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**JOINT WARRIOR INTEROPERABILITY
DEMONSTRATION (JWID) 2003 ASSESSMENT**

BY

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and
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DECEMBER 2003

OTTAWA, CANADA



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ABSTRACT

This report documents the process, observations and results of the Canadian assessment of interoperability trials during the 2003 Joint Warrior Interoperability Demonstration. This was a three week event conducted in June 2003 in which the Canadian Forces hosted and coordinated 25 interoperability trials within a Coalition framework over the Combined Federated Battle Lab network. Recommendations are made for the conduct of future JWID events.

RÉSUMÉ

Le présent rapport décrit le processus, les observations et les résultats de l'évaluation canadienne des essais d'interopérabilité effectuée en juin 2003 pendant la Démonstration d'interopérabilité Joint Warrior (DIJW). Au cours des trois semaines qu'a duré la Démonstration, les Forces canadiennes ont coordonné 25 essais d'interopérabilité au sein d'une structure de coalition régissant le réseau de laboratoires de simulation de combat. Des recommandations concernant la tenue future d'événements liés à la DIJW ont été formulées.

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LIST OF ABBREVIATIONS

| | |
|--------------|---|
| ACC | Air Component Commander |
| ACO | Airspace Control Order |
| AOR | Area Of Responsibility |
| ATO | Air Tasking Order |
| AUSCANNZUKUS | Australia, Canada, New Zealand, United Kingdom, United States |
| Bde | Brigade |
| C4 | Command, Control, Communications and Computers |
| CA | Canada |
| CFBLNet | Combined Federated Battle Lab Network |
| CFEC | Canadian Forces Experimentation Centre |
| CG | Collaboration Gateway |
| CIT | Coalition Interoperability Trial |
| COGENT | Coalition Geospatial Environment for Network-centric Tactical |
| Comd | Commander |
| CONOP | Concept of Operation |
| COP | Common Operating Picture |
| CPIGS | Coalition Portal for Imagery and Geospatial Services |
| CTG | Coalition Task Group |
| CWAN | Coalition Wide Area Network |
| DCP | Distributed Collaborative Planning |
| DCTS | Defense Collaboration Tool Suite |
| DMS | Defense Message System |
| DS | Directory Services |
| GCCS | Global Command and Control System |
| GI | Geomatics Imagery |
| IER | Information Exchange Requirement |
| IM | Information Management |
| JBC | Joint Battle Center |
| JDCAT | JBC Data Collection and Analysis Tool |
| JITC | Joint Interoperability Test Centre |
| JWID | Joint Warrior Interoperability Demonstration |
| LTS | Language Translation System |
| MCC | Maritime Component Commander |
| MLS | Multi-level Secure |
| MM | Military Messaging |
| MNTG | Multinational Naval Task Group |
| MSEL | Master Scenario Event List |
| NATO | North Atlantic Treaty Organisation |
| NCE | National Command Element |

| | |
|-------|---------------------------------------|
| NDCC | National Defence Command Centre |
| NSA | National Security Agency |
| OTH-G | Over The Horizon-Gold |
| PFPS | Portable Flight Planning System |
| PKI | Public Key Infrastructure |
| RBS | Role-Based Security |
| RFI | Request For Information |
| SOP | Standard Operating Procedure |
| TBM | Theater Ballistic Missile |
| TDP | Technical Demonstration Program |
| TrIM | Translingual Instant Messaging |
| TSMT | Text Simultaneous Machine Translation |
| VTC | Video TeleConferencing |
| WASP | Wing And Squadron Planner |

JOINT WARRIOR INTEROPERABILITY DEMONSTRATION (JWID) 2003 ASSESSMENT

INTRODUCTION

5. This report documents the Canadian component of the 2003 Joint Warrior Interoperability Demonstration (JWID) Coalition Assessment. The 2003 JWID, or JWID 03, is the ninth JWID event but the first time there was a formal coalition assessment. In the past, nations collaborated on the development, deployment and analysis of a set of questionnaires for all participants. This was an effective but ad hoc arrangement that did not impose standards of performance or set entrance requirements for the proponents of trials. In 2002, the United States implemented a formal assessment process that was centrally coordinated and placed specific requirements upon participants. This program was offered to the Coalition Nations participating in JWID 03. Canada was the first nation to accept this offer in November 2002 and by JWID execution in June 03, many nations participating in the JWID were contributing to the Coalition Assessment activity, especially the data collection. Canada, however, was the only Coalition Nation to participate fully and complete the process by assisting in the preparation of the JWID03 final report [Ref 1].
6. In the past, JWID had been labelled a technology fair and a trade show demonstration. By instituting a formal assessment process, JWID senior management was able to bring rigor to the JWID trials and evolve the JWID event to create an annual venue for testing and validating technologies for operational employment. For JWID 03, individuals proposing trials were required to meet specific entrance criteria based upon the submission of a trial design within a prescribed structure, develop a suitable data collection and assessment plan, and prepare a list of events for the JWID scenario that would provide a suitable test of the technology. At each of the JWID planning conferences, the assessment teams interviewed the proponents of each trial and carefully reviewed their planning documents and progress. Trials could be rejected up to and including the final planning conference if conditions were not met. Coalition nations were also expected to assist the teams at each planning conference.
7. This report documents the Canadian contribution to the assessment process in JWID 03. In doing so, it is necessary to provide an overview of the international

activities and organization of this multinational event. It reports the results of this assessment and provides observations on the overall JWID process in Canada. Conclusions and recommendations are presented on the assessment process as well as on the planning and conduct of future JWID trials.

BACKGROUND

8. JWID is a US sponsored activity that seeks to enhance Command and Control Interoperability (C2I) between US and Allied Command and Control (C2) systems through the testing and evaluation of technological solutions for Warfighter C2 systems. It is important to note that the JWID program has been revamped to better serve Allied (CA, UK, AS, NZ, and NATO) and US requirements for emerging technologies. Although the acronym itself, “JWID” remains the title of this program (due to US DoD budgetary documentation associated with the term “JWID”), a more accurate reflection of the execution of this annual event is Coalition Warfighter Interoperability Trials and Experimentation. As such the “permanent focus” of the JWID program is “Coalition Interoperability Trials” (CITs).
9. JWID is “hosted” on a rotational basis amongst US Combatant Commanders. This year’s host Commander for JWID was US Pacific Command (PACOM). The permanent sponsor for the JWID program is the US Joint Staff J6. It is managed by US Defence Information Systems Agency (DISA), who in turn has established a Joint Management Office (JMO) in Arlington and Hampton Virginia to oversee the program. The scenario used during JWID 03 was based upon the events in East Timor involving a Coalition Task Force to stabilize the situation after a civil war. Following a year of planning and coordination, the execution for JWID took place 2 to 27 June 2003.
10. In Canada, the JWID program is sponsored by the DCDS and supported by ADM (IM). CFEC is the Directorate responsible for the overall coordination of JWID in Canada and the authority for use of the CF Experimentation Network (CFXNet), which is the Canadian domain of the international Combined Federated Battle Lab Network (CFBLNet). Canada participated in 25 of the 42 Coalition Interoperability Trials (CITs) available in JWID 03.

