Joint Warfare System (JWARS)

Release 1.4 Status

Lt Col Greg McIntyre
Deputy Director

June 11, 2002
• Revised JWARS Development
• Key Events
• Developer Testing (DT)
• Functionality
• Recent Enhancements
• Runtime Performance
• Near Term Development
Current Development Approach

• For each formal Release (1, 2, and 3)
  - Meet ORD requirements
  - Conduct Beta Testing
  - Conduct OT&E
  - Obtain formal approval for distribution

• For Release 1
  - Release 1.4 incorporates all warfare functionality required for Release 1
    - 55 threads, more than threshold 51 threads
  - Conduct two cycles of external testing
• Release 1.4 becomes JWARS Baseline to begin Life Cycle Management.
  - JWARS Office “locks functionality” at Release 1.4.

• Release 1.4 undergoes Functional & Beta Testing.
  - Substantive testing conducted by Washington DC-area sites.
  - Non-DC-area sites Beta test as desired and able.

• JWARS CCB begins Life Cycle Management at Release 1.4.
  - Responsible for Configuration, Maintenance, User Support and Release Scheduling.

• Future configurations and schedules driven by:
  - ORD
  - Needed fixes
  - New needed functionality
  - Budget constraints

• Releases 2 and 3 are incorporated into incremental developments.
• Revised development approach must be approved by the Joint Requirements Oversight Council (JROC)

• JROC schedule
  - JROC Review Panel (O-6 level) 11 Jun
  - JROC Review Board (2 star level) 26 Jun
  - JROC - probably handled via paper submission
Key Events

- Developer Testing completed  9 May
- Release 1.4 declared  10 May
- High Level Design Review for Space Enhancements  3 June
  - DSP Enhancements
  - GPS-guided weapons
- Distribution of JWARS CDs - 2 shipments  10 June
  - Output, V&V documentation, Installations
  - Documentation  24 June
- CCB (J-8 lead)  late June
- Beta testing  1 July
  - User testing by Beta sites
  - Technical Testing by D.C. Beta sites (JST)
- JAMIP Steering Committee  17 July
**Goals**
- Thoroughly test simulation
- Ensure it runs properly to completion
- Know what functionality is in / out

**Locations:** JWARS Annex and JWARS Office

**Approach**
- Test at system level
- Use Packaged or Open image
  - Modify scenario data through GUIs or JWARS Import/Export tables
  - Do not change code
- Employ JWARS SWA scenario (discussed later)

**Scope**
- Functionality implemented in Release 1.4 Work Packages
- Features not previously tested or not fully “Passed”
- Internal Change Requests (ICRs) that have been addressed and are ready for testing
## Developer Testing Results

### Features

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<tr>
<th>Responsible IPT</th>
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<th>Pass</th>
<th>Conditional Pass</th>
<th>Fail</th>
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### Results of Release 1.4 Warfare Work Packages

#### Command and Control
- Yes J TF C2
- Yes Land Maneuver Planning
- Partial Air Unit C2 and Air Superiority
- Yes Improved J FMCC C2

#### Air Warfare
- Yes Suppression of Enemy Air Defense
- Yes J TCB Component Commander Assets
- Yes J TCB Runtime Performance
- Yes J TCB Features
- Yes Air Defense
- Yes Flight Group C2

#### Communications and ISR
- Yes Collection and Processing
- Yes Improved Communications

#### Maritime Warfare
- Yes Surface Ship on Submarine
- Yes Naval Gun Fire Support
- Yes Maritime Air Operations

#### TBMD and WMD
- Yes TBMD Upper Tier
- Yes TBMD BMC3
- Yes WMD Improved Effects

#### Transportation and Logistics
- Yes Strategic Deployment Flow Scheduler
- Yes Improved Installations
- No Multi-Modal Intratheater Transportation
- Yes Logistics C2 Sustainment
- Yes Maritime Sustainment
- Yes Air Unit Sustainment
- Yes Land Sustainment

Note: For some work packages, implementation has limitations.
## JWARS Release 1.4

### Functionality

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<td>Indirect Fire</td>
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<td>Forcible Entry (Airborne)</td>
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<td>Attack Helicopters</td>
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<td>Submarine on Ship</td>
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<td>Enhanced Upper Tier</td>
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<td>Naval Blockade</td>
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<td>ASW (Submarine on Submarine)</td>
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<td>Mine Warfare (Ship Dep'd Mines)</td>
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<tr>
<td>Maritime Sustainment</td>
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**Key**

- Impl: Implemented
- Fnl: Functional, with Limitations
- Not Impl: Not Implemented

*Include Space Force enhancement functionality*
Important New Warfare Functionality

• Air and Space
  - SEAD - standoff jammers and standoff lethal (HARM) shooters
  - Creation of push periods in junction with SEAD
  - JTCB target list uses Fire Support Coordination Line (FSCL)

• C4ISR
  - Dynamic/reactive Collection Planning
  - Implementation of Knowledge Base

• Land
  - Maneuver planner

• Maritime
  - Order handler - improved C2
  - Air support to maritime operations
  - Improve amphibious operations

• TBMD
  - New TBM Trajectory Model, Campaign-Level Radar Detection Model, Interceptor Model - algorithms provided by MDA

• Transportation and Logistics
  - Assets accounted for in strategic flow
  - Sustainment for land, air, and maritime
Recently Enhanced User Capabilities

