JTLS

Version Description Document

October 2014

DEPARTMENT OF DEFENSE
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JOINT THEATER LEVEL SIMULATION
(JTLS 4.1.7.0)

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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 4.1.7.0 delivery of the configuration-managed JTLS software suite.

JTLS 4.1.7.0 is a maintenance release of the JTLS 4.1 series that includes code modifications that represent corrections to known Software Trouble Reports (STRs), which are described in Chapter 3. Remaining and outstanding STRs are described in Chapter 4.

This publication is updated and revised as required for each Major or Maintenance version release of the JTLS model. Corrections, additions, or recommendations for improvement must reference specific sections, pages, and paragraphs with appropriate justification and be forwarded to:

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1.0 INTRODUCTION

1.1 SCOPE

This *JTLS Version Description Document* (VDD) describes Version 4.1.7.0 of the configuration managed Joint Theater Level Simulation (JTLS®) software suite. JTLS 4.1.7.0 is a Maintenance delivery for the JTLS 4.1 series of releases. JTLS 4.1.7.0 includes the entire JTLS suite of software and the SDBKOR41 Standard Database that supports a realistic scenario based on the current Korean Peninsula theater of operations.

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

The format of the database has not changed since the release of JTLS 4.1.5.0, but improvements to the suggested default data, as contained the SDBKOR41 scenario, have been made. These database improvements are summarized in this chapter, as well as APPENDIX B.

JTLS 4.1.7.0 executes on the Red Hat Enterprise Linux Version 5 or 6 64-bit operating systems. The Web-Hosted Interface Program (WHIP®) user workstation interface can be executed from any Java-compatible Web browser available on any operating system.

1.2 INVENTORY OF MATERIALS

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

1.2.1 Obsolete/Outdated Documents

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

1.2.2 Unchanged Documents

The following documentation is provided for this release:

- *JTLS ATOT User Guide* (JTLS Document 03, Version 4.1.7.0)
- *JTLS Controller Guide* (JTLS Document 04, Version 4.1.7.0)
- *JTLS Data Requirements Manual* (JTLS Document 05, Version 4.1.7.0)
- *JTLS DDS User Guide* (JTLS Document 06, Version 4.1.7.0)

- *JTLS Director Guide* (JTLS Document 07, Version 4.1.7.0)
- *JTLS Executive Overview* (JTLS Document 08, Version 4.1.7.0)
- *JTLS Installation Manual* (JTLS Document 09, Version 4.1.7.0)
- *JTLS Player Guide* (JTLS Document 12, Version 4.1.7.0)
- *JTLS Standard Database Description* (JTLS Document 14, Version 4.1.7.0)
- *JTLS Technical Coordinator Guide* (JTLS Document 16, Version 4.1.7.0)
- *JTLS Entity Level Server User Guide* (JTLS Document 19, Version 4.1.7.0)
- *JTLS Federation User Guide* (JTLS Document 20, Version 4.1.7.0)
- *JTLS C4I Interface Manual* (JTLS Document 21, Version 4.1.7.0)
- *JTLS DDS Training Manual* (JTLS Document 23, Version 4.1.7.0)

1.2.3 Updated Documents

- *JTLS Analyst Guide* (JTLS Document 01, Version 4.1.7.0)
- *JTLS Software Maintenance Manual* (JTLS Document 15, Version 4.1.7.0)
- *JTLS WHIP Training Manual* (JTLS Document 10, Version 4.1.7.0)
- *JTLS Version Description Document* (JTLS Document 17, Version 4.1.7.0)

1.2.4 Delivered Software Components

JTLS 4.1.7.0 may be delivered either on a CD or as a set of compressed TAR files to be downloaded. Either method includes the complete suite of software executable code and command procedures. These software components are included with this release:

- Database Configuration Program (DCP)
- DDS User Interface (DDS)

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

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

- Combat Events Program (CEP)
- Scenario Initialization Program (SIP)
- Interface Configuration Program (ICP)
- Reformat Spreadsheet Program (RSP)
- Database Development System (DDS)
- Terrain Modification Utility (TMU)
- JTLS Symbols Application (JSYMS)
- Lanchester Development Tool (LDT)
- ATO Translator Program (ATOT)
- ATO Retrieval Program (ATORET)
- Convert Location Program (XCONVERT)
- Count Critical Order Program (CCO)
- JTLS HLA Interface Program (JHIP)
- After Action Review Client (AARC)
- Scenario Data Client (SDC)
- Order Entry Client (OEC)
- Order Verification Tool (OVT)
- JTLS Object Distribution Authority (JODA)
- Web Services Manager (WSM)
- Web-Hosted Interface Program (WHIP) and its component programs:
    a. Apache Server, version 2.4.7 (APACHE)
    b. JTLS XML Serial Repository (JXSR)
    c. Order Management Authority (OMA)
    d. Synchronized Authentication and Preferences Service (SYNAPSE)
    e. XML Message Service (XMS)

f. Total Recall Interactive Playback Program (TRIPP)

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

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

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

Instructions for installing JTLS 4.1.7.0 are provided in the *JTLS Installation Manual*. Installing a previous version of JTLS prior to installing JTLS 4.1.7.0 is not necessary. No other upgrade beyond installation of the compressed TAR files (or CD) is required. The software provided with this delivery is a complete release that includes all files and code required to execute JTLS.