METHODOLOGY

INTERNATIONAL PROCESS AND ORGANIZATION

11. The JWID 03 Coalition Assessment was planned and executed by the Technical Assessment, Security and Warfighter Evaluation Working Group. This group was formed from several organizations in the United States with different mandates. They came together to coordinate the overall evaluation of the JWID CITs. The group coordinated its activities with several other working groups in the JWID organization. The group's objective was to provide an evaluation of each qualifying trial with respect to capability, interoperability, security, warfighter utility, and concept of operations. This was to be accomplished through three levels of assessment¹:

- a. *Interoperability -The Interoperability assessment team assesses and documents the interoperability of selected trials by observing predetermined events and documenting the results of the data exchanges associated with those events. The interoperability assessment team ensures that the data transferred during the exchange is processed correctly by the receiving system. In addition, the availability of system documentation for warfighter use is also documented.*
- b. *Security - The Security Assessment will focus on how the trial will counter the identified threats, and enforce the identified policies consistent with the appropriate usage assumptions for the projected warfighting environment. These Security Environment Elements are the threats, assumptions and policies which a system or product might affect that environment.*
- c. *Warfighter – This assessment effort revolves around the warfighters assessment of the value added and technical performance of a CIT to meet their missions and functions in support of the JWID objectives in an operational environment.*

¹ S. Howell, B. Waterhouse, and W. Van Dine, "Technical Assessment and Warfighter Evaluation Working Group (TASWEWG)", presentation at the JWID 03 Main Planning Conference, Slide #4, January 2003, Chesapeake VA, USA. [Ref 2]

12. Three teams were created to address these three levels of assessment under the titles shown above. The Coalition Assessment activity outside of the United States was focused primarily on the Warfighter Assessment, but also provided important data to the Interoperability Assessment. The Security Assessment was completed at the time of the Final Planning Conference. The international process and organization for the assessment is documented in the “JWID Assessment Plan” [Ref 3].

Interoperability Assessment:

13. The Interoperability assessment team was from the Joint Interoperability Test Centre (JITC). They conducted reviews on all trials (Coalition and US) focusing on technical content and interoperability issues. Data was collected during the planning conferences through interviews by this team and the Systems Engineering and Integration Working Group for each CIT. Specific interfaces and data types, formats and protocols were identified at these conferences. The system’s capabilities and trial partners or participants were also identified and recorded. Information Exchange Requirements (IER) were required for each trial and, when necessary, the Interoperability assessment team coordinated with the trial proponents to write IERs.
14. With the data exchanges identified and mapped for each trial (from the interviews at the planning conferences), individual site analysts verified during each day of execution that each of the data types were transmitted in the referenced formats over the applicable interfaces, and provided daily status reports. They also verified the hardware configuration supporting the trials and the connectivity to the network.
15. Engineers from the Systems Engineering and Integration Working Group deployed to many of the JWID sites to assist local assessment staff. An important activity for these engineers was to liaise with their colleagues at other sites to identify problems in trials and coordinate solutions. Timely trouble shooting by systems engineers improved the performance of trials and allowed participants and analysts to make the most of the JWID opportunities.

Security Assessment:

16. The security assessment team conducted their assessment entirely within the planning conferences and completed the work in March 2003, three months before the JWID execution. This team was from the National Security Agency (NSA) and worked on two objectives. The first was to provide the initial step in the

certification and accreditation (C&A) process. The full C&A process is required for technologies to be deployed on command and control networks such as Titan. The purpose of this effort is to increase the level of trust consumers have in their information systems and networks through the use of cost-effective security testing, evaluation, and validation programs. The second objective was to determine how the trials will counter threats, and enforce the policies consistent with the usage assumptions for the projected warfighting environment.

17. During the JWID Initial Planning Conference, the Security assessment team interviewed trial proponents and selected specific trials as candidates for detailed security assessments. At the Main Planning Conference, the Security assessment team continued interviews in pursuit of the two objectives focusing in particular on the security issues. The team documented how a technology would counter threats and enforce the policies consistent with the assumptions for how the capability was intended to be used.
18. The team assessed security coverage, that the threat or policy was addressed by the system's or product's capabilities, and security exposure, how threats and policies not addressed within the system itself would be managed at deployment or during JWID Execution.

Warfighter Assessment:

19. Contractors from the US firm SAIC and analysts from the Coalition nations formed the Warfighter assessment team. While this team was an equal partner with the other two teams in the assessment process, Canada's involvement (and that of the other Coalition nations) was primarily in the Warfighter assessment. The remainder of the Methodology section is therefore addressing this activity.
20. The objective of the Warfighter assessment was to evaluate the ability of systems to provide solutions or enhancements to C4 interoperability challenges facing Joint US and Coalition operations. This was done through the assessment of the trial for utility and value to the warfighter. The first step in the process was to review all trial submissions from a warfighter perspective and provide input for the selection process. The next step was, like the other two assessment teams, to conduct interviews at all the planning conferences. The issues examined in these interviews included:
 - a. Identify system documentation (user manuals, SOPs, CONOPS, etc.);
 - b. Information requirements for the Systems Engineering and Integration Working Group;

c. Identify assessment methodologies within each trial including:

(1) Objective and purpose of the assessment,

(2) Metrics,

(3) Data elements for evaluation;

d. Develop standardized measures of performance across all of the trials to assess:

(1) Completeness,

(2) Interaction,

(3) Accessibility,

(4) Electronic information exchange,

(5) Consistency,

(6) Availability,

(7) Human factors,

(8) Accuracy.

17. The assessment process required that trial proponents develop relationships with international partners for trial execution (this was a requirement for participation as a CIT in JWID 03). It also required the development of a suitable list of events within the scenario to drive a rigorous test of the technology. If the proposed list of events was not judged to be sufficient, the assessment team could request improvements, or cancel the trial.

18. The most important product from this process is the Coalition Assessment questionnaires. The requirements for information that should be addressed in these questionnaires include:

a. Background on the proponents and purpose of the trial;

b. Warfighter Utility:

(1) Relationship between trial objectives and overarching JWID objectives,

(2) Linkages to trial test schedule and scenario events,

(3) System capabilities,

(4) MOPs identified for this trial;

- c. General observations from other participants (staff, technicians, liaison officers, etc.); and
- d. Analyst comments on trials and site related issues.

A sample of the contents of a questionnaire is provided at Annex B (Table B-VII).

19. Although the Warfighter assessment team assists the development of the questionnaires, the preparation of complete and sufficient questionnaires is the final responsibility of the trial proponents. Failure to prepare an acceptable questionnaire can be cause to cancel a trial.
20. The questionnaires from all of the trials were managed through a web-based data collection tool called JDCAT – **J**oint **B**attle **C**entre **D**ata **C**ollection and **A**nalysis **T**ool. This tool served to collect data, manage data, and facilitate analysis. At the conclusion of the Final Planning Conference, when the final set of trials passing the selection process was known, the assessment team began the preparation of the JDCAT surveys. Warfighters, analysts and any other persons required to assess trials and JWID in general were identified to the JDCAT coordinators. Then, each person was linked to the appropriate trials. At JWID execution, questionnaires were pushed daily or weekly (as required) to the audience and the analysts at each site supervised their completion. As each participant submitted the forms, the information was placed in a database on a central server. In this way, all of the data was automatically organized for future reference.
21. Once data had been submitted, the analysts developed queries through JDCAT and accessed the database to retrieve information for these queries. In practice, the server was very busy during the execution times and analysts performed queries when the system was at lower load levels. The results were provided in MS Excel or MS Word compatible formats. While most trials were subject to data collection through JDCAT, it is important to note that not all trials were subject to both the Warfighter and Interoperability Assessments and that in some cases Interoperability was assessed through strictly engineering trials without direct involvement of the assessment team.

