

JTLS

Version Description Document

August 2013



DEPARTMENT OF DEFENSE
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JOINT THEATER LEVEL SIMULATION
(JTLS 4.1.1.0)

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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 4.1.1.0 delivery of the configuration-managed JTLS software suite.

JTLS 4.1.1.0 is a Major release of the JTLS 4.1 series that includes a newly developed SBDKOR41 Standard Database, as well as major model functionality changes implemented as Engineering Change Proposals (ECPs), which are summarized in Chapter 2. Code modifications that represent corrections to known Software Trouble Reports (STRs) are described in Chapter 3. Remaining and outstanding STRs are described in Chapter 4.

This publication is updated and revised as required for each Major or Maintenance version release of the JTLS 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 4.1.1.0 of the configuration managed Joint Theater Level Simulation (JTLS[®]) software suite. JTLS 4.1.1.0 is a Maintenance delivery for the JTLS 4.1 series of releases. JTLS 4.1.1.0 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. Database modifications that were accomplished to upgrade the previous JTLS Standard Database to this current version are summarized in this chapter, as well as [APPENDIX B](#). Detailed descriptions of Engineering Change Proposals (ECPs) implemented for this release are provided in [Chapter 2.0](#).

JTLS 4.1.1.0 executes on the Red Hat Enterprise Linux Versions 5 and 6 64-bit operating systems. **Support for executing the model or its support programs within any 32-bit operating system environment has been discontinued.** The Web-Hosted Interface Program (WHIP[®]) user workstation interface can be executed from any Java-compatible Web browser available on any operating system.

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. DoD Military Standards can be accessed through the appropriate military channels.

1.2.1 Obsolete/Outdated Documents

Development of the JTLS Air Tasking Order Generator (ATOG) has been suspended. The *JTLS ATOG User Guide* (JTLS Document 02) has been removed from the JTLS documentation suite for this release.

1.2.2 Unchanged Documents

The model enhancements implemented for JTLS 4.1.1.0 are incorporated within the documentation provided for this release:

- *JTLS Analyst Guide* (JTLS Document 01, Version 4.1.0.0)
- *JTLS ATOT User Guide* (JTLS Document 03, Version 4.1.0.0)
- *JTLS Controller Guide* (JTLS Document 04, Version 4.1.0.0)
- *JTLS Data Requirements Manual* (JTLS Document 05, Version 4.1.0.0)
- *JTLS DDS User Guide* (JTLS Document 06, Version 4.1.0.0)

- *JTLS Director Guide* (JTLS Document 07, Version 4.1.0.0)
- *JTLS Executive Overview* (JTLS Document 08, Version 4.1.0.0)
- *JTLS Installation Manual* (JTLS Document 09, Version 4.1.0.0)
- *JTLS WHIP Training Manual* (JTLS Document 10, Version 4.1.0.0)
- *JTLS Player Guide* (JTLS Document 12, Version 4.1.0.0)
- *JTLS PPS User Guide* (JTLS Document 13, Version 4.1.0.0)
- *JTLS Standard Database Description* (JTLS Document 14, Version 4.1.0.0)
- *JTLS Software Maintenance Manual* (JTLS Document 15, Version 4.1.0.0)
- *JTLS Technical Coordinator Guide* (JTLS Document 16, Version 4.1.0.0)
- *JTLS Entity Level Server User Guide* (JTLS Document 19, Version 4.1.0.0)
- *JTLS Federation User Guide* (JTLS Document 20, Version 4.1.0.0)
- *JTLS C4I Interface Manual* (JTLS Document 21, Version 4.1.0.0)

1.2.3 Updated Documents

- *JTLS Version Description Document* (JTLS Document 17, Version 4.1.1.0)

1.2.4 New Documents

No new volumes are delivered with the JTLS 4.1.1.0 documentation suite.

1.2.5 Delivered Software Components

JTLS 4.1.1.0 may be delivered either on a CD or as a set of compressed TAR files to be downloaded. Either method includes the complete suite of software executable code and command procedures. These 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)

- Terrain Modification Utility (TMU)
- Java Symbols Application (JSYMS)
- Lanchester Development Tool (LDT)
- ATO Generator Program (ATOG)
- 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:
 - Apache Server (APACHE)
 - JTLS XML Serial Repository (JXSR)
 - Order Management Authority (OMA)
 - Synchronized Authentication and Preferences Service (SYNAPSE)
 - XML Message Service (XMS)
 - Total Recall Interactive Playback Program (TRIPP)
 - Air Tasking Order Viewer (ATOV)
- 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 (JOBE)
- Database Configuration Program (DCP)
- DDS User Interface (DDS)

Instructions for installing JTLS 4.1.1.0 are provided in the *JTLS Installation Manual*. Installing a previous version of JTLS prior to installing JTLS 4.1.1.0 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.

1.2.6 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 is a reduced version of SDBKOR41 that requires fewer resources, loads faster, and is intended for use in demonstration, training, and testing environments that do not require the complete Standard Database.
- The scenario blank40 is the SDBKOR41 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 4.1.1.0 requires the following versions of support software, including operating systems, compilers, scripting utilities, database tools, transfer protocols, and display managers.

- Operating system for the model: Red Hat Linux Enterprise Edition Versions 5 or 6 (ES), 64-bit architecture.

Some JTLS components will not execute under Red Hat Linux Version 4.0. Therefore, model support for this OS version has been discontinued. However, Red Hat Linux 4.0 may be used on client workstations to execute the WHIP.

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.

- Operating system for client workstations (one of the following):
 - Red Hat Linux Enterprise Edition Version 3
 - Red Hat Linux Enterprise Edition Version 4
 - Red Hat Linux Enterprise Edition Version 5
 - Red Hat Linux Enterprise Edition Version 6
 - CentOS Linux Version 4 or 5
 - Windows 2000, XP Professional, Vista, or Windows 7 can be used only if the workstation is an external HTTP client of the simulation network.
- Java Version 1.7.0 is required (Update 25 is recommended) for all platforms and must be used to support all workstations.
- JTLS database tools require use of a certified Oracle database server and the full Oracle Client installation for runtime requirements. Refer to [Section 1.6.2](#) 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 Red Hat Linux ES 5.0.
- 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 Red Hat Linux ES 5.0 is sufficient.
- The Perl script language is used by the JTLS system and game setup scripts. The version of Perl included with Red Hat Linux ES 5.0 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.

- KDE Desktop support has been added to JTLS 4.1.1.0. Support of the GNOME desktop is continuing, and use of the KDE environment is optional. Details regarding the installation and use of KDE are provided in Section 4.4.3.2 of the *JTLS Installation Manual*.
- 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. The following SIMSCRIPT II.5 versions are recommended for 64-bit Red Hat Linux Version 3.5.
- 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 Red Hat Linux ES 5.0 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 Red Hat Linux ES 5.0 is sufficient
- The JTLS 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

The JTLS 4.1.1.0 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 JCATS 11 have been accomplished. Future plans include expanding the federation capabilities.

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, this program is not included in the JTLS 4.1.1.0 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.

1.3.2 KML Operational Interface (KOI)

The Keyhole Markup Language (KML) Operational Interface (KOI) server utility enables the model to feed operational simulation data to 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.

1.3.3 JTLS Air Tasking Order Translator (ATOT)

The ATOT 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 ATOT 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 library support required by both ATOT modes are obtained separately. The SIMSCRIPT support is currently provided with each JTLS release. The necessary SIMSCRIPT libraries are released in the ~/bin_support directory for 64-bit Linux. If running in the basic mode, the Oracle libraries are also released in the ~/bin_support directory for 64-bit Linux.

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.

1.3.4 Web Services Manager Port Forwarding

The Web Services Manager (WSM) can monitor executing Web Services for a game using the ports for which the services are configured by the Interface Configuration Program (ICP). Secure Socket Layer (SSL) enhancements implemented for JTLS 4.1 limit the WSM to controlling one Web Service for each SSH Forward Port. A process using the SSL feature cannot connect to multiple remote processes through the same port; each process must be connected through a separate port. Configuring more than one service to use the same SSH Forward Port would create conflicts.

The SSL limitation of the WSM requires attention only for controlling more than one executing game on a single server; for example, using one Linux server to run two or more separate WSM GUIs for different games. Technical Coordinators must configure the services of each game to use unique SSH Forward Ports. If each WSM is executed on a separate server, conflicts are

avoided, but no safeguard exists to prevent executing them on the same server. The ports should be configured differently during the initial ICP configuration.

Although the ICP allows manual editing of the SSH Forward Port field, using the Set SSH Forward Ports menu option (Figure 1.1) for the entire scenario is recommended.



Figure 1.1 ICP Set SSH Forward Ports Menu Option

This option will ensure that all Forwarding Ports are properly de-conflicted for a scenario. The user must also ensure the selected port range is different for each scenario (Figure 1.2).

