheeled Vehicle
HQ	Headquarters
HRU	High Resolution Unit
HTML	Hypertext Markup Language
HTT	High resolution unit Target Type
HUP	High resolution Unit Prototype
ICM	Improved Conventional Munitions
ICP	Interface Configuration Program

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

OEC	Order Entry Client
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
OVT	Order Verification Tool
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