NATIONAL PROCESS AND ORGANIZATION

22. The Canadian assessment team was responsible for Warfighter and Interoperability Assessment activities at the Canadian JWID sites. The main site was at Shirleys Bay Campus where CFEC is located. There were five other sites in Canada. In Ottawa, there were sites at the Classified Test and Development

- Centre at Tunney's Pasture, at the Canadian Forces Station Leitrim, and at the offices of J2 Geospatial Imagery and Counter Intelligence (J2 GICI). There was a site at Defence Research and Development Canada – Valcartier in Quebec and one at 1 Canadian Air Division Headquarters in Winnipeg Manitoba. The team was comprised of two analysts (Defence Scientists) from CFEC and two contractors rated as senior engineers with experience in defence, information technologies and military exercises. After familiarizing the contractors, the team developed a daily schedule and prepared the observation forms for the Interoperability Assessments. While Warfighter questionnaires were provided to players at all of the Canadian sites via the JDCAT tool, interoperability observations were only possible at the main site at Shirleys Bay.
23. The Canadian assessment team was augmented by an Interoperability engineer from the US and by another Defence Scientist and contractor involved with the COP 21 TDP. The team played a very active role observing the military personnel engaged in warfighter roles in the trials and observing the JWID process overall. The team prepared a cross-referenced chart showing the relationships between the trials and the scenario events. This was used to queue observations at key points in each trial (Annex B). The observations were placed directly in this chart, which was used to organize the information for daily status reports. With 23 trials to observe and only four analysts, this was a very effective tool that ensured good coverage. The observers also had forms to complete to support the Interoperability assessment for data exchanges. These forms were transmitted with the daily status reports. Examples of all of these forms are provided in Annex B.
24. The team commenced work on the first week of JWID (Set-Up Week) by familiarizing the contractors with the event and preparing the forms and charts. This was followed by a week of training, in which the technicians and engineers prepared the trials audience and analysts tested their process. The final two weeks of JWID were for the trials and scenario play. The schedule was five days long and so the scenario was executed twice. During this period, the Canadian analysts met at the beginning of each day to plan and coordinate their activities, and again at the end of the day to pass their forms and verbal comments to the lead analyst in preparation for the daily After Action Meeting. At this meeting, which was attended by the leads for each team at the site and chaired by the Canadian National Lead for JWID, the lead analyst would provide comments and recommendations as required to improve the trials or correct problems.

ANALYSIS PROCESS - NATIONAL AND INTERNATIONAL

25. The three assessment teams collectively provided an objective technical, security, and warfighter assessment for each trial with regard to capability, interoperability, security, warfighter utility, and concept of operations. This was accomplished through the thorough analysis of the performance of each trial, which was compiled and presented in the final assessment report. To this end, the Canadian analysis team prepared reports on the Canadian led trials and submitted these reports within a month of the end of the JWID execution.
26. The Warfighter assessment team analyzed the JDCAT data to document trial performance from the warfighter's perspective and the system's ability to meet stated objectives. Input from Coalition representatives was part of this documentation. Of the 25 trials in which Canada participated, 3 were led by organizations within National Defence. The Canadian assessment team prepared the Warfighter Assessment reports for these trials and submitted them shortly after the end of JWID 03 execution. The Warfighter Assessment team in the US then prepared the overall report for JWID 03.
27. The Interoperability assessment team reviewed the results of each trial's data transfers during execution and entered the information into a tool employed at the JITC. This tool was used to generate the JWID Interoperability Guide (JIG), which provides a picture of the hardware configuration of the trial, the connection to the network and the interoperability status of each interface assessed. It also reports on problems with data transfers and processing during the execution. The Security assessment team completed their task at the Final Planning Conference.
28. The final assessment report documents the performance of each trial with regard to meeting the original trial objectives as well as Warfighter Utility, Interoperability, and Security Compliance. Each trial is presented individually with an executive summary and supporting sections for each area of assessment. The JWID assessment report is used in the preparation of the JWID final report.
29. Although the JWID final report provides the analysis results from all of the trials, the Canadian team proceeded with the analysis of all the remaining JWID trials for which they had observations (using JDCAT). Complete drafts of these trial reports were completed within several weeks of the end of the JWID. These were then used to compile a Canadian Assessment Report, which is this document, and provide an assessment of the JWID trials from a Canadian perspective for the Canadian JWID 03 After Action Report.

SUMMARY OF OBSERVATIONS AND RESULTS

30. JWID 03 was a four week event. Set-up Week was followed by Week 0 which was dedicated to operator training in preparation for testing during Week 1 and Week 2. The lists of events for each CIT were combined into the Master Scenario Events List (MSEL) and were part of a five-day scenario that was executed through Week 1 and repeated in Week 2. The warfighters were involved in various trials depending upon their assigned roles and typically had to respond to numerous MSEL events each day.

COALITION INTEROPERABILITY TRIALS

31. Canada participated in 25 CITs in JWID 03. Network engineers and technicians evaluated six trials for the interoperability assessment independently. Of the remaining 19 trials, the assessment team combined two closely related trials into one report and produced 18 detailed assessments. The full reports are provided in the “JWID 03 After Action Report - Canada” [Ref 4]. An example of one such report is provided at Annex A and all of the reports have been summarized for presentation in this section. The assessments are reported in order according to the JWID 03 CIT numbering scheme, as listed in Table 1. No attempt is made herein to justify the selection of these trials against the overall JWID objectives, or against Canadian objectives. These choices were made by planners representing the diverse needs of a variety of organizations in the department. The following summaries provide a brief explanation of each trial with key observations and results. This is followed by observations on the Canadian participation. Data on level of effort is included in Annex C.

TABLE 1
CANADIAN COALITION INTEROPERABILITY TRIALS IN JWID 03

CIT 01.03 COLLABORATION GATEWAY

| CIT NUMBER | CIT NAME | GROUP FOCUS |
|-------------------|--|--|
| CIT01.03 | Collaboration Gateway | MLS/Information Sharing |
| CIT01.04 | TrustLogic Secure XML | MLS/Information Sharing |
| CIT01.06 | Defense Collaborating Tool Suite (DCTS) Role Based Security | MLS/Information Sharing |
| CIT02.04 | US/Canada COP Interoperability | COP/GCCS Interoperability |
| CIT03.01 | Language Translation Systems | |
| CIT03.04 | Defense Collaboration Tool Suite (DCTS) Streaming Server | Collaboration Tools |
| CIT03.05 | Defense Collaboration Tool Suite (DCTS) VTC End Point | Collaboration Tools |
| CIT05.01 | Coalition Geospatial Intelligence Request for Information (RFI) Enhancements | Coalition Geospatial Intelligence |
| CIT05.02 | Coalition Geospatial Intelligence, CPIGS Multi-Source Extensions | Coalition Geospatial Intelligence |
| CIT05.03 | Coalition Geospatial Intelligence Visualization Tools | Coalition Geospatial Intelligence |
| CIT05.05 | Semandex Netlink Content Based Information Delivery Service and Semantic Browser | Coalition Geospatial Intelligence |
| CIT05.06 | Combined Geospatial Environment for Network-Centric Tactical (COGENT) Awareness | Coalition Geospatial Intelligence |
| CIT05.08 | Coalition Geospatial Intelligence Production Interoperability | Coalition Geospatial Intelligence |
| CIT06.01 | Directory Services (DS) and Military Messaging (MM) | Coalition Messaging |
| CIT06.02 | PKI Express | |
| CIT07.01 | Coalition Information Assurance Common Operational Picture (CIA-COP) | Information Assurance/Vulnerability Assessment |
| CIT08.03 | Canadian (CA) Air Tasking Order (ATO) Extendible Markup Language (XML) Browser | Mission Planning Tools |
| CIT08.05 | Canadian Wing and Squadron Planner (WASP) | Mission Planning Tools |
| CIT09.01 | Coalition Warfare Program | Network Development |
| CIT09.07 | Multinational Naval Task Group (MNTG) | Network Development |

32. The objective of the Collaboration Gateway (CG) trial was to provide web-based infrastructure so that coalition partners could share information while protecting

-

sensitive compartmented information from unauthorized disclosure. This CIT was designed to demonstrate multi-level secure (MLS) collaboration in a multinational coalition environment by enabling users on networks classified at different levels, to communicate in a secure real-time manner using instant messaging and other collaborative application(s).