1.2.5 Released Databases

This release includes these sample unclassified databases:

- The scenario developed as the Korea Standard Database and named SDBKOR41 is a large-scale, seven-sided scenario database reflecting the approximate starting positions of units involved in the Korea Peninsula theater of operations. This example scenario was developed using unclassified data sources and is consequently not completely accurate. Discrepancies among actual units and their locations are not detrimental to the intended purpose of this database, which is to provide a recognizable and realistic scenario that demonstrates the simulation capabilities and supports JTLS training.

- The scenario DEMSDBKOR41, which is a reduced version of SDBKOR41, has been updated from JTLS 4.1.5.0 for this release and contains the most current engineering level data from the SDBKOR41 scenario.

- The scenario blank40 is the SDBKOR41 database, with all force structure data removed, can be used as a framework for building your customized database. This database has been updated and contains the most current engineering level data from the SDBKOR41 scenario.

1.3 INTERFACE COMPATIBILITY

1.3.1 Support Software

JTLS 4.1.7.0 requires the following versions of support software, including operating systems, compilers, scripting utilities, database tools, transfer protocols, and display managers.

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

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

  When running JTLS on any Version 6 Red Hat Linux Enterprise Edition system, do not run the SYNAPSE and APACHE services on the same machine. This is a known issue, and the development team is continuing to find a solution, so this restriction is not necessary.

  The Development Team has started to investigate the impact of Version 7 Red Hat Linux on JTLS. This testing is not complete; therefore, JTLS 4.1.7.0 is not approved for use with Version 7 of Red Hat Linux.

- There are no restrictions on the operating system for client workstations, except that the operating system must have a Java-enabled web browser enabled. JTLS 4.1.7.0 client software has been tested on the following operating systems:

  Red Hat Linux Enterprise Edition Version 5 and 6

  CentOS Linux Version 5 and 6

  Windows Vista, Windows 7, or Windows 8 can be used only if the workstation is an external HTTP client of the simulation network.

- Java Version 1.7.0 Update 72 is required for all platforms and must be used to support all workstations.

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

  One of the DoD IA requirements is that the software must implement a methodology that ensures that the end user keep the software up-to-date and all security patches are properly installed. Java 7 has fulfilled this mandate by implementing an expiration date for its software. After a certain date, all Java related programs will stop working, whether you are connected to an open network or not.

  JTLS has decided to meet this requirement by linking our JTLS software releases to the Java 7 security updates. This version of JTLS is released using Java 7 Update 72, which expires on 20 January 2015 and non-operative on 20 February 2015. A new version of JTLS will be released prior to that non-operative date.

  This version of Java suitable for use on 64-bit Linux systems is part of this delivery. For optimal performance, a user must obtain this version of Java for any non-Linux clients systems that they plan on using.

  JTLS has completed the IA program mandates and the JTLS 4.1 series of releases has been granted an Authority To Operate (ATO) on DoD systems.

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

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

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

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

- SIMSCRIPT II.5 (SIMSCRIPT to C) translator/compiler: SIMSCRIPT is required for recompiling JTLS code. It is not necessary to have a SIMSCRIPT compiler to execute JTLS, because all JTLS software executables are statically linked with the SIMSCRIPT libraries. The compiler is needed only if you are a U.S. Government organization that can obtain source code and plan to re-compile JTLS SIMSCRIPT code. To obtain a SIMSCRIPT compiler, contact CACI Inc.

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

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

- The JTLS DDS (Database Development System) application uses these open source libraries, which are delivered with JTLS:

  JFreeChart, licensed under LGPL (GNU LESSER GENERAL PUBLIC LICENSE) by Object Refinery Limited, http://www.object-refinery.com

  JCommon, licensed under LGPL2.1 (GNU LESSER GENERAL PUBLIC LICENSE version 2.1 or later) by Object Refinery Limited, http://www.object-refinery.com

  Commons-math3-3.0.jar, licensed under Apache Software Foundation (Apache License, Version 2.0) http://www.apache.org/licenses/LICENSE-2.0HLA Compliance

- KML Operational Interface (KOI)

  The Keyhole Markup Language (KML) Operational Interface (KOI) server utility enables the model to feed operational simulation data to any version of Google Earth™. The display capabilities and data transfer features of this terrain viewer are sufficiently robust to be used as a base-level operational interface. Operational Players who may be restricted from using the COP, C2PC, or other C4I systems may be able to install and use Google Earth and configure the KOI to provide a capability that resembles C4I for observing perception Force Side data.

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

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

The ATO-T executes in two modes:

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

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

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

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

1.3.3 JTLS High Level Architecture Compliance

The JTLS 4.1.7.0 release is fully High Level Architecture (HLA) compliant, and includes all the programs required to run JTLS in an HLA mode. JTLS has moved to a new Federation Object Model (FOM) located in the $JGAME/data/hla directory. Federation testing of JTLS is not complete, but some initial tests with CAE's Gefechts-Simulation system (GESI) have been accomplished. Future plans include expanding the capabilities to fully establish the GlobalSim Federation.

The HLA RTI (Run Time Infrastructure) executive program (rtiexec) recommended for use with this release is RTI-NG-Pro-v7.0 or Pitch pRTI Evolved 4.4.2.0. However, these programs are not included in the JTLS 4.1.7.0 delivery. Users may obtain a full installation package of the RTI software from either vendor: Raytheon Company (http://www.raytheon.com) or Pitch Corporation (www.pitch.se). For information about executing the HLA RTI Executive and other HLA-related software, refer to the appropriate HLA documentation and user guides.