- JWARS Analysis Repository (JAR) - new
- Transportation and Logistics Modes (at POE, at POD, at Destination) - new
- Instrument Generation - new
- Instruments - major revision
- High Level Interface - major revision
- Map Based Scenario Editing - new
- Order of Battle (OOB) Editing - improved
- Enhanced Security Features - new
- Video Playback - major revision
- Environment Scenario Loading - new
- Excursions - new
Title: JWARS SWA

Derivative of JTF East Full
- Smaller than JTF East Full / larger than Micro Gold

Size: 2,535 static BSEs
- U.S. and Friendly Coalition: 2,058 total
  - Land and SOF: 180 BSEs
  - Maritime and Marine Forces: 245 BSEs
  - Air: 78 Squadron BSEs, containing Bomber, Fighter, R&S, ABL, C2, Attack Helicopter
  - TRANSCOM: 840 BSEs
  - Installations and Facilities: ~800

- Threat: 477 total
  - Land: 154 BSEs
  - Maritime: 115 BSEs
  - Air: 8 Squadron BSEs, containing Bomber, Fighter, Attack Helicopter
  - Installations and Facilities: ~200

Duration: Tested to 85 days
Run conditions
Platform: Sun 5000 400mHz
Source Code: R1.4 SR0.40v, packaged image
Scenario: JWARS SWA, R1.4SR0.40zq
Duration: 85 days
“Analyst” instruments: 40 representative instruments

Additional data (Analyst Instruments/At POE case)
Initialization time: 44 min
Export (617K records)
  To CSV files: 47 min
  To JAR: 4:05 hrs

Bottom Line: Much Work to Do
Release 1.4 Documentation

Overview

Information
- Related Files Document
- Documentation Outline
- JWARS Logistics Support Plan

User Information
- User Manuals
  1. Executive Overview
  2. Basic Operation
  3. Joint Analyst Guide
- Training Materials
- Post Processing Tools
- Data
  - JDS Introduction
  - Data Specification Review Summary
  - Data Support Plan
  - Data Documentation Project
  - JDS Study Support Plans

Software Engineering
- High Level Design
- Detailed Design
- Test Documentation
- V&V Reports

System Administration
- Installation Manuals
- Help Desk Guide
- Hardware and Software Specifications
- Security, Certification and Accreditation
  - SSRS
  - SSAA
  - CT&E Plan, Test Cases and Procedures
  - Risk Assessment
Near-term Development Effort

- Fixes discovered during Beta testing
- User funded efforts
  - Air on submarines (Navy) discussed
  - GPS-guided weapons (JSSPAR) in JSSPAR Brief
  - DSP enhancements (JSSPAR)
- CCB directed development
- Maintenance
**JWARS Release 1.4**

**Timeline**

**Training**
- Update Courses -- quotas from JWARS Office
- Analyst Courses -- quotas through Help Desk

**Joint Models Web site**
- Registration required
- Library of JWARS documentation
- On-line JCR input & tracking via SIPRNet
- [https://www.jointmodels.smil.mil](https://www.jointmodels.smil.mil)

**Installations**
- JWARS Rel 1.4 CDs mailed Mid June to Test Sites

**Beta Testing**
- Jul - Dec
- User Testing
- Technical Testing

**Configuration Management**
- Jun CCB Kickoff (review work plan, JCRs)
- WG Mtgs. as needed
- Monthly JCR “cutoff” dates to facilitate review, scope & fix

**Jun CCB Kickoff**
- Final JCR cutoff
- Jan 03 CCB Meeting (final JCR prioritization)
## Near Term Schedule

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<th>Apr</th>
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<td>Ship Master CDs to TRAC</td>
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Back Up
Revised Test Execution

• Technical Testing (Washington DC)
  - Falls under Beta Testing
  - J-8 has ownership, OSD/SAC coordinates
  - Team comprised of JST, JDS, JWARS Office, V&V and other user representatives
  - Conducted in parallel over 6 month period
  - Snippet “lite” approach consisting of functional testing, software code walks, and documentation review
  - Feedback provided via JCRs and oral debriefings

• Status
  - Initial support estimates provided 27 March
  - Draft test plan completed 12 April
  - Final plan and schedule upon delivery/review of DT results and documentation
Initial JWARS Change Request (JCR) Database

- JWARS Office will provide initial set of JCRs for JCR Database.

- Sources
  - Functionality associated with 55 threads of “Release 1” that have not been implemented or for which DT failed (e.g., see slides 4-5)
  - Other outstanding ORD requirements (e.g., runtime performance, checkpoint-restart)
  - Outstanding ICRs that have Priority 1 or 2, or that require significant level of effort

- JWARS Office will provide JCRs to JS/J-8/SAMD

- JS/J-8/SAMD will manage JCR Database through JWARS Help Desk.
  - During testing, Beta Test sites and JWARS Office will submit additional JCRs.

- JWARS Configuration Control Board (CCB) will prioritize JCRs.
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**Near Term Schedule**

- **Documentation**: Start date May 20, due in Jul.
- **Basic Training**: Jul 8.
- **CCB**: TBD.
- **JWARS CD shipped**: TBD.
- **Beta Testing**: TBD.
- **Beta Test Report**: TBD.
- **Scenario Development**: TBD.
- **Rel 1.5 Development**: TBD.
- **Rel 1.5**: Mar 17.