33. There were a total of 13 MSEL events distributed over the five days of the scenario. Of the six role players identified to test this CIT, only two players were identified to report on this CIT: Canadian Brigade Commander (CA Bde Comd) and National Command Element (NCE) J4. Six of the MSELs linked this CIT with CIT 03.01, which is the Translingual Instant Messaging (TrIM) CIT. Unfortunately; it was not possible to use the two tools simultaneously. The documentation and MSEL design led to the misinterpretation that it was possible to fulfill the requirements of CIT 01.03 using 03.01, and that the two technologies were linked. On investigation, it was discovered that the systems have different pathways linking 6 eyes and 10 eyes users.
34. Despite a good effort during the prescribed MSEL events, 6 eyes players from Canada, Australia and New Zealand only exchanged text messages in an Envoke chat room with a Singapore (10 eyes) warfighter on one occasion. The Warfighters were very interested in the technology, the evidence of this was their diligent efforts throughout the 2 weeks, but there was insufficient data to draw any conclusions. It is recommended that this technology be tested at a future JWID.

CIT 01.04 TRUSTLOGIC SECURE XML

35. The goal of the TrustLogic trial was to evaluate role-based encryption and PKI based authentication in a cross-domain environment. Data segregation across information domains and between roles or security levels was to be enforced through the use of role-based data element encryption. TrustLogic was to support the Request For Information (RFI) process and delivery of CPIGS products across domain boundaries. Simple, browser-based interfaces were created to allow command and control to rapidly define the information privileges of roles in different domains.

36. There were a total of 11 MSEL events over the five days of the scenario. RFIs were transmitted in a 10 eyes system and transparently received in a 6 eyes environment demonstrating cross-domain authentication and authorization. The use of secure XML as transport for other data formats including XML signature and encryption worked, as did the storage of data as encrypted XML. Overall, CIT 01.04 was considered successful. Cryptographically secure transmission of individual data elements occurred from a 10 eyes source to a 6 eyes RFI Manager. Secure transmission of data was effected across domains. Data elements from different sources were authenticated. However, there are software bugs that need to be resolved. The system should be re-trialed for JWID 04 as there is no other capability available to enable secure transmission of data from a 10 eyes to a 6 eyes domain.

CIT 01.06 DEFENCE COLLABORATIVE TOOL SUITE (DCTS) ROLE BASED SECURITY

37. The objective of this CIT was to demonstrate how a DCTS role-based security (DCTS RBS) scheme could be used to create a multi-level secure environment. The scheme would allow system administrators to assign roles to individuals and allow encryption of data for controlled access. Access to objects (files, words, paragraphs) were to have been based on user identification and appropriate password or key.
38. There were a total of eight events in the five day scenario. Play was limited to three players due a restriction of software licenses and a limited number of tokens. The players were NCE Commander, NCE J3, and NCE J4. The requirement was for the players to “attempt to retrieve coded files stored in Security Demo Room”. Each day the players accessed the Security Room: the J3 was able read all parts of the three-section text message; the J4 was denied access to part of the message; and the Comd was denied access to other parts of the message. There was no JDCAT questionnaire for this CIT; consequently, the report was based upon analyst’s notes.
39. Two capabilities were assessed in this trial. First File/Object encryption; a three-paragraph message was encrypted, prior to exercise play, and stored in a Security Room. Second, apply the encryption technology; using security tokens players were able to enter the Security Room and access the message. Depending on the security privileges assigned to the players, they could read all or part of the message.

40. This trial succeeded in that the players accessed the information as planned. It would have been more meaningful and better demonstration for the warfighter to allow players to encrypt, transmit and/or store their own messages.

CIT 2.04 US/CANADA COP INTEROPERABILITY

41. The purpose of this trial was to enhance the current state of US/Canadian interoperability with the Global Command and Control System – Common Operational Picture (GCCS-COP) technology. This would be accomplished by a trial where intelligence and imagery data as well as Common Operational Picture (COP) data was transferred across a national network boundary.

42. The GCCS-COP provides a number of communication mechanisms for both the transmission and reception of data. It has traditionally used the Over The Horizon-Gold (OTH-G) message format. The capabilities of the GCCS-COP have grown, however, beyond the original capabilities of the OTH-G format, limiting interoperability with non-GCCS systems. Therefore, communication enhancements have been developed to address these issues. The US GCCS-COP was tested with the Canadian C2 system Global Command and Control System-Maritime (GCCS-M), which is integrated within the Canadian Titan system. This trial investigated the US/Canadian exchange of intelligence and imagery data as well as continuing the work begun last year in moving COP information across the national network boundary.

43. A dual tracked approach was used to test this process. A technical team from the CFCS Titan group examined the technical transmission aspects while the warfighters played MSELs to examine the tactical capabilities of GCCS in accordance with objective 4 of the JWID 03: “to provide methods to share situational awareness information with nations on the network”. This assessment report focuses on the warfighter’s experiences.

44. There were a total of 15 events in the scenario for this trial. The events were land battle, situational awareness, Distributed Collaborative Planning (DCP) vignettes intended to incorporate information derived from GCCS. The players were NCE Commander and staff and the CA Bde Comd and staff. There was no JDCAT questionnaire developed for the CIT. Comments have been derived from: Analyst notes, General Observation comments and On-Site Technical Reports.

45. This trial had two capabilities that were assessed. First: to examine the new GCCS 4.0 build and establish its baseline capabilities with the Canadian GCCS-M system across the CWAN/Titan boundary by sending COP data type to remote

system via OTH-Gold, CIX, or ADatP-3. The technical team conducted this assessment and they will prepare a national report on the results. Second: to investigate the US/Canadian exchange of intelligence and imagery data from GCCS-based platforms. The players found that GCCS-M did not support the situational awareness of the Land Battle. They could not effectively employ unit and boundary markings to define the tactical situation. The many layers of information resulted in a confusing mass of symbols and text. In the end, the CA Bde Comd developed simplified tactical pictures using GCCS-M and then extracted the picture to a PowerPoint slide and used the slide to support his presentations during DCP briefings. The NCE staff did not use the tool and developed workarounds for the MSELs. It was not possible to port GCCS-M information into DCTS based DCPs to assist in describing tactical situations.

46. It was concluded that this tool was not used effectively in support of the Land Battle in the trial. There is insufficient data to determine if the problem stems from data exchange issues, or the capabilities of the technology to support the MSEL play in the Land Battle during JWID 03.

CIT 03.01 LANGUAGE TRANSLATION SERVICES

47. The purpose of this trial was to demonstrate the capabilities of the Language Translation System (LTS) provided by the Language Translation Services. In international crises, there is often a requirement to operate in a coalition. Language Translation Services provided a tool developed by Joint Forces Command's Joint C4ISR Battle Center to assist with collaborative planning in a multinational environment. The Text Simultaneous Machine Translation (TSMT) has three components: TrIM which performs translations while using instant messaging, Web Chat which facilitates chat sessions in multiple languages through the Defense Collaboration Tool Suite, and plug-ins for Microsoft products by SYSTRAN which perform functions like the translation of PowerPoint slides.
48. There were a total of 11 MSEL events in the scenario for this trial. Due to the confused instructions in CIT 01.03, a number of players used TrIM to fulfill the requirements of CIT 01.03. Consequently, many of the comments provided in the JDCAT reports for CIT 01.03 reflect on the TrIM capability. The TrIM MSELs were allocated to the CA Bde Comd (7) and the staff of the NCE (5) and Comd NTF. The JDCAT questionnaire provided for 43 responses. The responses by the NCE J3, the NCE J4 and Comd NTF were supplemented by comments collected by the analyst.