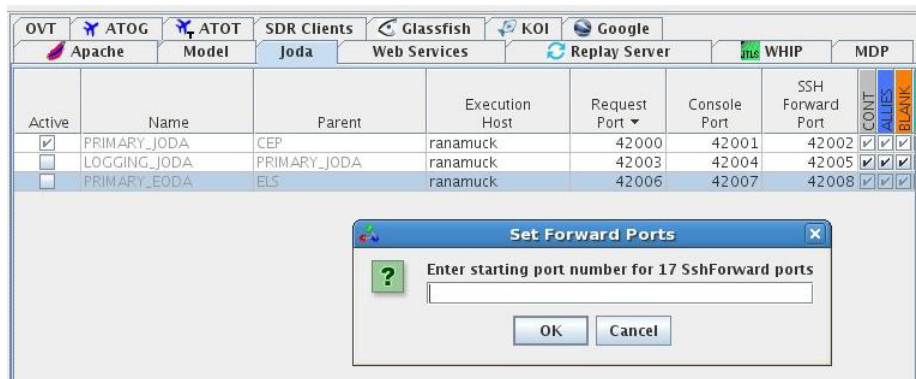


Figure 1.2 ICP SSH Forward Ports Configuration Window

1.4 INSTALLATION CONSIDERATIONS

The procedures for installing JTLS 4.1.1.0 depend on the hardware configuration provided at the installation site. All installation issues are addressed in the *JTLS Installation Manual*.

1.5 DATABASE MODIFICATIONS

Significant database structure differences exist between JTLS 4.1.1.0 and any previous 4.0 series database. For this reason, after installing JTLS 4.1.1.0, you must unload and reload any JTLS 4.0 series scenarios that you may have.

To upgrade your previously installed and modified JTLS 4.0.X.0 scenario for JTLS 4.1.1.0, 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 3.4 or earlier, you must unload and reload your scenario after the modification is completed.

The JTLS Default Symbol Set delivered with this release has been modified. You must propagate this new Default Symbol Set to any of your scenarios that use the Default Symbol Set. 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,

1.5.1 Database Upgrade

Users who currently possess a JTLS scenario (ASCII file set) compatible with a version earlier than Version 4.0.0.0 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 10.2.0.5.4 or higher full Oracle Client installation.

1.5.2 Standard Database Changes

Additional Standard Database changes that are applicable to JTLS 4.1.1.0 are described in [APPENDIX B](#).

1.5.3 Previous ASCII Checkpoints

ASCII Checkpoints from previous versions of JTLS 4.1 are incompatible with JTLS 4.1.1.0 and will not work with this release. Please refer to JTLS-2013-11549 in [Chapter 3.0](#) of this document for a description of this issue.

1.6 INSTALLATION

1.6.1 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.

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

Oracle Forms/Reports Developer 6i client/server runtime for DDS Forms and the optional iAS EE 10.1.2.0.2 full stack are no longer supported.

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

1.6.3 Disabling Java 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. Local area networks, intranets and standalone systems that have no outside connection to the Internet must configure their Java 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 PKI attempts to validate the certification on COMODO's servers via the Internet. Because of security issues and the expiry of Java versions, Java has strongly recommended that Java 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.

The following outlines the step required 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 Java 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 Java Control Panel.

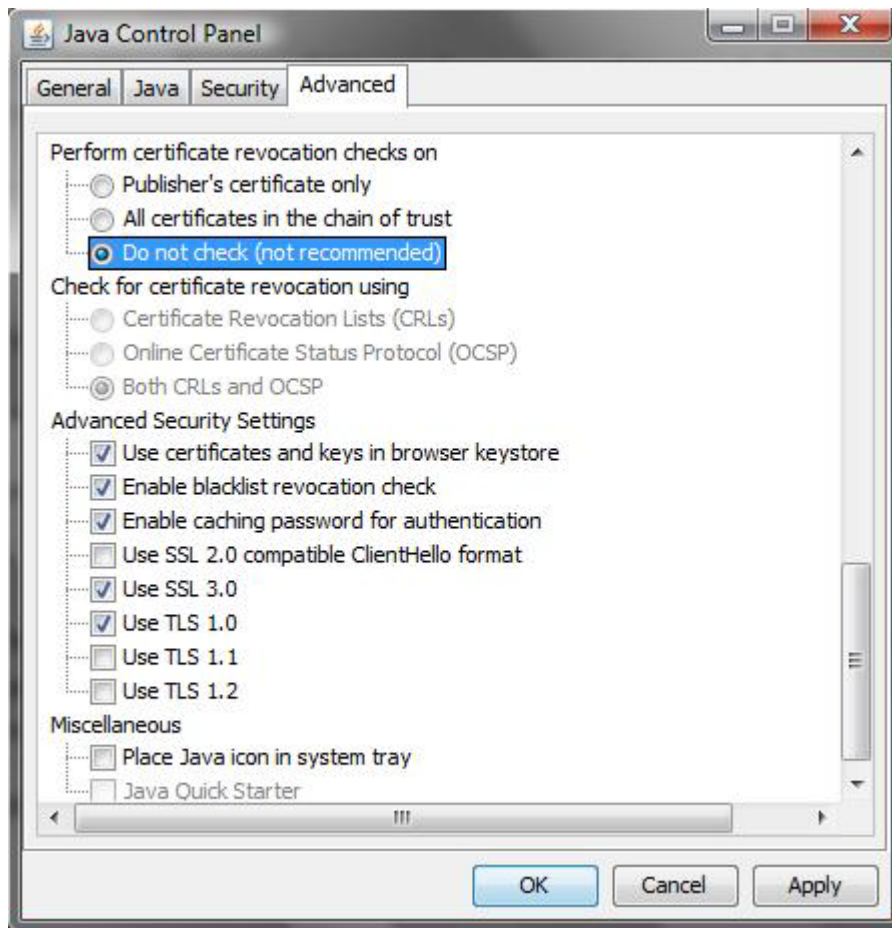


Figure 1.3 Java Control Panel

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.

2.0 ENGINEERING CHANGE PROPOSALS

This chapter summarizes model capabilities added to JTLS 4.1.1.0 as a result of implementing authorized Engineering Change Proposals (ECPs).

2.1 JTLS-2013-11537 Combat Systems IMT Help Text Clarification

Summary of Model Change Request

The relationships between the columns on the Combat Systems Information Management Terminal (IMT) are sometimes confusing to players. For example, the Avail column may not equal TOE - Un Available - In Maint, as one might expect. The Help Text did not provide an adequate explanation of the Avail column and the Cumulative WIA column.

Design Summary

Additional elaboration was added to the Help Text for the Avail and Cumulative WIA columns to better explain the relationships between the columns.

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. No STRs have been identified for this JTLS Major release. Code corrections implemented for the previous JTLS 4.0 series of releases have been tested with the model enhancements delivered with JTLS 4.1.0.0 and are included.

STRs that remain outstanding from previous JTLS versions are listed and described in [Chapter 4.0](#). Errors identified for JTLS 4.1.0.0 and corrected for future Maintenance releases in the JTLS 4.1 series will be documented in this chapter.

3.1 JTLS-2013-11503 HRU Killed During Disengagement Phase

An HRU that is killed during the disengagement phase causes the model to accomplish a divide by zero for the HRUs current speed capability.

The divide by zero case was checked and avoided under this circumstances. A thorough check of all code was accomplished to make sure the situation did not exist in other sections of the code.

3.2 JTLS-2013-11504 DDS: LogTree: Supply Category Update and Exception

When a supply category is selected from the drop-down menu on the logTree, re-arranging a unit structure removed unit's name from the tree.

When a update on the tree is done, the java gave an error, such as `ArrayIndexOutOfBoundsException: No such child : 1`, that did not make sense because the component runs and database updates were correct.

This rendering tree problem and exception happened when the Unit Supply Category table was changed as well.

It had to do with mulch-threading. When the Unit Supply Category changed event listener cached the Unit Supply Category table has modified, the Logistic Tree table model updates the GUI was put on the event dispatch thread with invoke Later. This solved to be thrown a exception and disappearing units name problem.

3.3 JTLS-2013-11505 Crash HRU Combat Against Naval Unit

If an HRU ambushes a Naval Unit, the model crashed attempting to save the intelligence update for the naval unit.

The problem was that the intelligence update was created in a separate routine for a naval unit and the code to save the update did not properly consider the condition. The issue was solved and it is now possible for an HRU to ambush a naval unit.

3.4 JTLS-2013-11506 Misleading Message Subject

The message that is generated has a subject that reads "BE DSA Report". The message is generated each time no information was collected within the DSA.

The error occurred when all DSA reports were changed to use the same intelligence collection code. There is no longer a difference between the report generated when collecting on a BE DSA and when collecting on other types of DSAs. The subject line was corrected to remove this minor confusing item.

3.5 JTLS-2013-11507 Order Not Selecting Object for Designated Search Area

In the past, all order panels which applied to a Designated Search Area (DSA) included a text field in which the user was required to type in the name of the DSA. Later, the object data structure on the JODA was modified such that the DSAs could be used in the order panels. Most of the relevant order panels were modified such that the DSA objects were selectable in the appropriate fields. However, one such order panel was skipped so the user still had to type out the name of the DSA to select that object.