1.4 DATABASE MODIFICATIONS

1.4.1 Database Upgrade to JTLS 4.1 Series

No database structure differences exist between JTLS 4.1.7.0 and any previous 4.1 series database.

There are no changes between the database structure in JTLS 4.1.6.0 and JTLS 4.1.7.0. There are no special requirements to upgrade your database for JTLS 4.1.7.0.

To upgrade your previously installed and modified JTLS 4.1.5.0 scenario or earlier for JTLS 4.1.7.0, you must unload and reload your scenario. This will recreate the modified stored procedures, database triggers, etc. Failing to do so will cause issues in DDS operations, such as renaming, copying, and deep copying existing records.

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

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

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

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

   "!!! JSYMS Allows Editing and Saving the Default Symbol Set."

2. Select the Default Symbol Set from the drop-down menu and select OK.

3. Select Symbols from the menu bar, and select Save to update all scenarios that use the Default Symbol Set.

4. Close JSYMS.

5. Use the JTLS Menu Option 1 > 1 > 6 (Load Symbols) to load the current Default Symbol Set to your scenario account in the Oracle database.

1.4.2 Database Upgrade from JTLS 4.0 or Earlier

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

1. Create a new Oracle account for the scenario.

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

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

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

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

1.5 INSTALLATION

1.5.1 Installation Instructions

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

1.5.2 Oracle Compatibility and Installation

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

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

1.5.3 Disabling Certificate Authority

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

Local area networks, intranets and standalone systems that have no outside connection to the Internet must configure their installation to disable certificate revocation checks. If this step is not taken under a closed environment, the JTLS web enabled applications will experience a significant delay in start up.

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

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

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

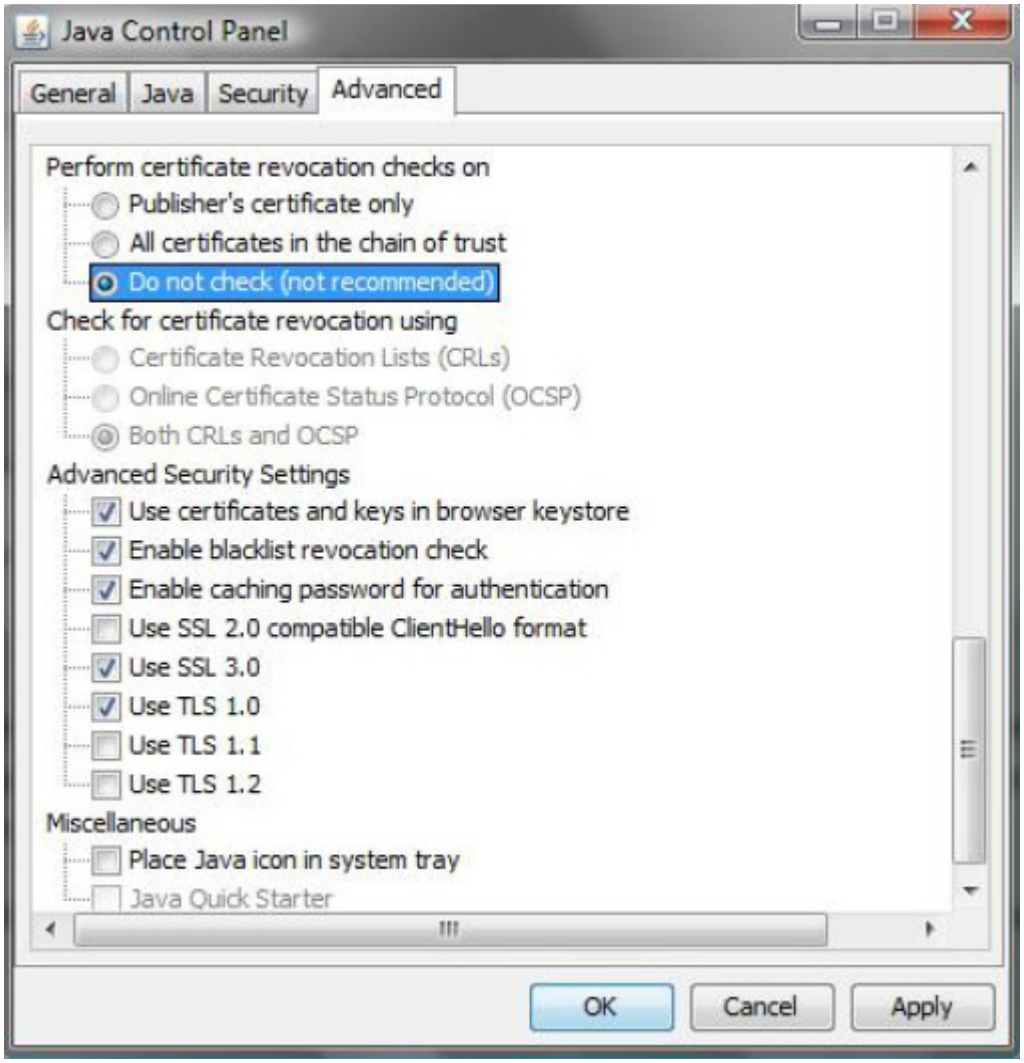

Figure 1.1 Control Panel

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 MINOR MODEL ENHANCEMENTS

This chapter summarizes model capabilities added to JTLS 4.1.7.0 as a result of implementing minor Engineering Change Proposals (ECPs). No major design related ECPs are delivered with JTLS 4.1.7.0.