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49. The tool was unique in its translation features and relatively easy to use. Consequently, it was quite popular with the players. TrIM was sometimes used to conduct DCPs but attempts to paste large amounts of prepared text would crash the system or kick players off the system. The translation was relatively instantaneous following typist input. In many cases, however, the meaning was lost and words, while properly translated, were out of context. Acronyms and abbreviations caused significant problems. The CA Bde Comd, who is bilingual, considered the French and English translations to be reasonable. German- English translations were not as good. Japanese and Korean translations were reportedly poor; and the Korean and Japanese players preferred to use English.
50. This trial was considered to be a success in that LTS did enable chat sessions in multiple languages with translation being done on the fly. The quality of translation is not good enough to be fully reliable. It is considered a good tool to augment and confirm understanding of English directives.

CIT 03.04 DEFENSE COLLABORATIVE TOOL SUITE (DCTS) STREAMING SERVER

51. The purpose of this trial was to be able to join designated DCP conferences hosted by the DCTS and store a recording of the event in a virtual room for later retrieval. A successful trial would demonstrate the potential for a capability within the core DCTS audio, video conferencing to stream conference sessions to passive conference participants.
52. The streaming server was intended to address JWID 03 Objective 6 by promoting effective utilization of resources. The streaming capability was to provide alternatives to real-time interactive collaboration for those individuals who were not available at the time of the session or for those individuals who only require passive participation in the session.
53. There were 35 MSEL events developed for Canadian play in the scenario. The taping sessions failed in all but several events near the end of the last week of trials. Some of the reasons for these failures were:
- a. Inadequate equipment. Some players were using low-end Pentium 1 machines that could not handle the speed and capacity requirements of DCTS taping.
 - b. Insufficient training. There was very little training provided to the end-users to perform the functions required of this trial.

- c. Incorrect software. Many of the players did not have all the applications loaded and properly configured on their desktops at the outset of the exercise.
 - d. High user technical knowledge requirements. Many of the warfighters had the technical background typical of the average staff officer. This trial required a high level of technical expertise to be able to follow the logic and myriad of steps to record and store DCP sessions.
54. There were other factors, which confused the implementation of this trial including other MSEL events related to DCTS, different versions of DCTS for other trials, plus national trial activities for other tools (MS NetMeeting, MS Exchange Conference Server and Timeshare).
55. The JDCAT questionnaire comprised 23 questions and provided for daily responses. There were 11 players from Ottawa, two players from Winnipeg and one each from Valcartier and SHAPE who responded to the questionnaire.
56. This CIT had two capabilities that were to be assessed; the first was to tape and store a DCP session and the second was to retrieve and view a taped DCP session. The first capability only occurred in the last two days of the exercise after considerable technical staff intervention. Most of the time, the players were not able to follow the sequence and the process often failed after only two or three minutes. As for the second capability, once the session had been stored locally, players were able to retrieve and view the session.
57. In conclusion, CIT 3.04 was a limited success, in that players were able to save and retrieve only a few taped DCTS sessions. The procedures and technology are complex and the assessment is that more development is required to consider this for field use. Further testing in JWID or similar venues is recommended.

CIT 03.05 DEFENSE COLLABORATION TOOL SUITE (DCTS) VIDEO TELECONFERENCING (VTC) END POINT

58. The objective of this trial was to demonstrate the capability of the core DCTS audio, video conferencing server to connect alternative end points to conferences. It was intended that two capabilities, the capability to convert a media stream to audio output and the capability to interface the LAN supporting DCTS to a telephone switched network would be tested in this trial.
59. There were a total of 12 events identified in the scenario of which only one affected a Canadian warfighter. The MSEL involved the CA Bde Comd on Day 1 in the scenario. The MSEL was played in the second week only. The requirement

- was to use the Defence Collaboration Tool Suite VTC to discuss and coordinate a minimum of 3 courses of Peacekeeping actions with other coalition players. The J3 Plans shared PowerPoint slides but no attempt was made to save/archive the session to a chat room for future referral and there was no one in the session on a telephone/cell phone link only to test the conversion capability.
60. The requirements for this CIT were not well understood. Many thought this trial was linked to CIT 03.04 and was intended to test the retrieval of streaming videos saved per CIT 03.04. This was not the case and the misconception was made worse by misinformation contained in supporting documents.
 61. This CIT had two capabilities that were to be assessed. First was the capability to convert a media stream to audio output. It was not apparent that this occurred in the one MSEL in which a Canadian participated. Second was the capability to test the POTS interface to DCTS. This was not tested in the one MSEL either.
 62. In conclusion, from a Canadian point of view, this CIT was poorly coordinated and as a result no significant observations were collected. It would not be appropriate to comment on the capabilities of this technology based upon the Canadian experience in this trial.

CIT 05.01 COALITION GEOSPATIAL INTELLIGENCE REQUEST FOR INFORMATION (RFI) ENHANCEMENTS

63. The objective of this trial was to test the capabilities of a Geospatial Intelligence RFI tool developed by J2GICI on a Coalition network. This RFI tool was based on enhancements to the Geospatial Intelligence RFI process derived from JWID 02. CIT 05.01 was led by the Canadian J2 GICI and was in keeping with the JWID 2003 objective to provide solutions to improve information sharing between nations given requirements for Multi-level security, and the objective to develop methods to share Situational Awareness information with nations using Coalition networks.
64. The RFI tool was designed to initiate activity for CITs 05.02, 05.03, 05.05, 05.06, and 05.08. It was a key capability in JWID 03 for all of the geospatial and intelligence trials in the event. The objective of the sponsor of this CIT was to develop an RFI process that might become a core service for a future JWID and eventually operational networks.
65. To test this RFI process, there were a total of 46 events, distributed over five days of the scenario. The events were allocated to Army, Navy, Air Force and Marine Corps players and JDCAT responses were elicited from players from Canada,

Australia, New Zealand, and United States: NIMA, SPAWAR, PACOM, Hanscom AFB, and Dahlgren. The JDCAT questionnaire provided for 18 multiple-choice answers as well as narrative responses.

66. More training for this tool was required by the players prior to the exercise. Also, there was insufficient user material on the web and some players did not find the application to be intuitive. The developer of this tool was, however, the CIT Manager and he was available to assist players throughout the exercise. Once some initial communications issues were resolved, the players gained familiarity with the tool and processes through usage such that by the end of the exercise, 100% stated the process worked well and more than 85% of the responders recommended that the process be fielded for use. Indeed the system was so good that a number of responses examined the processes for real world use rather than as a way of expediting Geospatial service within JWID.
67. This CIT had three capabilities that were assessed. First, to provide a common interface to the warfighter for submitting RFIs to all coalition Geospatial Intelligence partners. 100% of the players were able to submit RFIs easily using the process by the end of week two. Second, to provide the warfighter with feedback during the RFI process. As can be noted in the tables in Annex A, most players were able to monitor progress of the RFI using the “sticker” capability and e-mail notification. Third, to provide an interoperable tool that would enable the Geospatial Intelligence community to coordinate RFIs between nations and organizations. This was accomplished in that the role of RFI Manager was traded successfully amongst American, British, Australian and Canadian players on a daily basis. These managers in turn directed RFIs to all national intelligence agencies playing JWID 03.
68. In conclusion, while there is a need for better training and a user manual/help file, this Canadian CIT was a success. The RFI process and associated Geospatial Intelligence Services were used extensively throughout the exercise play and enjoyed strong warfighter approval. It is recommended that this RFI manager should be implemented as a core service to support intelligence and geospatial requests and be established for the use of operational commands to task resources at all levels and agencies. The sponsor of this CIT should, however, review the warfighter feedback, as there were specific recommendations for enhancements.