The order panel called "Controller Describe DSA" was modified to allow the user to select an existing DSA from the menu when submitting this order. All other orders which used DSAs were searched to determine that no additional orders require the user to type in the name of a DSA. No other changes were required as the "Controller Describe DSA" order was the last one which did not allow for the selection of a DSA.

3.6 JTLS-2013-11508 Unable to Set Supply Levels to Zero in Set Unit Order

The controller order to set individual unit parameters allowed the user to change the supply levels of a unit. This order did not permit the user to set any of the supply levels to zero. The lowest possible value for all supply fields was a small number (0.0001) but never zero. In some circumstances, a value of zero was required to satisfy a training objective.

Two issues contributed to this problem. The order panel to set individual unit parameters had a minimum value of 0.0001 for all supply-quantity fields. Also, the code to set the supply values would only make a change to the parameter if the value was greater than zero. The order panel was modified such that the values were initialized to a value of negative one. It was also modified to allow a minimum value of zero for all supply quantities. The supporting code in the model was changed to check for values which are greater than or equal to zero before setting the parameter on the unit. These changes now allow the user to set supply values of zero in the order.

3.7 JTLS-2013-11509 SVP Warning for Leaflet TW Missing

A Scenario Verification Program (SVP) warning message #1352 was not being generated. This warning message indicates that a Targetable Weapon (TW) that uses the Leaflet supply category

has sub-munitions specified. Leaflet dispersing weapons do not use the sub-munition database parameter and therefore should not require one.

The underlying Simscript code that generates the warning message referenced the wrong global variable for the leaflet supply category. It was checking the index of the Special Supply Category Leaflet (.CATEGORY.LEAFLET) and not the variable that holds the index of the leaflet supply category (CATEGORY.LEAFLET) To correct this error, .CATEGORY.LEAFLET was changed to CATEGORY.LEAFLET (no leading period).

Also, there was no corresponding message #1352 to reference in the SVP message template file. The missing message #1352 was added to the XML to enable the ability of the DDS to display the warning message when the SVP actually generated a #1352 warning.

3.8 JTLS-2013-11510 OPM/DRM Links For Unit Page Invalid

Numerous DRM links on the specific unit page within the Online Player Manuals are invalid links. Some of these links were just plain invalid, others were to items that did not exist in the DRM. Other links point to non-unit specific items.

The Specific unit page was cleaned up and all links were validated. Items that did not exist in the DRM were added.

3.9 JTLS-2013-11511 DDS - Aircraft Class Table UOM Addition

Three table columns in the Aircraft Class table of the DDS were missing units of measure, which in this case should have been Air Speed.

The Aircraft Class table definition file was modified to set the units of measure for the Speed, Maximum Speed, and Stall Speed columns to Air Speed.

3.10 JTLS-2013-11512 WHIP - Context Sensitive Menus - Target Range Rings

The context sensitive menus for jammers, sensor sites, and communication sites were not displaying the 'Range Ring' option to display that target's range ring.

The definition file for context sensitive menus was amended to present a 'Range Ring' option for jammers, sensor sites, and communication sites.

3.11 JTLS-2013-11513 DDS Formation Embarked Unit Assignment Problem

*DDS application did not allow users to create a new record in the formation embarked unit table for the same unit to be embarked on a different ship of the same naval formation. The only workaround was to use sqlplus or a tool like SQL*Developer.*

The query statement in the formation_embarked_unit.xml DDS screen definition file was wrong and it did include an obstructive NOT IN clause. The related query in the screen definition file was modified accordingly.

3.12 JTLS-2013-11514 SVP Error - Tanker Load Has No Fuel Not Generated

The model crashed because a Tanker Mission did not have a Fuel Supply Record in its Supply Asset list.

The model was corrected to make sure that the model would not crash under these circumstances, but the error should have been reported in the Scenario Verification Program (SVP). There as no such error, even though code existed to make this check.

Three issues were fixed to close this STR.

a. The code was changed to make sure the model would generate a logic error instead of crashing when a tanker mission could not find its fuel supply record

b. The SVP check was corrected and the error message is now generated when a Tanker Load has no fuel record. These errors were located in Standard Database and the issue has been corrected in sdbjor41 and demsdbkor41.

c. If the user specifies a load for a tanker mission and the user did not give the mission any fuel supplies, a warning message is now generated.

3.13 JTLS-2013-11515 Model Crash - AG Order No Second Target

The user clicked on the Target Option within the 2nd Target Group on an Air Ground Attack order, but did not specify the target that should be assigned as the alternate target. This order should have not been sent to the model.

The issue was in the definition of the order panel. The 2nd Target Group is correctly labeled as an Optional Group. the user does not need to assign an alternate target to an Air Ground Attack order. The problem was that if the option was selected, the specification of which target should serve as an alternate was also listed as Optional. If the Optional Group is selected, then the fields in that group are Mandatory.

The order definition file was corrected. Now if you click on the 2nd Target Group, the user will be required to indicate the second alternate object that should be attacked.

While correcting the AG.xml file, it was noted that the file was in a Windows format, which did not cause an issue but was inconsistent with the standard XML file format. A check was done and several other order XML files were also found to be in Windows format. These were all corrected, simply for consistency.

3.14 JTLS-2013-11516 Crash Putting Non-Lifeboat in Support with Enemy

When the user enters an order for an HRU, without a Small Boat, in Coalition Support with an Enemy Unit the model crashed.

The model did not consider the situation. The logic was corrected and the situation is now considered. The order will be rejected. Only lifeboats can be placed in Coalition Support of an Enemy Unit representing that it is being rescued.

3.15 JTLS-2013-11517 HRU Covert Detection While Fighting Crash

If an HRU is already fighting when the Covert Detection Event executes, the model crashes attempting to determine if the detecting side wants to start a fight.

The situation was not considered in the logic. The logic was expanded to account for the situation.

3.16 JTLS-2013-11518 Crash Intercepting Quick Change Orbit Location Order

The model crashed attempting to generate an intercepted message for a Quick Orbit Change order.

The logic assumed that the order had the same format as the Change Air Mission Parameter Order. This was true in previous versions of JTLS, but is not true in JTLS 4.1. The logic was changed for the Quick Change Orbit Location order and creates a properly generated intercepted message.

3.17 JTLS-2013-11519 Object Existence in TBMCS Not Checked During Updates

JTOI didn't send the updates to TBMCS when a squadron's home base or aircraft type was modified.

When JTOI is running with TBMCS, it retrieves and creates initial TBMCS air unit list when it starts. Then it checks the existence of the same squadron by checking it against the list and updates are sent only if the same squadron exists in the list. For squadrons and runway targets, this check was done during object creates only. Code was modified so that when squadron updates are received from JODA, it will recheck the squadron against the initial list. The same modification was made for runway targets.

3.18 JTLS-2013-11520 Remove JNLP in the Temporary Directory on Exit

The JTLS Java Web Start applications download the JNLP file into the local system's temporary directory on start. The WHIP, TRIPP and DDS should be clearing their JNLP file when the application exits.

When one of the applications is started, part of its start procedure has been made to register its corresponding JNLP file to be deleted on exit. After the application exits, the JNLP file in the temporary directory is deleted.

3.19 JTLS-2013-11521 SDR Drop All Script Fails to Drop AAR Reporting Objects

The SDR database object cleaning was failing to drop the AAR reporting related control database objects. These objects were created by the related Java code and they were not included in the related `aar_control_drop.sql` script. These type of objects should be identified dynamically and then dropped dynamically instead of hard coding individual object names as long as standard SDR naming convention was followed.

The missing drop statements was added to the related SQL scripts for the SDR database cleaning purpose. Also, the hard coded object names were modified to be determined and dropped by dynamic SQL statements to improve code maintenance.

3.20 JTLS-2013-11522 Scenario Modification Errors if Scenario in 3.3 Format

*There were Oracle errors (ORA-01722 and ORA-02293) during a scenario conversion from a JTLS 3.3 formatted scenario to JTLS 4.1 format. These errors were caused by implicit select statements (`select * from`) assuming that user's scenario was in 3.4 or higher format. Given that the user did not install, unload and re-load a scenario in a higher JTLS version installation but updated the scenario from within the JTLS 4.1 account, these implicit select statements need to be replaced by explicit (specifying column names) select statements.*

The implicit select statements such as `select * from aircraft_shelter_target` were replaced by explicit select statements such as `select asl_ccf_number, est_tgt_name, ... from aircraft_shelter_target`. We will take this issue and solution into consideration for future JTLS scenario modification processes.

3.21 JTLS-2013-11523 AircraftKillSummary Report Not Closed Properly

A successful AircraftKillSummary report is not moved from temp directory to the corresponding creator sub-directory.

Added missing call to `entry.closeEntry()` method.