2.1 JTLS-2014-11824 Classification And Verification Of Satellite Orbital Data

Summary of Model Change Request

The JTLS Satellite Service (JSAT) utilizes an input set of data which define the orbital parameters for satellites. Improvements were made to the JSAT to facilitate the use of these data.

Design Summary

The satellite orbital data may now have any level of classification - these data were previously limited to be unclassified. The orbital parameters are given in a file which includes a checksum value. This value is used to verify the format of these input data. An override capability was added to allow the user to ignore the checksum values.

3.0 SOFTWARE TROUBLE REPORTS

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

STRs that remain outstanding from previous JTLS versions are listed and described in Chapter 4.0.

3.1 JTLS-2014-12268 WHIP Exceptions While Processing Networks

Multiple exceptions occurred while the WHIP was starting to load various network objects.

An internal test scenario contained nodes for river and road networks, which had not been fully implemented in JTLS 4.1.7.0. The model has no problem reading in road and river networks, but the WHIP cannot properly process them. No changes were made to code, but this STR is considered closed. Users should simply insure that their scenarios do not include this road and river network data.

3.2 JTLS-2014-12273 Contamination Displayed If Elevation Displayed

The contamination terrain feature is always displayed if the elevation is set to be displayed by the WHIP Terrain Filter, even if the contamination filter has been checked to be off.

This has been corrected to only display the contamination on the terrain if the contamination filter is checked to be on.

3.3 JTLS-2014-12276 WHIP - Map Back Button Nonfunctional In Orthographic

The back and forward buttons on the WHIP Map did not work for Orthographic projection, and the Map was not able to re-render a previous Map view.

The problem was caused by an improper creation of the OpenMap Orthographic projection in the WHIP's projection manager. This caused any attempt to re-render a previous Map view using the Map back or forward buttons to have no effect and throw an exception. The problem was corrected by properly invoking the Orthographic projection class in OpenMap from the WHIP's projection manager.

3.4 JTLS-2014-12309 DDS Map Flickering During Unload

The DDS Map flickered during an unload, and to address this problem, the DDS unload process was changed to deactivate the DDS Map and disconnect the tables from the database while the unload was processing, and then re-establish those connections when the unload had finished. However, when the user selected the "Run SVP" option in the DDS, the DDS not only performs an unload, but also initiates the Scenario Verification Process (SVP). The Map remains deactivated

until the SVP is finished, and while waiting for the SVP to finish, Map updates can potentially be missed.

The DDS code was changed so that the DDS Map is reactivated after the unload process has finished, but before the SVP is initiated when the user selects the "Run SVP" option.

3.5 JTLS-2014-12310 SVP Crash At Targetable Weapon Check

The SVP crashes if Targetable Weapon Warning 1349 and 1350 are triggered.There

These warnings are reporting problems with the Targetable Weapon Advanced Capability Flag.There was a mismatch between the meaning of the flag and the index used to write out the meaning of the flag.

3.6 JTLS-2014-12312 Rhumbline Calculation Comparing Degrees To Radians

The algorithm in the Java libraries that determines the rhumbline range and bearing between two points was intermixing decimal degrees and radians within its calculations.

The Java method was originally derived from some C code which contained the same error. As far as could be determined, the Java method was not actually used anywhere and therefore there are no known symptoms of this issue. For the C code, the only likely usage of the corresponding function is by the ATOG, which is non-operative in JTLS 4.1.7.0.

The code was modified to properly convert all locations into radians at the start of the method and to perform all calculations in radians. This was done in both the Java and C versions of the code.

3.7 JTLS-2014-12313 JINN: Upload Did Not Update Location Properly

When the JINN received the dynamic.xml file and uploaded it to the database, only the longitude field was updated, and not the latitude or text location fields.

The JINN set location method had a logical error, which caused the longitude to overwrite the text location and latitude fields. This error was corrected and the JINN now holds the text location, latitude, and longitude separately.

3.8 JTLS-2014-12314 Load JTLS Scenario Faster Into Oracle Database Server

*Loading JTLS scenario ASCII data into the Oracle database server took too long. The Oracle SQL*Loader utility needed to be optimized by setting the "bindsize" and "rows" parameters to speed up the scenario loading process.*

The Oracle utility SQL*Loader was utilized for loading JTLS scenario ASCII data into the database server. This utility has different parameters which are used at execution time, such as "bindsize" and "rows", which could be set during the ASCII data loading process to minimize the number of

database commits and therefore improve the overall speed of the entire scenario loading process.

However, setting very large values for both of these parameters requires extra memory on the client machines on which the SQL*Loader is executing. Therefore, these parameters were optimized by considering JTLS-specific ASCII scenario files after many test runs against the Oracle 11gR2 database server. By doing so, the time required to load a large size JTLS scenario, such as our default SDBKOR scenario, into the Oracle database server was significantly reduced.