CIT 05.02 COALITION GEOSPATIAL INTELLIGENCE, CPIGS MULTI-SOURCE EXTENSIONS

69. The purpose of the Coalition Portal for Imagery and Geospatial Services (CPIGS) trial in the JWID was to provide the coalition warfighter with access to all imagery and geospatial information and services available on the network through a single interface. CPIGS was intended to provide the user access to multi-intelligence data through an enhanced portal and eliminate the need to query individual coalition databases. Extensions to CPIGS were designed for JWID 03 to enable support for multiple information sources and types including MIDB, IPL, and XML. A goal of this trial was to enable warfighters to provide more complete analyses to component commanders to support operational decisions.
70. There were a total of 30 MSEL events in the scenario. The JDCAT questionnaire comprised 19 questions and provided for daily responses. The majority of the events were allocated to the RFI Manager and Geomatics Imagery (GI) Analyst (27 events) with the CA Bde Comd having six events, the NCE staff having five events and the National Defence Command Centre (NDCC) having two events. There were five respondents: the RFI Manager, the GI Analysts, two NDCC staff and the NCE J2.
71. Users were able to access CPIGS with minimal problems and warfighters used CPIGS as the search engine to all geospatial and imagery sources without the express knowledge of the underlying architecture or services. CPIGS was found to be effective in providing the warfighter with one place to access all imagery and geospatial information during JWID 03. MIDB was not included in the extensions to CPIGS. In conclusion, CIT 05.02 was a success. CPIGS provided the warfighter with a one-stop shop to discover/access intelligence documents and imagery necessary to complete assigned missions and tasks for JWID 03.

CIT 05.03 COALITION GEOSPATIAL INTELLIGENCE VISUALIZATION TOOLS

72. The objective of this trial was to explore various visualization tools designed to give the warfighter a 3D terrain “fly through” capability in real time. Such tools should give warfighters improved situational awareness in a planned area of operations. In this trial, 3D Visualization tools were to be used for searching for geospatial intelligence products as well as visualizing these products at the client workstation in 2D or 3D views. This CIT was to provide use of Skyline’s Terra Explorer, the Globe Object Raku’s Sextant Virtual Warfighter Tool, and perhaps

- Keyhole to visualize the desired area. To see/flythrough the area was considered an important tool to prepare warfighters for potential operations.
73. There were a total of 15 events over the five days of the scenario. The events were allocated to the RFI Manager and GI Analyst (9 events), the NCE J2 (3 events) and the CA Bde Comd (5 events). The JDCAT questionnaire provided for 18 responses and comments for daily use. The respondents were the RFI Manager, the GI Analyst and the NCE J2.
74. It was planned that three tools would be available to the role players: Earthviewer, TerraExplorer, and the Globe. The RFI Manager and GI Analyst were familiar with the tools. The NCE J2 was able to easily access the tools and determine their basic functionality; he would have preferred more training and time to explore the capabilities of these products. Lack of detail and functionality were the main criticism of the tools. They provided a complementary capability to current tools but could not be used for analytic purposes.
75. The trial had three capabilities that were assessed. First, to provide access to Skyline's Terra Explorer to assist the warfighter by providing a 3D environment. The imagery of this tool was not considered to be of sufficient quality for the warfighter's operational needs and the navigation controls need to be improved. Second, to provide access to Earthviewer to assist the warfighter by providing a 3D environment. The imagery of this product was also considered to fail to meet the warfighter's requirements. Third, to provide access to the Globe Object Raku's Sextant Virtual Warfighter Tool to assist the warfighter by providing a 3D environment. There were no meaningful JDCAT comments concerning this product. Indications are that it was not used.
76. In conclusion, the lack of functionality and detail, and the quality of the imagery from Earthviewer and TerraExplorer limited their capability as analytic tools for geospatial intelligence. The products could be used for less stringent purposes such as briefings, demonstrations and role rehearsals. The Globe tool was not tested.

CIT 05.05 SEMANDEX NETLINK CONTENT BASED INFORMATION DELIVERY SERVICE AND SEMANTIC BROWSER

77. The technology in this trial has been designed to provide an improved means to gather and display all-source intelligence for the analyst's "Intelligence Preparation of the Battlefield" and mission planning.

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78. Using Semantic metadata, or “data about data”, the Netlink system was designed to deliver analyst’s information requests to the source that can respond without the operator searching multiple Web sites and/or portals. The Semscope viewer is the browser for this technology. It displays the results in folders and maps in a manner that assists the operator in decision-making.
 79. There were a total of 30 MSEL events scheduled for this trial. The majority of the events included the RFI manager and GI Analyst (26 events). Seven events were directed to the NCE staff and the CA Bde Comd with two events allocated to the NDCC staff. The JDCAT questionnaire provided for 22 responses plus daily observations. Three players received the questionnaire: two from NDCC and the NCE J2.
 80. Unfortunately, the applications were not loaded onto the desktops until the beginning of Week 1, which meant the players had a steep learning curve. All three players found the application non-intuitive and required considerable technical assistance and training. The MSELs were not well executed as a result. Numerous issues resulted in this trial being difficult to assess. It was concluded that the technology did not perform well and it is recommended that consideration should be given to testing in a future JWID.

CIT 05.06 COMBINED GEOSPATIAL ENVIRONMENT FOR NETWORK-CENTRIC TACTICAL (COGENT) AWARENESS

81. This trial was developed to respond to JWID Objective 4, “... provide a common geospatial information framework for shared situational awareness and a common analytic framework for shared planning and execution”. The purpose of the COGENT technology was to provide warfighters with an integrated geospatial environment. The objective of the trial was to demonstrate interoperability in the creation, dissemination and sharing of geospatial data and information products to create enhanced situational awareness.
82. There were a total of 24 events, distributed over the first five days of play; these were repeated in the second week of the exercise. The events were allocated to the RFI Manager and the GI Analyst (24 events), the J2 NCE (7 events), the CA Bde Comd (4 events) and the NDCC (2 events). The JDCAT questionnaire comprised 21 questions and provided for daily responses. Only the J2 NCE was asked to respond to the questionnaire. The RFI Manager provided after-action notes.
83. The COGENT system was to provide common interoperable data, information, and services to support geospatial. The data shows that players were able to easily access the network site and obtain imagery selections that were relevant to the

area requested. The warfighter's comments indicated that while there were some problems, the technology performed well in the trial. In conclusion, CIT 05.06 was a success in that, while the processes may have been difficult to use, COGENT was able to provide common interoperable data, information and services for geospatial awareness.

CIT 05.08 COALITION GEOSPATIAL INTELLIGENCE PRODUCTION INTEROPERABILITY

84. The technologies used in this trial were developed to provide potential solutions to the coalition geospatial intelligence production problems that exist in operations today. The objective of the trial was to evaluate these solutions and determine if they provided the coalition warfighter with timely, relevant products that could support real-world operations. The technologies were the Intergraph Transaction Server, an Internet mapping application, and Maplicity Enterprise, a collaborative geographical awareness application.
85. In this CIT, the ability of the coalition geospatial intelligence community to co-produce special geospatial intelligence products to support the coalition warfighter was tested. Products were to be produced by geospatial intelligence organizations from Australia, Canada, New Zealand, Norway, United Kingdom and United States in a collaborative environment using DCTS and sharing geospatial intelligence tools and data.
86. For this trial, there were a total of seven MSEL events scheduled for the RFI Manager. A JDCAT questionnaire was not developed for this CIT, the RFI Manager provided after-action notes. The RFI Manger's comments indicated that there was considerable difficulty getting one system to function on the network. Problems included insufficient contractor support and licenses expiring in the middle of the trial. The other system under test had to be restarted in order to reflect the changes applied during collaborative planning sessions. It was observed that too many steps were required to produce updates and that the updates were not temporal.
87. The Canadian RFI Manger was not able to create a collaborative environment to fully exercise the tools. However, within the very limited time available, he was able to examine some details relating to the tools that would be used in the collaborative analysis of imagery and collaborative production of geospatial data. It was concluded that while this was not a very successful demonstration of the technologies, it was a productive event. The RFI Manager's recommendation was that more time should be allocated to this trial to explore the technologies and that

more time was needed to be able to develop SOPs required to operate in a coalition environment.