3.22 JTLS-2013-11524 Restored AAR View Creation

Some AAR reports require a few views that have not been incorporated into AAR database initialization script yet, this is required to be dynamically checked and created when the GlassFish server starts. This process exists but was accidentally removed, which results in failing reports.

Refactored the createReportViews method from ReportManager ejb to ReportCommon singleton ejb, and restored missing call to this method so that the required views are created dynamically at the startup timeaaras.

3.23 JTLS-2013-11525 Relocate Backup for GlassFish Domain Configuration

When a GlassFish server is configured by DCP or ICP, some data must be stored in different places, thus requires reconciliation if any change is made at one place. DCP/ICP keeps a backup copy of GlassFish configuration file (config/domain.xml) just in case the reconciliation fails. This backup file is kept in /tmp directory. This location violates government requirement SV-6163r8_rule.

The backup file is relocated as config/domain.xml_backup. Backup is no longer time stamped, thus only the latest domain.xml is backed up.

3.24 JTLS-2013-11526 Execution Scripts Not Clearing Temporary Files

A number of execution scripts were not clearing temporary files they created or placed under the system's temporary directory. Temporary files created or placed in the temporary directory should be removed after the script completes its execution.

The scripts that were not removing the temporary files they create were set to safely remove them upon completion of their execution.

3.25 JTLS-2013-11527 Model Crash on Restart During Air Mission Read Code

During internal testing of JTLS, an operator experienced a model crash. This crash occurred while the model was restarting from a checkpoint. Close inspection of the output showed that the crash occurred during the reading of the air mission data.

When the model restarts, it reads in all of the existing air mission data. These data include the set of objects which have been detected by the air mission. The model crashed because it was attempting to restore the detection of a High Resolution Unit (HRU) as seen by an air mission. During the read process, there was not code to handle detections of that object type. HRUs were added as a valid object type in the process of reading the detected objects.

3.26 JTLS-2013-11528 Incorrect Supply Category Shown on Target OPM Page

Incorrect Supply Category name was displayed on the Supply Storage Target OPM Page when displaying the Supply list table.

SIP code was modified to display correct supply category names.

3.27 JTLS-2013-11529 Bad Checkpoint Read With Two EMCON Events

If a checkpoint had two or more Emission Control On Off Events scheduled, the ASCII checkpoint could not be read by the model.

The issue was that there was not a new line started between the events. The code was changed to add the needed new line command.

3.28 JTLS-2013-11530 Name of Satellite Move Event Not Initialized

The model has the ability to bring out an information message to the Combat Events Program (CEP) screen each time an event executes. This information includes the name of the event and the time the event executed. The new MOVE ALONG ROUTE SATELLITE event did not print out the name of the event.

The event name had not been initialized properly. This issue was corrected.

3.29 JTLS-2013-11531 Model Crashed Overwatching Black Target

If an HRU was told to overwatch a Black target, such as a bridge, and they entered into combat protecting the bridge, the model crashed trying to inform the non-existent Black side that the HRU was fighting to protect the asset.

The model logic was corrected to check this situation. An attempt to inform the Black side is no longer possible. Only the side that owns the Overwatching HRU is informed.

3.30 JTLS-2013-11532 HRU Executing Events During Combat

The model crashed because an HRU that was in the middle of combat decided that it was time to stop overwatching an object. This caused the HRU to lose its current executing order and the model crashed attempting to access its current order.

When HRU combat is initialized, all other events, such as Move Events, Cease Operation Events, Start New Order, and Covert Lose Contact events are delayed until the combat assessment has been completed.

3.31 JTLS-2013-11533 Active Emitter Object Not Downloaded on Restart

If the model is brought down and restarted, the emitters that are currently being picked up by Electronic Intelligence (ELINT) assets are not sent to the JODA. This results in several JODA errors as the model attempts to update this data.

The active Emitter Objects are not identified and initialized in the JODA each time there is a JODA download.

3.32 JTLS-2013-11534 Cancel Fire Event Confusing

The new format of the Cancel Fire order was confusing to the users, and it was possible to incorrectly send a Cancel Fire Order without specifying all needed information.

The format of the order and all of the help associated with the order were changed to make it clearer to the general user.

3.33 JTLS-2013-11535 Controller Set Unit Combat Systems Does Not Work

When a user attempted to change and of a unit's Combat System values, such as Available or In Maintenance, the order did not work.

The problem was that the code could not tell the difference between a user wanting to set the value to zero and the user not changing the value. This issue has been corrected.

3.34 JTLS-2013-11536 Show Parameter Index Too Large

When the user asked to show Targetable Weapon parameters, the Combat System Can Fire table did not properly list all combat systems. Some of the Combat System indices were greater than two digit and this caused them not to be displayed properly.

The issue was fixed and a review of all Show Database parameter code was made. One other possible, but unlikely issue was found with Altitude Zone data.

3.35 JTLS-2013-11538 Checkpoint Load to DDS Not Working

The option to load a checkpoint files to DDS was not completely working, causing some tables with missing records.

Several CEP write routines were modified so that data are written in formats that DDS load is expecting to read.

3.36 JTLS-2013-11539 Problem with Setting DIS Codes in DDS and CEP

A user attempted to assign a value to the DIS Code for a combat system using the DDS without success. The value was within the legal ranges and followed all the guidelines given in the Simulation Interoperability Standards Organization (SISO) reference document. The DDS would not allow the user to set the DIS Code to a specific value. When this failed, the user tried to set the value of the DIS Code using the Controller Order to set Combat System Prototype parameters. This also failed to change the DIS Code values.

In the DDS, the problem was related to the constraints which were applied to all DIS Codes. These constraints were in the form of regular expressions in the related screen definition .xml files. These regular expressions were modified to be in the valid format of

[0-255].[0-255].[0-511].[0-255].[0-255].[0-255].[0-255] according to the SISO reference manual.

All of the controller orders which allow the user to set the value of a DIS Code were not functioning properly. The code which processes these orders must set the value of the attribute depending on the type of object which is being modified. When the overall order format in JTLS was changed to include tabbed orders, the code to set DIS Codes was not subsequently modified to include references to the type of object being modified. The type of order was specified so the type of the relevant objects was made available to the code for modifying DIS Codes.

3.37 JTLS-2013-11540 Basic Uom Does Not Convert on Sitrep/DDS

The Sitrep component have displayed only raw data for the basic uom information when any Basic uom selected in the Preferences. The displayed number in the Sitrep should be converted by the selection of basic unit of measure.

Added and Updated renderer, format and uomtype attributes in the dds_sitrep_conf.xml file. TableCellRenderer classes updated.

3.38 JTLS-2013-11541 Sitrep/DDS Does Not Update Prototype Table Change

While the Sitrep shows a unit or target data, when a prototype or a target class database record was modified, the component was failing to update the related Sitrep row.

Implemented a prototype change event listener in the Sitrep Component. Kept only initial downloaded fields from the prototype tables such radius and graphic_symbol.

Reduced to extended download due to the size of map object. Since right click of a unit or a target can easily access a prototype table, it is redundant to display partial data from prototype table in the Sitrep component.

That will clean up and keeps the Sitrep as simple, and also will help to reduce the DDS memory usage.

3.39 JTLS-2013-11542 HRU Object of Interest Refers to Dead HRU

During an order push process from a checkpoint, the Combat Events Program (CEP) crashed due to an invalid pointer when attempting to write an HRU's Object of Interest.

The Write HRU ASCII routine referenced the HRU's Object of Interest, which happened to be another HRU that was dead. The problem originated when the dead HRU was first eliminated and the logic failed to zero-out the Object of Interest attributes of all other HRUs that referenced the dead HRU. This missing logic was added to correct the problem.

3.40 JTLS-2013-11543 Ships Could Not Fire Their Artillery Weapons

During Exercise HK-29, Naval players reported that some ships would not accept FIRE ARTILLERY orders. The orders in question specified types of ammunition for which the Online Players Manual (OPM) indicated that the ships were capable of firing, and there was sufficient ammunition supplies aboard. The "cannot comply" messages said that the ships had no Combat Systems capable of firing the weapons. The ships did in fact have systems that should have been able to fire the weapons in question.

There were two problems here. One was a database issue and the other was an OPM issue. The CEP code was correct, and the order rejections were appropriate. First, a bit of background.

To respond to FIRE ARTILLERY orders, a unit needs several things:

GUNS: These are the Unit's Combat Systems (CS)

BULLETS: Weapons (TWs) are compatible with the guns the unit has

Targetable Weapons (TWs) may or may not be artillery rounds

CS TW CAN FIRE data indicates which TWs each CS can fire

AUTHORITY: This is the TUP (or SUP) CALIBER data

A unit Caliber lists which TWs the unit is authorized to fire

CAPABILITY: Different types of units have different capabilities

A Unit accesses Combat System Prototype (CSP) data

A Unit's SUP or TUP determines which CSP it uses

CSP CS ATTRITION TYPE data specifies how (or if) the CS is used

CSP CS ATTRITION TYPE Options: NONE, DIRECT, INDIRECT, LONG-INDIRECT

NONE: NOT a Lanchestrian attritor

NOT available for explicit artillery fire missions

DIRECT: Lanchester attritor, Combat Power distribution matters

NOT available for explicit artillery fire missions

INDIRECT: Lanchester attritor, Combat Power distribution matters

IS available for explicit artillery fire missions

LONG-INDIRECT: Lanchester attritor, Combat Power distribution irrelevant

IS available for explicit artillery fire missions

The ships in question had a CS for which the CS TW CAN FIRE data was YES for TWs that the ships in fact had aboard. So the OPM included those TWs in the list of weapons that the ships were able to fire. The problem was that the CSP CS ATTRITION TYPE data for those CS's defined them as DIRECT Fire systems, preventing their use on explicit FIRE ARTILLERY orders.