3.9 JTLS-2014-12315 DDS SVPR Holds Resources After Termination

The SVPR implements several threads to monitor resources needed to track completion of error/warning items and to identify when new occurrences of the error file becomes available. Once a scenario developer terminates the SVPR, all threads associated with it should have terminated along with the utility, but were not. This poses a drag upon the parent application in reducing responsiveness.

Code has been introduced to recognize when to do the checks within the monitor threads to implement their functionality, and also to terminate them correctly, thereby releasing resources back to the parent process and relieving the drag presented by the extraneous threads.

3.10 JTLS-2014-12316 DDS Select Year From TPFDD Calendar Editor

When attempting to select a year from the DDS TPFDD calendar, the user is only presented with options for the currently assigned year and the next four years, and is unable to select an earlier year or one further in the future.

The Year field is now a text field with arrow buttons to increase or decrease the entry, instead of a pull-down menu. Users can directly enter any numeric year in the field and modify that entry up or down using the arrow buttons. If the user enters a year that is earlier than the model start time, the DDS will assign 0.0 as the value for the time field.

3.11 JTLS-2014-12317 SIP Infinite Loop Processing JCATS Data

The DDS allowed a TUP to be assigned as a sub TUP to itself. This created an infinite loop when the SVP was processing the data.

Three changes were made to correct this problem:

1. The DDS tup_sub_tup screen definition file was modified to that the sub TUP pull-down menu no longer displays itself on the list.

2. The SIP code was modified to spot the infinite loop, quitting after generating a screen message that informs the user of the offending TUP.

3. A database table level check constraint was added to ensure that the sub TUP name is not the same as the TUP name in this table. This new check constraint will be in place when the users reload their scenario into the Oracle database.

3.12 JTLS-2014-12318 JXSR Memory Leak With WHIP Alert Requests

The JXSR receives Alert requests from any WHIP connected to the game. When the Alert request was received, a packet was created by the JXSR to send any pending Alerts back to the requesting WHIP. Following the transmission of the Alerts, the JXSR did not delete the packet structure.

The JXSR was modified to ensure the packet structure is deleted after processing the Alert requests from the WHIP.

3.13 JTLS-2014-12319 DDS Unit Supply Category Table Add Record Issue

When a user selected the "Add" button in the Unit Supply Category Table to configure a specific supply category for a unit, and the user changed the "receiving unit" to another unit from a different side, the list of routine support units was not updated with units of the new side.

The problem was that the "receiving unit" field and the "specific SC support unit" field were not connected, so the DDS did not know to update the "specific SC support unit" field with a new list. This problem has been corrected and the DDS will not update the "specific SC support unit" field with a new list of units from the correct side for the "receiving unit."

3.14 JTLS-2014-12320 Timezone Ignored In WHIP IMT

The timezone preference setting was ignored by the WHIP IMT. Times were always displayed in ZULU time.

The "time" table cell renderers were not being informed of timezone preference changes. This problem was corrected.

3.15 JTLS-2014-12321 Formatting Of Numbers And Dates Not Thread Safe

Date and time formatting in the WHIP and DDS were vulnerable to multiple process threads accessing data simultaneously, which could lead to formatting errors.

Formatting vulnerabilities were corrected by synchronizing access to date and time formatting data so as to prevent the overwriting of data.

3.16 JTLS-2014-12322 DCP Saving Deadlock When Domain Corrupted

The DCP had a deadlock situation when attempting to use the Save button to create or reload a DDS domain.

This situation occurred during internal testing when the domain was corrupted, but the error message was incorrectly handled. The error message was corrected and includes instructions to solve the problem.

There are no known errors that would cause a DDS domain to become corrupted in a user environment.

3.17 JTLS-2014-12323 Perceived Strength Going Negative

It was possible that if a unit collected tactical intelligence early in the game, it would report a foreign unit's strength as negative. The situation was very specific:

a. *The Unit collecting the information had to be close enough to the foreign unit to reach at least the Recognition Level of detection information.*

b. *The Unit collecting the information had to be in contact with the foreign unit less than the IIP database parameter IIP MIN TIME LEVEL TWO DATA. This could easily happen, if the Tactical Intelligence collection occurred between game start and the database parameter. The result is the model concludes that the Unit collecting the information did not have enough time to determine the foreign unit's current strength and so that information could not be collected.*

The problem occurs because the updating perceived information algorithm assumed that if you had at least recognition of a unit, you would have strength information. In this specific case it is not true.

The solution was to go with the original design. If no strength information is available, the model should assume that the strength of the object is 100%. The old logic put in a default value of -1.0 meaning a negative 100%.

Given this change, the strength is now reported as 100%. After contact exceeds the IIP MIN TIME LEVEL TWO DATA, the true weighted strength will be reported.

4.0 REMAINING ERRORS

Every effort has been made to correct known model errors. All reproducible errors that resulted in CEP catastrophic software failures (crashes) have been corrected. Other corrections were prioritized and completed according to their resource cost-to-benefit relationship.

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

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

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

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

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

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

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

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

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

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

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

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

4.6 JTLS-0974 CEP: Submarine Detection By Ground Sensors

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

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

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

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

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

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

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

4.10 JTLS-2014-12096 APACHE - SYNAPSE Cannot Run On CentOS 6.5

When the Synapse and Apache are run on the same instance of CentOS 6.5 or Red Hat 6.5, the Synapse will back up. Running the Synapse and Apache on separate virtual machines or two difference physical machine works correctly. The JTLS Development Team have continue to consider this a high priority item. The problem appears to go away when using Red Hat Version 7.0.