CIT 06.01 & 06.02 DIRECTORY SERVICES (DS) AND MILITARY MESSAGING (MM) & PKI EXPRESS

88. These two trials were reported together because of their close relationship.
89. CIT 06.01 Directory Service and Military Messaging: This trial was designed to test a coalition wide directory information and exchange military message e-mail system (with attachments) operating in a secure manner (signed and encrypted).
90. CIT 06.02 PKI Express: The objective of this trial was to test a next generation messaging technology that would meet the interoperability requirements of a coalition but facilitate protected messaging. The PKI Interoperability trial was intended to show that warfighters could exchange secure messages easily with other coalition members, leveraging all the security of PKI without administrative burden and without exposing internal authentication information.
91. The participation in Canada was as follows:
 - CIT 06.01 Participants were the NCE and the Multinational Naval Task Group (MNTG);
Comprised of 17 MSELs.
 - CIT 06.02 MNTG was the only participant;
Comprised of 15 MSELs.

The combined JDCAT questionnaire for CIT 06.01 and CIT 06.02 comprised 37 questions requiring a narrative or comment-type response, or a rated response, e.g. yes/no. A summary of the key responses is provided.

92. CIT 06.01: The players generally agreed by the end of Week 2, that DS and MM allowed the warfighter to the complete assigned missions and tasks in a timely manner. When asked if the addition of DS and the MM capability was an improvement to current capabilities, the response was split. However, by the end of week 2, five out of six respondents indicated that they would be willing to use DS and MM (in its JWID configuration) as a core service.
93. In response to the question “What additional capabilities would you like to see within Directory Services and Military Messaging?” the warfighters requested better address listings, automatic population of MNTG, standardized titles, and more complete user profiles. In response to “What changes or improvements are needed to make Directory Services and Military Messaging more effective?” the comments asked for better user address lists, an easy functionality to reserve chat

- rooms and invite participants, better integration between JWID general and the MNTG, and more complete user profiles.
94. CIT 06.02: There were very limited responses from Canadian warfighters for this CIT. PKI Express used in conjunction with Directory Services & Military Messaging was considered an improvement over current capabilities and would be used by warfighters as part of a Core Service.
95. In conclusion, while the PKI Express appeared to function adequately, there was little Canadian experience reported. The Directory Services and Military Messaging trial was considered to be successful and it is recommended that these technologies be used again in JWID for trials and be considered for inclusion as a core service.

CIT 07.01 COALITION INFORMATION ASSURANCE COMMON OPERATIONAL PICTURE (CIA-COP)

96. The CIA-COP provides technology for the management of information sharing between nations in a coalition for intrusion detection and analysis and network defence through incident management and response, situational awareness, and visualization tools that provide a local to global view of information assurance. This trial was a demonstration at the main Canadian site conducted by a representative from the US who was the sole source for data collection on this activity.
97. The assessment team observed the demonstration and corroborated the evidence that the CIA-COP was effective for providing situational awareness against network intrusions and attacks. It should be an effective application for supporting coordinated defences against the same. In future JWID events, this trial could be included with the Coalition Vulnerability Assessment Team (in the MSELs) in a demonstration or trial on defence against simulated attacks. One of the MNTG warfighters suggested integrating CIA-COP into the existing infrastructure to exploit messaging and file sharing over a browser.

CIT 08.03 CANADIAN (CA) AIR TASKING ORDER (ATO) EXTENDIBLE MARKUP LANGUAGE (XML) BROWSER

98. The Canadian ATO XML Browser is an application that is designed to provide all warfighters with the capability to display US or NATO generated ATO and Airspace Control Order (ACO) data in a graphical tabular format. It was tested in JWID 03 by Air Force players across the coalition and with Canadian Air Force staff in Canada, the US and NATO.

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99. This CIT's ability to demonstrate its capabilities were affected by several factors. In addition to the late arrival of some sub-systems and training, other CITs delayed the players and interfered with the MSELs for this trial. So, despite the best efforts of the trial's support personnel, some sub-systems not fully operational on the week before, or at the beginning of, Week 1. Furthermore the late training slowed the development of proficiency with the application in Week 1.
100. There were a total of 42 events over the five days of the scenario. During Week 1, 13 warfighters responded to the questionnaires, while in Week 2, 15 warfighters responded. Eight of these warfighters were respondents in both weeks. Warfighters were from the Australia, Canada, New Zealand, UK, and the U.S.
101. ATOs and ACOs are produced in various message formats and require specialized computer systems and C2 systems that are not widely available to Joint, Army or Navy Forces in the deployed environment. The ATO XML browser is a plug-in to Internet Explorer and operates on any Windows-driven system either on a network or in a stand-alone configuration. The browser is designed to be a 'light' application capable of importing XML-formatted ATOs and ACOs, parsing these files and presenting information in the graphical tabular format.
102. One of the capabilities tested was to provide the warfighter with situational awareness information for daily missions. The majority of warfighters agreed that they received the ATO/ACO information in a timely manner to accomplish their tasks, that they were able to locate and import the data into the CA XML Browser and the information received and processed using the CA XML Browser appeared accurate. Tabular displays were clear and easy to understand. The number of positive responses from Week 1 to Week 2 increased for all these aspects. These results provide credible evidence that the CIT was successful in demonstrating that the CA ATO XML Browser provided the warfighter with situational information for daily missions e.g. mission number and type, locations, timings, codes/modes.
103. The warfighters were asked to comment on whether they considered the program to be a user-friendly application and why. The results collected indicated that the CA ATO XML Browser was easy to launch and presented an effective and user-friendly interface. It was also intended that this application would provide a mapping capability suitable for ATO/ACO mission planning activities. In response, the warfighter provided clear evidence that the CIT was successful in

demonstrating the browser's mapping capabilities as suitable for ATO/ACO mission planning activities. They also provided good feedback on possible improvements to this capability.

104. It was clear from capability assessment results that the warfighters were quite impressed with the application's potential to the point of advocating that the CA ATO XML Browser be developed into a full capability, one with a major role to play in mission and support planning. The warfighters presented in the vicinity of 100 suggestions for capability upgrades and enhancements for the developers of the CA ATO XML Browser to contemplate.

105. In conclusion, the CIT did what it set out to do. The technology has the strong potential to be of significant value to an important cross section of the joint and coalition warfighting community. It is recommended that sponsors for the ATO XML Browser continue the development of this technology. The comments of the air warfighters for refining the requirements for an XML Browser-like application should be of great value in this process. It is also recommended that if there is a formal operational requirement for a capability similar to this technology, that the ATO XML Browser be considered as a candidate.

CIT 08.05 CANADIAN WING AND SQUADRON PLANNER (WASP)

106. WASP is a technology designed to parse the daily ATO and provide the warfighter with access to an array of resources and information required for mission planning such as: real-time weather, airfield status, and aircraft and aircrew availability for assignment to specific missions. By importing the USMTF ATO, it was planned that WASP would populate specific fields in the application and then, through connection with a national database, the operator could assign resources (aircraft and aircrew) to missions based upon availability.

107. There were a total of 42 events over the five days of the scenario. During Week 1, 7 warfighters responded to the questionnaires, while in Week 2, 10 warfighters responded. Warfighters participated from Australia, Canada, the UK, and the U.S. In all, there were 11 different participants.