Two changes were made to address this situation. First, the OPM was changed so that it no longer includes any DIRECT fire rounds in the list of the TWs a Unit can fire. Second, a new SVP WARNING is now generated if a CSP CS Attrition Type is set to DIRECT and that CS has its CS TW CAN FIRE attribute set to YES for any TW. This is WARNING 1261.

Finally, while researching this problem, a related DRM error was found. The DRM page for the CSP CS ATTRITION TYPE listed the available values as NONE, DIRECT, INDIRECT, and SHORT-INDIRECT (instead of LONG-INDIRECT). This error was also corrected.

3.41 JTLS-2013-11544 External Event Damage HRU CEP Crash

During Exercise HK-29, the CEP entered SimDebug when an external event to damage an HRU was processed. The event had been ordered to occur at a time in the future. But when the scheduled event game time arrived, the HRU was no longer in existence.

The model checks for the existence of an HRU to be damaged by the Controller when the order is received. If it does exist, then the damage event is scheduled. The error was that the CEP did not check again at the time the damage event was actually processed. Such an HRU could have been destroyed or rejoined its parent unit between the order acceptance time and the damage event time. The model crashed trying to access the pointer to the now non-existent object.

The error was corrected. The CEP now also does the HRU existence check at the event time. A message was added to tell the original ordering WHIP why the event did not take place as scheduled.

3.42 JTLS-2013-11545 WSM GlassFish Start Status Not Changed if Fails

When starting GlassFish node from WSM, if the starting process fails, such as when there exists another GlassFish instance that runs with conflicting ports, the yellow light for starting status remains unchanged and no further action can be performed to the GlassFish node.

Fixed so that the status indicator will be repainted properly to green if started correctly, or to red if failed to start.

3.43 JTLS-2013-11546 Destroyed SSM Targets on Reactivated Ship

A naval vessel was damaged, sunk, and subsequently reactivated by controller order. Although the ship and all of its on-board targets were restored to full-strength, the SSM targets on the ship remained in DESTROYED status and could not be fired.

During the reactivation process, all targets on the ship are restored to 100% and assigned a status appropriate for the target type. The default status of the target is assigned to the current status of the target. In the case of SSM targets, the default status was DESTROYED and assigned as the current status upon reactivation.

By convention, SSM targets that have a mobility type of DEPLOY WHILE MOVING (e.g. on-board a ship) should have a default status of PREPARED. This rule is observed during the unit arrival process when ship-borne SSM targets are first activated.

The reactivation logic was corrected to follow the same rule in identical fashion. Specifically, if the SSM target is not mobile (i.e. it has a mobility type of STATIONARY or DEPLOY WHILE

MOVING), the default status is set to PREPARED. On the other hand, if the SSM target type has a mobility type of MOBILE (i.e. it cannot fire while moving), its default status is set to NOT PREPARED.

3.44 JTLS-2013-11547 Excessive Update Information Events

Update Information events were observed occurring very frequently as the quantity of aircraft on Patrol missions increased. The large numbers of Update Information events indicated a probable inefficiency in the sensor detection logic related to air missions searching for naval vessels.

A review of the detection logic for air missions searching for naval vessels uncovered an inefficiency that generated excessive Update Information events. As each airborne sensor searched through each covered hex, a separate Update Information event was created to hold all the naval units detected in each hex. This strategy meant that if, for example, a sensor covered a twelve hex region, there could be up to twelve Update Information events created. A more efficient methodology was implemented by restructuring the logic to generate only one Update Information event to hold all the detections for the entire covered region for a given sensor. In that way, a sensor search region covering hundreds of hexes will schedule at most one Update Information event containing multiple Update Data entities, one entity for each ship detected in the covered region. This strategy is more computationally efficient than scheduling one Update Information event per hex that contains detected ships.

In addition, the time delay associated with each scheduled Update Information event was changed to use each sensor's Initial Report Time instead of the next higher headquarters message delay time. The sensor's Initial Report Time is a more appropriate representation of an automated intelligence update than the message delay time.

3.45 JTLS-2013-11548 HRUs Patrolling a Single Hex Moved Every Second

During Exercise HK-29, Players wanted HRUs to patrol within a single hex. They input an HRU Patrol area as a polygon that very nicely was the outline of the hex. The patrol route logic came to the conclusion that it could not move into any of the six surrounding hex (because they were all outside of the polygon) and decided to move it to the same location in the same hex. It then computed the distance as zero and the time as zero. But knowing it could not schedule the move in zero time, it set it to one second. These every-second move events significantly slowed down the game.

There were really two issues here. The first was the every-second move event. This was changed so HRUs with a zero distance move scheduled only move every 15 minutes. However, this was not the complete solution. The Players wanted to actually see the HRUs moving within the small patrol area.

For the single-hex patrol area situation, the HRU might have already been in the hex when the order was received. In that case, it stayed at its current location while executing these "zero distance" moves. If the HRU was outside the hex when the order was received, it moved to the

nearest vertex of the area (as it should have) but then stayed at that location while executing its "zero distance" moves.

Now, once the HRU enters a single-hex patrol area, it randomly moves within the hex. It selects random locations within the hex, and executes sequentially moves to each, at its normal computed movement speed. How HRUs patrol areas covered by more than one hex was not affected by this change.

3.46 JTLS-2013-11549 File Accessing Issues in HRU File During Checkpoint

During an ASCII restart of the CEP, the model encountered input/output (I/O) issues while reading the HRU ASCII file. The controller was not able to do any Simscript debugging on this problem because no responses were returned from the prompt. These issues are likely related to the extraordinarily large size of the HRU ASCII file.

Since the file size is the most likely cause of this problem, the HRU check-pointing code was modified to reduce the output file size. The modification writes two files instead of one for the HRU ASCII data. The new HRU checkpoint file contains detection data in the HRU Information Set and it contains the data on the Essential Elements of Information (EEI) for HRUs. All other HRU data remain in the original HRU ASCII checkpoint file.

3.47 JTLS-2013-11550 Mandatory Field Listed as Optional in Control Order

In the Controller Order called Pass Object Control, there is a field for Type of Object. This field should be mandatory, but was incorrectly listed as an optional field.

The order panel was modified to change the Type of Object field to a mandatory type. In all cases, the controller must specify the type of object in order to submit this order. Inspection of the code also found that there are a number of unnecessary variables which are called flags. These flag data were also used to specify the type of object on the order. The new format of orders uses groups to satisfy the requirements which were previously fulfilled by the flags. All flags were removed from this order.

3.48 JTLS-2013-11551 Infinite Loop During HRU Combat

When an HRU ambushed and began to engage in combat with a ground unit, the game time stopped advancing. The event HRU.ASSESS.COMBAT appeared continuously executing in the CEP window.

The HRU.ASSESS.COMBAT event was repeatedly scheduled at the current game time because the duration of the engagement had an erroneous value of zero. Each time the HRU.ASSESS.COMBAT event was executed, the event was immediately scheduled again, which prevented any other game process from occurring. The incorrect zero value was the result of a missing argument (the aggressor HRU) in the call to the routine that determines the duration. Although the correct duration was determined in the called routine, the value was returned as

zero due to the mismatched argument list. To fix the problem, the missing argument was simply added to the calling statement in HRU.ASSESS.COMBAT.

3.49 JTLS-2013-11552 No JTLS Version Number in WSM About

The Web Services Manager (WSM) did not display the JTLS version number in the About dialog window.

The WSM did not have implemented the mechanism to stamp the About dialog image with the JTLS version. This was implemented to use the build process to get the compile time JTLS version and store it in a file that is used by the About dialog to render the number on the About image.

3.50 JTLS-2013-11553 JODA Error Displayed When HRU Was Destroyed

When an HRU was destroyed and the object delete messages were sent to JODA for all sides, several error messages were shown on the JODA error log. These error messages were generated because the object was no longer in JODA when the later deletes were sent.

These error message were due to the perception setting of the HRU object in JODA when the delete was received. If the HRU object in JODA has the perception setting of owning side and ground truth, it generates error if it receives delete for any other sides. The problem is not in the deletes, but in the creates and following updates for the HRU object. During the JODA download, HRU object is created with owning side and ground truth perception setting only if their parent unit has already been arrived. For other sides, the perception bit was set only if that side has a detection. The perception bit must be set for all sides and the display and active flags are off for sides with no detection. Code was modified so that the perception bit is set for all sides during download and object reinitialization.