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

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

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

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

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

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

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

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

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

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

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

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

4.17 JTLS-2014-12105 DDS - Preference Save

DDS preferences are currently saved locally, but they should be saved based on the user and scenario.

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

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

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

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

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

When air missions attacked airbase targets sheltered in barracks shelters and killed combat systems, the BDA Report for the attacking side showed grossly inflated numbers of combat systems killed. The BDA report is much more accurate when killing systems by attacking the unit or a location. The false numbers only happen when killing an occupied shelter.

4.21 JTLS-2014-12110 DDS - Printing Multiple DDS Reports Needs Improvement

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

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

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

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

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

4.24 JTLS-2014-12115 SVPR - Generate Unique Error/Warning Numbers

A unique Error/Warning number should be used to identify errors across multiple SVPR developers accessing the same scenario.

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

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

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

When you select the "New Railroad" button in the DDS, the cursor becomes a "pointing finger," allowing you to select a location on the map to place the first Railroad node. However, after you place the first node, the cursor reverts to its default appearance. One expects that selecting a

new location will place the next node there, but no matter what location you select, the second node is always created on the hex due east of the first node.

4.27 JTLS-2014-12118 DDS - Map Dogpile Option Not Working

When a user selects several units on the DDS Map as a group and moves them to a new location, the original relative positions of the units were not maintained. Some users were using this as a feature when moving units, rather than a bug.

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

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

4.29 JTLS-2014-12120 DDS - No Object Selection From Map With IADS Filter

When the "IADS Networks" filter is selected on the DDS Map, it is impossible to select any game object from the Map. In other words, clicking on a unit or target has no effect - no Sitrep or context sensitive menu. One should be able to display IADS Networks and still get Sitreps and access tables by clicking on a unit/target on the Map.

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

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

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

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

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

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

4.33 JTLS-2014-12124 DDS - Table Special Reference Cell Editor, Units/Targets

Not all locations fields in the DDS have the ability to select a location off of the map. All locations should have the same options for entering data into the field.

4.34 JTLS-2014-12125 DDS - Editing Location Fields XX-60-60.0N Can Be Entered

It is possible to enter a location such as 10-60-60.0N in a location field in the DDS, The location field text formating functions needs to be improved.

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

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

4.36 JTLS-2014-12127 DDS - In IADS Edit Mode, Link Targets On Different Sides

In the DDS IADS Edit Mode, a user is able to link a target (comm site, sensor site, or SAM/AAA) to a target on a different side. Linkage should be allowed only between targets on the same side. SVP Error 628 catches this problem, but the DDS should be able to catch the situation.

4.37 JTLS-2014-12129 DDS/WHIP - New Lines In TextFieldPanel

A new line is currently a valid character in a Text Field on a Report Request Panel as part of the DDS and AAR, but causes the order string to be truncated, making the order invalid.

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

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

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

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

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

DDS report orders help text needs improvement.

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

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

4.42 JTLS-2014-12137 WHIP - MSEND With Increment In Seconds Not Realizable

When sending game time to the model, a time using Date Time Group format is sent to the CEP. This time can only specify order execution time in minutes. Incrementing the order execution time by seconds is not properly handled. This situation needs to be solved.

4.43 JTLS-2014-12139 OVP - Checkorder Script Needs Update

The checkorder script is obsolete. For example, CONVOY is a valid JDSP class, but is treated as an error by checkorder script. This is nothing that will usually be seen or used by an end user.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

4.54 JTLS-2014-12267 WHIP - Illegal Character In Order Appears To Validate

If an illegal character like "/" is sent as part of an order, the reply from the OMA has a line that starts with "$", which causes an Exception when parsing the response.

4.55 JTLS-2014-12269 DDS - Moving Unit On Top Of Another Hides Unit

Moving unit A on top of another unit B, and then moving unit A leaves unit B hidden until "Move Units/Objects" mode is exited.

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

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

4.57 JTLS-2014-12271 JOBE - Runway Should Not Be Created Under Unit

After a new runway object is created in the JOBE, it uploads to the runway table in the JINN. At the same time, the ab_runway table is uploaded with the new runway CCFNumber and the parent

unit short-name (which is supposed to be the Airbase). An Oracle error occurs if a Unit's short-name is not found in the Airbase table.

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

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

4.59 JTLS-2014-12274 WHIP - Flight Path And Airmission Location Inconsistent

An airmission composed of helicopters was tasked for an orbiting OAS. The helicopters were assigned to a squadron, which was assigned to a FARP. The airmission was shown either taking off from the FARP or from the squadron enroute to the second orbit point, while the route shows that it took off from the squadron location enroute to the first orbit point.

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

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

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

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

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

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

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

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

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

The JTLSConsole needs a library for managing command history.

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

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

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

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

4.67 JTLS-2014-12283 CEP - SimDebug Issues Reading In Checkpoints

Numerous places within the ASCII write code we use the pointer for a variable to indicate if data exists to be read back in. For instance, we write out AM.ORIG.ORDER.POINTER in WRITE.AIR.MISSION.ASCII and if it is not NONE we also write out the Player Order data. During read, if the old pointer is not .NONE we know there is additional data to be read. The problem is that we read the old pointer into a pointer variable, but it is not a valid pointer. If after reading/ assigning this invalid pointer we go into SimDebug and attempt to perform a trace we get a Segmentation Violation because the SimDebugger is attempting to determine the type of object at this invalid memory address. This problem only manifests when in the SimDebugger. The solution is that during read we should define the old pointers as integer variables and compare them against I.ZERO (and obviously name them something so no one thinks they are mis-defined).