3.51 JTLS-2013-11554 Correct Warning 424

Warning 424 always display line 0 as the problem line in the ACO file.

Warning 424 informs the user when a ACO point is off the game board. The warning is supposed to identify the line with the error. Because of an error in the input file name this was not happening. The line number was always zero. The code was corrected with proper input file name.

3.52 JTLS-2013-11555 Missing Mission Legs

Transport mission are not flying all of the assigned ATO mission legs.

Review and testing of the selected code revealed an error in which under certain circumstances every other line of the mission instructions were being skipped. The code was corrected and tested.

3.53 JTLS-2013-11556 Warning 446 Needs More Information

Please add the load name to the basic information for warning 446.

Warning 446 informs the user when a aircraft load used in the ATO is not defined in the database. The user is presented with a simple message that states "Mission Load Undefined - JTLS will pick". The user must click on each message to determine the load name. The code has been modified to display the load name with the basic information so the user may simply scan the messages without having to click on each one.

3.54 JTLS-2013-11557 Error in ATO-T Alert Refuel Mission Order

Orders for Air refuel mission that are to go on alert will not pass the OVT verification.

A new option in 4.1.0.0 orders is the LOC_OPTION. The value of this option is the key to which other location fields should be present. For an alert mission, the value should be 6 meaning a alert base should be specified. The value was inappropriately set to 4, so the code was looking for other fields that weren't present. The code was corrected and tested.

3.55 JTLS-2013-11558 Errors in Civilian Air Traffic Orders

Unable to process Civil Air Traffic Orders. Numerous errors received when checking the orders through the OVT.

In the update from JTLS 4.0 to 4.1 the ORDER NUMBER for several orders were changed. The change for the order number for Civilian Air Traffic orders was never made in the ATO-T. When the OVT tried to verify order 576, the old number, that order number no longer existed. It has been corrected and tested.

3.56 JTLS-2013-11559 DDS May Throw Exception When Updating Database Changes

Sometimes, when massive changes were made to the database, i.e. during a force side deletion, DDS encountered problems and threw exceptions because it was unable to process the update xml stream it received.

This issue was rather due to a bug in the GlassFish module dds_as instead. In one of the servlet, timestamp was improperly extracted in certain cases, resulting in exception thrown, and xml stream improperly formed. This bug is now fixed.

3.57 JTLS-2013-11560 DDS Force Side Deletion Issue

When user deletes a force side in DDS, if that side has a large number of units and targets, many of these units and targets did not get cleaned from the DDS display (map, cmdtree, and logtree) when the force side was successfully removed from the database.

This issue is due to the fact that deleting force side is a major event, and if the side has many units and targets, database will take quite a bit of work to go through the deletions. While the database is busy deleting the force side and the underlying targets and units, it defers the update queries it receives from the DDS client until it is not so laden with the deletion process. Database determines updates by looking for any changes made to the data in the past 120 seconds, and when update queries get deferred, the database may not be able to report the changes (in this case units or targets deletions) that occurred because those could happen more than 120 seconds ago.

The solution to this problem is not perfect. It only works for the DDS client that initiates the force side deletion. When user deletes a force side, all the units' and targets' periodic update queries are canceled. A splash message will occur indicating to DDS client user that force side deletion is in progress, and it may take awhile. The splash message will disappear once the database completes the force side deletion. When DDS client knows a force side has been successfully removed from the database (it receives a force side deleted event), it removes the old units and targets from its displays, i.e. cmdtree, map, (and logtree if it is shown), redownloads the data from the database, and populates its displays with the new data.

3.58 JTLS-2013-11561 DDS JDPI Targets Are Not Properly Displayed on Map

It was discovered that for some time, DDS's map component was no longer displaying any JDPI (DMPI) targets. Moreover, JDPI targets were improperly assigned a force side based on the entries in the DMPI_FS table.

The JDPI targets not being displayed issue was most likely introduced back when efforts were made to reduce DDS's memory consumption. These targets were in fact cleaned out from its DDS collection after being downloaded from the database. The problem is now fixed. As to the side, JDPI targets should not have a particular side assigned. In fact, they are now treated as neutral.

3.59 JTLS-2013-11562 Improper Read of MSGID Record from ICC

ATO-T is not reading the AMPN Record that follows the MSGID record.

The ICC version of the ATO does not require any fields after the Month field on the MSGID record. In the past this field always contained either the code ORG (Original) or CHG (Change). When the user leaves this optional field blank, it causes problems in the read. The code has been modified to take this into account and correct the problem. Doing so, we must assume if it is blank, then it is an ORIGINAL or INITIAL ATO.

3.60 JTLS-2013-11563 Ingress & Egress Routes are Hard to Read

It is hard to read the order files for the ATO-T when the orders contain Ingress and Egress Routes.

Occasionally it is necessary to read the JTLS orders that are produced by the ATO-T and compare them to the actual ATO. Cosmetic changes were made to the formatting of the data for Ingress and Egress routes to make them easier to read.

3.61 JTLS-2013-11564 Unable to Create Cruiser Mission Using BEST Load

When the word BEST or BA (Best Available) is used in the mission load field for either a TBMCS, ICC or SPREADSHEET ATO, the ATO will not generate a cruise missile mission.

Although the ATO-T was able to determine if a aircraft type was capable of performing cruise missile missions, it did not know what was in the load in order to determine if their were enough weapons for the desired targets and make the proper assignments. The data the ATO-T needed was available, so the code was modified to use the default cruise load assigned to the aircraft to complete the users request. The resulting code was tested for TBMCS, ICC and SPREADSHEET ATOs.

3.62 JTLS-2013-11566 Improve Route Record Processing

THE ATO-T needs to expand and improve the processing of the ROUTE record.

The ROUTE record is a very difficult record type to program which is further complicated by the user that is actually producing the ATO. Each user has their own way of using thew ROUTE records and their is NO clear cut guidance on how it should be used. Currently the ATO-T processes ROUTE records only for AWACS and AIRREF missions. In this version of the ATO-T the first change is to add a flag which specifies whether to not the user wishes the ATO-T to process the ROUTE record information. If set to NO, the complete ROUTE record set will be ignored. When set to yes, the ATO-T will enforce the standards available with the TBMCS and ICC systems such as: Either IN or EG must be specified on records for ingress and egress routes. C (Course) or RC (Reverse Course) must be specified for direction along an ACO path. The user should refer to their own documentation and options available in the actual TBMCS or ICC forms. More specific information will be published in the ato_translator guide as soon as possible.

3.63 JTLS-2013-11567 Ambush Convoy Causes Crash

If an HRU attempts to ambush a convoy, the model crashed.

The model incorrectly tried to skip the logic to create an perception update for the convoy. JTLS currently does not support convoy perception and the method used to skip this logic caused the crash. The logic was changed to properly skip the perception update for convoys.

3.64 JTLS-2013-11568 DDS Faction Copy Fails

DDS Faction Copy process was failing with Oracle unique key violation error.

DDS Faction Copy process was failing because the FC Leader field was not visible (presented) to the user in the Copy Record dialog. Given that the FC Leader field is a unique field, when the user

did not provide a leader for the newly copied Faction, the process would fail with unique key violated error. The FC Leader field was added to the Copy dialog definition so that the user can select a new faction leader from the list of available units.

3.65 JTLS-2013-11569 Fortify [Privacy violation: heap inspection] 39 Issues

The Fortify Developer Workbook reported that storing sensitive data, such as passwords, in a Java String object makes it impossible to reliably purge the data from memory and can be leaked, creating a security risk. The report sited 39 issues of this category in the JTLS source code.

The 39 issues have been addressed using the recommended method to handle and clear the sensitive data, which in most cases were passwords. Some of the reported instances exists in third part software that R&A does not own an cannot maintain. These instances were not changed.

3.66 JTLS-2013-11570 Crash Transporting Unit by Rail with Overwatching HRU

The model crashed when an HRU was overwatching a unit that was told to be moved by a rail convoy.

The HRU properly stopped overwatching the unit when it was picked up by the train, but all of the overwatching events were not properly canceled. All of he overwatching events are now properly canceled.

3.67 JTLS-2013-11571 WHIP Shows Speed for Coalition Support HRU

After an HRU links to an ARU, the HRU's speed is still showing on the WHIP. In fact the HRU is no longer moving and its speed should show as zero.

The issue was fixed, and the WHIP was updated to show a speed of zero for an HRU that is conducting its mission and not moving.

3.68 JTLS-2013-11572 Title of the MCR (54 character limit)

In a shadow game during HK 29 a broadcast jammer was destroyed by an HRU raid at 160221Z. Repair was scheduled for 210742Z. At the time of the jammer destruction the TG_STATUS was TURNED_OFF and had never been TURNED_ON. The TG.DEFAULT.STATUS was .STATUS.DESTROYED. At crash the status of the jammer was TURNED_ON. The crash occurred because Broadcast Jamming requires an audience to fully activate, but no jamming order had yet been sent.

The original source code directs that targets TURN_ON following completion of repairs. The correction modified the code to reflect that jammer targets completing repair remain in TURNED_OFF state, regardless of the state before destruction. Jammer Targets are unique in

that Jamming may be considered a non-defensive measure. Thus it should never automatically activate, especially following a lengthy jammer target repair.

3.69 JTLS-2013-11573 Additional passwords stored as Strings

In addition to the instances identified by the Fortify report, there were additional places where passwords were stored as a Java String.

Changed the additional instances to store the passwords in a character array instead of a String. This change also disables the ability to specify the user password as an environment variable and to specify the user and password as a command line argument to the WSM.

3.70 JTLS-2013-11574 Hex Report Combat Sys in Shelter Count Overflow

*In the section of the Hex Report that shows the number of combat systems in a shelter, the quantity field could not accommodate a value greater than 99, displaying "***" instead. For example,*

Following Equipment Shelters are in this hex:

Equipment Shelter: MOUNT_HZ_001

Following items are sheltered:

Combat System Quantity

SPECIAL-WPN (63) 4

CREWMAN (40) 13

*DISMOUNT-TRP (61) ***

The underlying source code printed the quantity using an I2 in the WRITE statement. The field attribute was increased to I4 to correct the problem.

3.71 JTLS-2013-11575 HRU Ambush Starts Too Soon

It was possible for an HRU to start the ambush object process before it was in range of the selected object.

Three issues were found and fixed:

1. When an HRU was told to Raid an object, the model properly checked that the HRU and the object of the raid were within range of the available HRU weapons. When selecting an Ambush object this was check was not made. If an object entered the Ambushing HRU's area of interest and the object met the HRUs ambush requirements, the ambush was started. The model now also checks that the HRU has at least one weapon in range.

2. When determining the range between the HRU and the object it is attacking, the model was not consistently considering the distance between the objects and the radius of the objects. The model now consistently uses the distance between the center of the HRU and the center of

object it is attacking. The firing distance is then calculated using the center-to-center distance and then subtracting the radius of the attacking HRU and the object being attacked.

3. Very small range weapon systems were not being properly considered when an HRU and the object it is attacking were in the same hex. The model now assumes that the HRU or the object are moving within the hex and therefore, when the HRU and the object being attacked are in the same hex, the model assumes the distance between the two objects is zero and all available weapons systems can be used in the fight.

3.72 JTLS-2013-11576 Barge Feasible Memory Leaker

An array to access the number of barge assets available was not released if absolutely no barge assets were available to the requesting side.

The array was properly released under the circumstance.

3.73 JTLS-2013-11577 Error When Transporting Unit by Damaged Rail Convoy

A unit was transported by a rail convoy and that convoy was seriously damaged while en route. The convoy was ambushed by an enemy HRU and approximately half of the rail cars were destroyed. When the convoy arrived at the destination and the unit was offloaded from the convoy, the unit continued to have almost full-strength. It remained at a unit strength equal to that when it was loaded onto the transport convoy. Since more than half of the rail cars were destroyed, then a significant portion of the transported unit should have also been damaged.

When a unit is transported by convoy, its combat systems are converted into supplies. If the convoy is damaged en route, then damage to the onboard supplies are only assessed and destroyed after the convoy arrived at the destination. After the supplies have been adjusted, then the combat systems for the transported unit are re-issued from the remaining supplies. This process was working correctly. The problem stemmed from the fact that the transported unit continued to hold all of its original combat systems. The supplies in the unit were reduced to zero on-hand amounts for all supply types but the combat systems were unchanged. As a result, when the convoy delivered the unit to the new location, it then re-issued combat systems to supplement those which were already in the unit. The code was modified such that when the unit is loaded onto the convoy, then both the supplies and the combat systems are reduced to zero quantities of everything. Testing now shows that the transported unit strength upon arrival is approximately equal to the fraction of vehicles remaining in the convoy when it is at the destination location.

3.74 JTLS-2013-11578 Checkmenu Improvement

Previously, checkmenu did not check the relationship with a order and utilities that are appearing in each menu and order files.

The verify menu stylesheet was improved to verify that:

1. If a order name is appearing in the menu file, whose order has a utility field, must also contain the utility in the menu.
2. The utilities in the menu must be used by at least one other order or utility.
3. The order name should be under the order nodes in the menu.
4. The utility name should be under the utilities nodes in the menu.

All menus for which these new errors were found were fixed.

3.75 JTLS-2013-11579 Improvements to Secondary Blast Damage

Targets were not suffering secondary blast damage when a weapon exploded in the vicinity.

A new algorithm was added to assess secondary blast damage against targets. The assumption in the algorithm is that a direct hit at the target location will result in a kill. A hit within half the area of the target radius will assess damage using the Surface Kill Lethality pK value for the target category and subcategory; damage will then drop off until it reaches zero at the distance of the target radius plus the weapon's area of effects. The resultant two lines are used to interpolate a pK based on the distance of the weapon from the target, and a random draw is done against this pK to determine if the target suffered damage or not.

3.76 JTLS-2013-11580 DDS Not Properly Update Faction Side Changes

DDS did not properly update its Command Hierarchy, Sitrep, Map, and Log Hierarchy components when a faction changed side in the Faction_Country table.

DDS now listens for the event that a faction changes its side. When the event occurs, its components will update the force side information of the faction leader and all of its subordinates, owned targets, and associated targets.

3.77 JTLS-2013-11581 DDS Land Unit Map Filter Took Too Long to Change

DDS Map's Land Unit Group Filter took too long to change its state (Y,N,H,B).

The cause for the delay was the excessive firing of filter change events for all the Echelon Levels which are sub filters of the Land Unit Filter Group. This became the case when DDS Land Unit's echelon filters were fixed to operate. The unnecessary firing of the event is now eliminated.

3.78 JTLS-2013-11582 Maintenance Count Mismatch

A JTLS Logic Error was generated when a unit was killed and there were fewer systems in maintenance than the number held in the maintenance summary records for the unit.

The situation was re-created and the issue was traced back to when the unit arrived in theater. The unit arrival logic incorrectly executed the logic to issue combat systems twice. The second time the logic was executed, the systems that were in maintenance were correctly taken off maintenance but the maintenance records were not updated.

To solve this problem two fixes were made:

1. When the issuing of combat systems is accomplished and the logic finds systems in maintenance, not only are the systems taken out of maintenance, but the maintenance records are also removed.
2. The logic was reorganized so the issuing of combat systems was not accomplished twice when a unit arrives in theater.

3.79 JTLS-2013-11583 Do Not Generate Logic Error When Not In Federation

When running in a federation we require all stationary targets to have a Political Country from which a country code can be extracted. To help ensure this we generate a logic error for those stationary targets that do not have a Political Country. however, in non-federation exercises this logic error is still generated even though the requirement should not exist, and it causes confusion and distress to the Technical Controllers.

The decision was to only generate the logic error when JTLS is being run as part of a federation. Since the JHIP is an integral part of any JTLS federation we now check whether the JHIP is up and running before generating the logic error.

3.80 JTLS-2013-11584 HRU Using Non-Functional Radar For Detections

HRUS are considering non-functional owned radar when they are determining their detection range. This leads to detections by the HRU that should not be occurring.

The code was modified so that HRUS will not consider their non-functional radars when calculating their detection range.

3.81 JTLS-2013-11585 HRU Names Not Written Out With Detected Objects

When an air mission saves it detected object set as part of a checkpoint, those objects that are HRUS are not having their names written out. Basically, there is no case to handle HRUS so the name from the previous detected object is carried over and written a second time.

Code to handle HRU detected objects was added to both the read and write air mission checkpoint code.

3.82 JTLS-2013-11586 Order Set Targetable Weapon Code Error

When setting the parameters for a Targetable Weapon there are numerous places in the code that upon discovering an error will generate a failure message and stop processing the order. The message states that the order was not implemented. However, parts of the order may have been implemented when the error is encountered leading to confusion about exactly what was implemented and what was not.

The setting and showing of Targetable Weapon parameters was modified to simplify the code for easier processing. This was also done with counting available tubes for SAM/AAA systems. The clean up included the generation of messages when a failure event occurred to inform the player that the failure portion of the order was not implemented, but the rest of the order was.

3.83 JTLS-2013-11587 Destroyed Convoy Attempts to Access

A game crash occurred when the code attempted to access the obsolete supply array of a destroyed convoy. The convoy was at a pickup point which was also its home unit. It was unable to pickup the needed supplies so destroyed itself. Shortly afterwards the code attempted to access a local variable that had been holding a pointer to the convoy's supply array. Since the convoy had been destroyed the array had also been released and that memory re-assigned to an entirely different object resulting in the crash.

There were a couple places in the file where we had determined that the convoy was destroyed but had not zeroed out the local variable pointing to the obsolete supply array. Code was added to perform this zeroing.