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

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

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

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

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

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

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

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

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

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

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

4.73 JTLS-2014-12289 CEP - Amphibious Assault Crash

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

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

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

4.75 JTLS-2014-12291 AAR - Add AAR Documentation

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

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

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

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

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

4.78 JTLS-2014-12294 WHIP Filter/View Saving Problem

After creating filters and views in the Controller WHIP when other Side WHIPs are open, and saving and sharing those filters and views with all Sides, the first filter and view saved do not appear on the other Side's filters and views, but all subsequent filters and views do appear.

Closing and reopening the other Side WHIPs makes all saved filters and views available to all Sides, and saving the filters and views in the Controller WHIP while other Side WHIPs are closed also makes all saved filters and views available to all Side WHIPs.

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

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

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

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

The resolution to this problem involves four actions:

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

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

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

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

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

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

A ground unit had 10 ground subordinates and 1 depot subordinate (Hierarchy A). When Hierarchy Copy was performed (from the Command Hierarchy window) it only copied the top unit and the subordinate depot. After using this copy as Hierarchy B, and just copying the individual

subordinate units and re-parenting them under Hierarchy B, a successful Hierarchy Copy of Hierarchy B in its entirety was able to be performed.

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

The SVPR was unable to auto-fix mismatched barriers.

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

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

4.86 JTLS-2014-12302 DCP - Scenario Map Changes

The scenario map sometimes changes to "Afghanistan." This problem is not reliably repeatable.

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

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

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

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

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

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

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

The WHIP froze while trying to save map filters.

4.91 JTLS-2014-12307 DDSC - Raw Data Shows Decimal Place For Integers

When displaying with the user preference "raw data", integers have 1 decimal place. For instance 1 is displayed as 1.0. When raw data is not selected, they are correct.

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
MUSE	Multiple Unified Simulation Environment
NCSA	National Center for Supercomputing Applications (University of Illinois)
NEO	Noncombatant Evacuation Operations
NFS	Network File Server
NGO	Non-Governmental Organization
NIS	Network Information Service or Network Information System
NM	Nautical Mile
NTSC	Naval Telecommunications System Center
OAS	Offensive Air Support
OBS	Order of Battle Service (formerly UGU: Unit Generation Utility)
OCA	Offensive Counter-Air
OJCS	Organization of the Joint Chiefs of Staff

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

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

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

APPENDIX B. Version 4.1.7.0 STANDARD DATABASE CHANGES

B.1 Added New Sensor Types

All SUP Air (SAA) sensors and SUP Surface (SGN) and Navigation (VGN) sensors have been updated to reflect their actual sensor names (TYPE-994_SAA, TYPE-994_SGN and SPN-753_VGN, etc).

B.2 New SUPs

The following 23 SUPs for the Chilean Navy were added.

- SCORPENE_CL
- TYPE209_1400_CL
- HEEMSKERCK_CL
- BOXER_CL
- DOORMAN_CL
- DUKE_CL
- OPV80.76MM_CL
- OPV80.40MM_CL
- RESHEV_CL
- RECHEV.LM31_CL
- TYPE148.MM38_CL
- TAITAO_CL
- FOUDRE_CL
- BATRAL_CL
- ELICURA_CL
- CDIC_CL
- LCM-8_CL
- KAISER.HJ_CL

- ICE.BREAKER_CL
- SALVAGE_CL
- R.D.CONRAD_CL
- AQUILES_CL
- ALVSBORG_CL
- LCAC_JP

B.3 New Calibers

- 76FGL20FG
- 4.5SGM

B.4 Sensor Range Changes

- ATLAS-9600_VGN - Range changed from 46km to 105km
- BPS-12_VGN - Range changed from 64km to 70km
- BX-132_VGN - Range changed from 37km to 87km
- CRM-200_VGN - Range changed from 51km to 44km
- DECCA-1626C_VGN - Range changed from 88km to 37km
- DECCA-2050_VGN - Range changed from 46km to 88km
- DECCA-914C_VGN - Range changed from 37km to 46km
- FLAT.SCREEN_SGN - Range changed from 50km to 55km
- LN-66_VGN - Range changed from 89km to 85km
- OKEAN_VGN - Range changed from 46km to 81km
- PECHORA_VGN - Range changed from 60km to 46km
- RAN-30X_SAA - Range changed from 100km to 77km
- SCANTER.09_VGN - Range changed from 55km to 66km
- SLIM.NET_SAA - Range changed from 150km to 105km

- SPN-728_VGN - Range changed from 74km to 88km
- SPN-748_VGN - Range changed from 74km to 81km
- SPN-749_SGN - Range changed from 74km to 88km
- SPN-753_VGN - Range changed from 74km to 88km
- SRN-402_VGN - Range changed from 37km to 89km
- TYPE-1048_VGN - Range changed from 133km to 185km
- TYPE-364_SAA -Range changed from 300km to 129km
- TYPE-517_SAA - Range changed from 300km to 203km
- ZW-07_SAA - Range changed from 62km to 63km