3.84 JTLS-2013-11588 Protect Sheltered Units From Secondary Blast Damage

Combat Systems from sheltered units were being damaged even though the shelter was not being damaged. This was occurring as a result of secondary blast damage which was not disregarding sheltered systems.

The code was modified so that units and HRUS do not include sheltered systems when assessing secondary blast damage.

3.85 JTLS-2013-11589 Cancel Withdrawing HRU's Patrol Tasking

A patrolling HRU that is forced into a Withdraw posture does not destroy the end of the Patrol tasking. The associated Patrol order is destroyed, so when the end tasking event occurs it does not exist and results in a game crash.

The code to start an HRU withdrawing now checks if the HRU had been patrolling. If that was its tasking it find and deletes the end patrol event.

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 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 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 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 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-0971 Ship Continuous Tracking Not Working

The new unidentified object design indicates that ships which are continuously tracked will not have unidentified objects created. A continuously tracked Naval unit and all of its targets are creating unidentified objects. They should not be doing this.

4.6 JTLS-0973 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.

4.7 JTLS-0974 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.

4.8 JTLS-0981 Formation With No Posture

The model crashed when a formation reached a Destination Two hex and the formation no longer had a posture. Therefore it did not know what to do. A Destination Two hex indicates that the Formation should conduct its assigned Amphibious Operation, drop off its Sealifted supplies or clear mines from a minefield. The posture of the formation is used to tell the formation which of these three tasks should be accomplished.

When the formation reached its Destination Two hex, the posture of the formation was zero; therefore, the formation did not know which of the three tasks should be accomplished.

4.9 JTLS-1384 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.

4.10 JTLS-2005-1457 Target Auto Assign Errors In Orbiting OAS

An Orbiting OAS mission was created with Auto Assigned allowed and search target category as SSM. An SSM was magic moved to the area of the orbit. Perception of the SSM was given to the

mission's side using the controller Target Report order. The mission saw the target and immediately attacked it. When the OAS mission returned, the Mission Report said it was assigned to attack target UIO11816U but the target could not be found. It appears that mission was previously holding the target as unidentified and it was not found after it was assigned a specific target number.

4.11 JTLS-2011-10810 SE Linux Causes JSXR Crashes

Frequent and random JSXR Web Service crashes occurred while executing JTLS 3.4.3 in an exercise network configuration supported by a Security Enhanced Linux-enabled platform. The system configuration included 7 JSXRs and 125 WHIPs. Java 1.6.0.16 was used to support workstations. Accumulation of numerous core.jsxr files in the `$/game` directory and `logic_error` files in the `$/debug` directory was observed. Server CPU resources and system memory were adequate and not adversely affected.

This issue did not occur after SELinux was disabled on the system servers. Until this issue is resolved, executing JTLS or its components on SELinux-enabled systems is not authorized.

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

ICPLogin	Interface Login Program
ID	Identifier
IFF	Identification Friend or Foe
IIP	Intelligence Information Prototype
IMT	Information Management Tool
INFO	Information
INTEL	Intelligence
JCATS	Joint Conflict And Tactical Simulation
JDA	Japan Defense Agency
JDPI	Joint Desired Point of Impact (formerly DMPI: Desired Mean Point of Impact)
JDS	JTLS Data System
JDSP	JTLS Data System Protocol
JEDI	JODA Entity Data Identifier
JMCIS	Joint Maritime Combat Information System
JMEM	Joint Munitions Effectiveness Manuals
JODA	JTLS Object Distribution Authority
JOI	JTLS Operational Interface
JPL	Jet Propulsion Laboratory
JRSG	Joint Rapid Scenario Generation (formerly JIDPS: Joint Integrated Database Preparation System)
JSDF	Japanese Self-Defense Force
JTLS	Joint Theater Level Simulation
JTOI	JTLS Transaction Operational Interface
JXSR	JTLS XML Serial Repository
KIA	Killed In Action
KM	Kilometer
KNOTS	Nautical miles per hour
LA	Lethal Area
LAN	Local Area Network
LAT	Latitude
LB	Login Build (JTLS order type)
LDAP	Lightweight Directory Access Protocol
LDT	Lanchester coefficient Development Tool
LOG	Logistics
LOGIN	Logistics Input

LOGREP	Logistics Report
LONG	Longitude
LOTS	Logistics Over The Shore
LR	Long Range
M&S	Modeling and Simulation
MAPP	Modern Aids to Planning Program
MB	Megabyte
MCP	Mobility Counter-mobility Prototype
MCR	Model Change Request
MG	Machine Gun
MHE	Material Handling Equipment
MIP	Model Interface Program
MOGAS	Motor Gasoline
MOPP	Mission-Oriented Protective Posture
MOSAIC	NCSA user interface software
MOTIF	X Window System graphical interface
MP	Maneuver Prototype
MPP	Message Processor Program
MSC	Major Subordinate Command
MSG	Message
MTF	Message Text Formats
MUREP	Munitions Report
NCSA	National Center for Supercomputing Applications (University of Illinois)
NEO	Noncombatant Evacuation Operations
NFS	Network File Server
NGO	Non-Governmental Organization
NIS	Network Information Service or Network Information System
NM	Nautical Mile
NTSC	Naval Telecommunications System Center
OAS	Offensive Air Support
OBS	Order of Battle Service (formerly UGU: Unit Generation Utility)
OCA	Offensive Counter-Air
OJCS	Organization of the Joint Chiefs of Staff
OMA	Order Management Authority

ONC	Operational Navigation Chart
OPM	Online Player Manual
OPP	Order Preprocessing Program
OTH	Over The Horizon
OTH Gold	Over The Horizon message specification
OTH-T	Over The Horizon-Targeting
pD	Probability of Detection
pE	Probability of Engage
pH	Probability of Hit
pK	Probability of Kill
PKL	Point Kill Lethality
POL	Petroleum, Oil, and Lubricants
POSIX	International operating system standard based on System V and BSD
PPS	Postprocessor System
PSYOPS	Psychological Operations
RAM	Random Access Memory
RDMS	Relational Database Management System
RECCE	Reconnaissance (air missions)
RECON	Reconnaissance (ground missions)
REGT	Regiment
RNS	Random Number Seed
ROE	Rules Of Engagement
RPT	Report
RSP	Reformat Spreadsheet Program
SAL	Surface-to-Air Lethality
SAM	Surface-to-Air Missile
SAM/AAA	Surface-to-Air Missile/Anti-Aircraft Artillery
SC	Supply Category
SCP	Simulation Control Plan
SDB	Standard Database
SEAD	Suppression of Enemy Air Defense
SIMSCRIPT	Simulation programming language (product of CACI, Inc.)
SIP	Scenario Initialization Program
SITREP	Situation Report

SLP	Sustainment Log Prototype
SOF	Special Operations Forces
SP	Survivability Prototype
SQL	Structured Query Language
SR	Short Range
SRP	Start/Restart Program (a JTLS component)
SRTE	Sea Route
SSM	Surface-to-Surface Missile
STR	Software Trouble Report
SUP	Ship Unit Prototype
SVP	Scenario Verification Program
SYNAPSE	Synchronized Authentication and Preferences Service
TADIL	Tactical Digital Interface Link
TCP/IP	Transmission Control Protocol/Internet Protocol
TEL	Transporter Erector Launcher
TG	Target entity attribute prefix
TGS	Terrain Generation Service (formerly TPS:Terrain Preparation System)
TGT	Target
TMU	Terrain Modification Utility
TOE	Table of Organization and Equipment
TOT	Time Over Target
TOW	Tube-launched Optically-tracked Wire-guided missile
TPFDD	Time-Phased Force Deployment Data
TTG	Target Type Group
TTL	Target Types List
TUP	Tactical Unit Prototype
TW	Targetable Weapon
UBL	Unit Basic Load
UIM/X	GUI builder tool
UNIX	POSIX-compliant operating system
UNK	Unknown
UOM	Unit Of Measure
USA	United States Army (U.S. and U.S.A. refer to United States and United States of America)
USAF	United States Air Force

USCG	United States Coast Guard
USMC	United States Marine Corps
USMTF	United States Message Text Format
USN	United States Navy
UT	Unit entity attribute prefix
UTM	Universal Transverse Mercator
VIFRED	Visual Forms Editor
VMS	Virtual Memory System
VTOL	Vertical Take-Off and Landing aircraft
WAN	Wide Area Network
WDRAW	Withdraw
WEJ	Web Enabled JTLS
WHIP	Web Hosted Interface Program
WIA	Wounded In Action
WPC	Warrior Preparation Center
WPN	Weapon
WT	Weight
WW	Wild Weasel
XMS	XML Message Service

APPENDIX B. VERSION 4.1.1.0 STANDARD DATABASE CHANGES

This Appendix describes changes to the SDBKOR41 Standard Database implemented for the JTLS 4.1 series of releases.

The ECPs implemented for JTLS 4.1.1.0 have not required the addition, deletion, or modification of various data parameters maintained in the JTLS Standard Database.