B.5 Sensor Table Changes

- Built new Sensor named 9GR-600_SGN Deep Copied from SS.RDR.SR_SGN and changed range to 50km
- Built new Sensor named AD7-7_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named ANRITSU-32A_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named BPS-12_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 64km
- Built new Sensor named BPS-704_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 59km
- Built new Sensor named BX-132_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named BX-3072A_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 59km
- Built new Sensor named BX-732_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 59km
- Built new Sensor named CALYPSO-II_SGN Deep Copied from SS.RDR.SR_SGN and changed range to 66km

- Built new Sensor named CALYPSO-III_SGN Deep Copied from SS.RDR.SR_SGN and changed range to 50km
- Built new Sensor named COBRA-GEMIN_SAA Deep Copied from AS.RDR.LR_SAA and changed range to 500km
- Built new Sensor named COBRA-JUDY_SAA Deep Copied from AS.RDR.LR_SAA and changed range to 500km
- Built new Sensor named DECCA-101_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named DECCA-1070_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named DECCA-110_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named DECCA-1216_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 88km
- Built new Sensor named DECCA-1245_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named DECCA-1626C_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 88km
- Built new Sensor named DECCA-1629_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 88km
- Built new Sensor named DECCA-170_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named DECCA-202_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named DECCA-2050_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named DECCA-2070_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 88km
- Built new Sensor named DECCA-2459_SAA Deep Copied from AS.RDR.SR_SAA and changed range to 88km

- Built new Sensor named DECCA-2459_SGN Deep Copied from SS.RDR.LR_SGN and changed range to 46km
- Built new Sensor named DECCA-252_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named DECCA-270_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named DECCA-316P_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named DECCA-360_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named DECCA-404_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named DECCA-60_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named DECCA-616_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named DECCA-707_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named DECCA-770_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named DECCA-90_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named DECCA-914C_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named DECCA-916_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named DECCA-926_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named DECCA-969_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km

- Built new Sensor named DECCA-C180_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 40km
- Built new Sensor named DECCA-C341_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named DECCA-RN88_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named DRBN-38A_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named DRBN-39A_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named ELM-2228_SAA Deep Copied from AS.RDR.SR_SAA and changed range to 100km
- Built new Sensor named ELM-2228_SGN Deep Copied from SS.RDR.LR_SGN and changed range to 100km
- Built new Sensor named ERICSSON_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named FCR-1411_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named FRA10.MK2-3_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named FURUNO-7040_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 66km
- Built new Sensor named GEMAT-2_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named GEM-LD-1825_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 177km
- Built new Sensor named HALCON-948_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named JMA-1576_SGN Deep Copied from SS.RDR.LR_SGN and changed range to 88km

- Built new Sensor named JMA-159B_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named JMA-2141_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named JMA-2144_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named JMA-2253_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named JMA-3000_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named JMA-3610_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named JRC-1500_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named KH14-12_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named KH14-9_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named KH21-16P_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named KH6000_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 87km
- Built new Sensor named KODEN-3010_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named KONGSBERG_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 177km
- Built new Sensor named KRODEN_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named LOW.TROUGH_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 111km

- Built new Sensor named NUCLEUS-2_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named NUCLEUS-3_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named OKEAN_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named OPS-18-2_SAA Deep Copied from AS.RDR.SR_SAA and changed range to 77km
- Built new Sensor named OPS-18-2_SGN Deep Copied from SS.RDR.LR_SGN and changed range to 88km
- Built new Sensor named OPS-26B_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named OPS-39B_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 55km
- Built new Sensor named OPS-9_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 44km
- Built new Sensor named PF-24NM_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named RAYTH-1620_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named RAYTH-3400_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named RAYTH-R20XX_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named RN-231_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 89km
- Built new Sensor named SC-1005_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named SC-1204_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km

- Built new Sensor named SC-1210_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named SC-1410_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named SCANTER_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named SPER-RASTAR_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 53km
- Built new Sensor named SPER-SM5000_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 46km
- Built new Sensor named SPN-732_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 88km
- Built new Sensor named SPN-750_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 74km
- Built new Sensor named SPN-751_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 81km
- Built new Sensor named SPQ-702_SAA Deep Copied from AS.RDR.SR_SAA and changed range to 98km
- Built new Sensor named SPQ-702_SGN Deep Copied from SS.RDR.LR_SGN and changed range to 74km
- Built new Sensor named SPS-702_SAA Deep Copied from AS.RDR.SR_SAA and changed range to 74km
- Built new Sensor named SPS-753_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 74km
- Built new Sensor named SRN-206_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named SRN-207_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named SRN-231_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 59km

- Built new Sensor named SRN-301_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named SRN-302_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named SRN-401_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 89km
- Built new Sensor named SRN-402_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 37km
- Built new Sensor named SRN-623_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 111km
- Built new Sensor named SRN-741XT_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 111km
- Built new Sensor named SRN-823_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 133km
- Built new Sensor named SS-2_SGN Deep Copied from SS.RDR.LR_SGN and changed range to 64km
- Built new Sensor named ZPS-6_VGN Deep Copied from NAVIGAT.RDR_VGN and changed range to 66km
- Built new Sensor named ZW-07_SAA Deep Copied from AS.RDR.SR_SAA and changed range to 62km
- Built new Sensor named ZW-07_SGN Deep Copied from SS.RDR.LR_SGN and changed range to 74km