108. The assessment results showed that by Week 2, ATO/ACO information was being received in a timely manner. Warfighter responses were split in response to whether the tabular display resulting from parsing the ATO was easy to understand, as to whether or not the mission planning information was correctly displayed on the map, and on the suitability of the graphical interface.

109. Another capability that was examined was the ability of WASP to access a wide array of resources and information required to support mission planning. Warfighters were divided in their responses as to the ability of WASP to retrieve and use the ATO information from the WASP server and to assign aircraft and crews to applicable missions as required by the ATO. Of the positive responses, most were qualified with conditions that should be met in order for the warfighter to award a 'yes' response.

110. The capability assessment results indicated that most of the warfighters felt that the CIT was not successful. WASP itself was not considered to be a robust application and due to problems setting up the trial, too much data was missing to allow them to experiment with the technologies functions. WASP did not meet the general performance expectations of most warfighters.

111. In conclusion, WASP is not yet considered to be ready for the warfighter. It is recommended that the CIT sponsors further develop the application before another experiment. At a minimum, it should be brought to another experimentation opportunity, national or international, after the software is more robust, when the experimentation data package, e.g. files, maps and imagery is larger, and when the workstations are adequate to support the environment.

CIT 09.01 COALITION WARFARE PROGRAM

112. The technology for this trial is designed to provide a total network security solution. It is based upon network centric computing technologies, ultra thin client stateless applications, smart cards for user access, and Cryptek EAL 4 rated virtual private network devices. It gives limited chance of compromise at the edge of the network with stateless clients and a robust encrypted network transfer. It has the full capabilities of multiple application resources such as GCCS, Windows and Virtual Teleconferencing at a single seat, and access to multiple network domains from a single seat. The network configuration can be changed dynamically without hard-wiring anything. Like CIT 07.01, this trial was a demonstration at the main Canadian site conducted by a representative from SPAWAR in the US who was the sole source for data collection on this activity.

113. The capability demonstrated was clearly very effective and received high praise from the warfighters. Since it was a demonstration, it was not integrated into the scenario and there was no JDCAT questionnaire. It is concluded that this technology has significant potential and it is recommended that it be tested fully in a future JWID.

CIT 09.07 MULTINATIONAL NAVAL TASK GROUP (MNTG)

114. Australia, Canada, New Zealand, United Kingdom, and the United States participated in the MNTG trial. The objective of this trial was for the nations, operating in a virtual MNTG, to test an amalgam of C4I capabilities operating in a low-bandwidth, high latency maritime IP environment typical of Allied and Coalition operations. Capabilities tested included the establishment, operation and maintenance of a tactical IP network. The applications and tools provided as part of this demonstration can be used at all levels of command, but are targeted for use by “command teams” afloat. Chat, whiteboarding, e-mail, a website for document management, and a COP were all used successfully.
115. The Maritime Tactical Wide Area Network was designed to provide multinational maritime warfighters with a capability that promotes situational awareness in an Allied/Coalition environment. The Canadian Maritime Component Commander (CA MCC) participated in 63 of 89 MSELs for this trial, over five days of the scenario. The MNTG trial was very mission-oriented, with the processes of testing and technology experimentation built in to the mission. This was the most complete, and perhaps the most successful trial observed at the Canadian main site. It was also observed that the MNTG CIT was structured less like two five-day events, and more like ten one-day events, as the MSEL sets for each day were very similar.
116. The CA MCC was working with a limited network bandwidth (128kbs) to simulate ship-ship and ship-shore communications. The CA MCC was unable to join DCP sessions with the Canadian Air and Land Component Commanders and the NCE. Throughout the campaign, however, most of the technology experiments were successful. The JDCAT questionnaire for CIT 09.07 was comprised of 69 questions.
117. This CIT had six capabilities that were assessed. First, to provide DCP and DCP applications. Of the six applications planned for testing three were not available or not tested (Screen Sharing, Application Sharing, Voice over IP); VTC was attempted but was not possible to connect because of the simulated limited ship-to-ship bandwidth; and Chat was found to be very useful, while whiteboarding was found to be somewhat useful. Second, to provide a MNTG web site. Overall, the MNTG web site was useful and easy to use. Third, to provide E-mail. While the e-mail capability needs improvement, the test was successful. Fourth, to provide a COP. A theatre-wide operational picture was achieved using the capability being tested. The use of the simulated limited ship-to-ship bandwidth

created some data latency. Fifth, to provide an Information Management (IM) capability. The information management capability of this CIT was successful. Sixth, to demonstrate ACP 200 Capability. The overall MNTG capability was assessed as being fully capable with respect to the provisions of ACP 200.

118. In conclusion, the MNTG trial was very mission-oriented, with the processes of testing and technology experimentation built into the mission. Most of the designated capabilities were tested and most were successful. The MNTG experimentation was seen to be very useful to the Navy and this was the most complete, and perhaps the most successful, CIT observed at the main Canadian site.

PLAYERS AT THE MAIN SITE

Joint Participation

119. The goal for NDCC participation in JWID 03 was to evaluate and develop procedures for the various technologies demonstrated that might be used in the NDCC. The NDCC staff felt that the Canadian main site at Shirleys Bay provided a good facility for the participants and that it was very useful to have all the players in one location. Being collocated allowed them to see the tools the other groups had and learn more about the other environments and their applications. They observed that onsite technical support was critical to success and that it worked well. They concluded that it was extremely useful to participate in JWID as it allowed them to evaluate the potential new technologies and start to develop procedures on how these applications could be used in their jobs. The most important result for the NDCC staff was the high profile they achieved with the CFCS staff through their active participation.

120. The CF Joint Operations Group (JOG) provided the largest contingent of warfighters at the main Canadian site. As such, they played a very influential role within the experiment audience. The goal for the CF JOG in JWID 03 was to increase their awareness of Coalition and Joint interoperability issues and emerging information technologies (IT) in order to develop their capabilities whilst providing feedback to IT stakeholders from a warfighter/operator perspective. They were a very significant presence in JWID 03 and comprised the largest group of warfighters dedicated to providing evaluations of the various JWID technologies at the main site. Their participation permitted their staff officers and technical personnel to appreciate future applications (tools) and requirements (bandwidth) of software systems in an operational/tactical setting. They have recommended that if there is further interest in development of the JWID series for a training vehicle, that a set of scenarios repeat from training to a practice exercise, then introduce another more challenging exercise scenario to permit CF JOG to gain actual training value for the time and personnel days expended.

Service Participation

121. The Navy and the Air Force provided robust teams at the main site. The Navy played in the MNTG as part of a multinational effort. The Air Force led two CITs and collaborated with other nation's air force staffs but also had Canadian representatives in Winnipeg, Valcartier, at Hanscom AFB in the US, and at SHAPE HQ in Belgium. While the Army only had one officer at the main

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Canadian site, he personally made a tremendous contribution to the US/Canada COP Interoperability trial and other important trials.

SUPPORT

Network Performance and Technical Staff

122. The technical support for JWID 03 came primarily from the trial proponents. The CFCS project in particular, but also the Air Force and J2 GICI provided many of the technical staff that organized and supported the trials and trained and guided the players. Specialists from the US also played important roles, especially for CITs 02.04, 07.01 and 09.01.
123. The technical staff at the main site and at Tunneys Pasture conducted data collection on the network's performance which proved very useful and provided detailed statistics on network utilization as well as protocol distribution, indicating which systems or application protocols were making the greatest use of the network. This was conducted under the NetScout trial (one of the six trials not reported above). The NetScout trial was considered to be very successful and the tools it provides should be of great benefit to future JWID events or as part of ongoing experiment support. The details of the NetScout trial are included in a separate document.
124. This data collection was especially important as this JWID featured the first utilization of the new CFXNet technology and vastly improved bandwidth. It is presently at Phase 2 of completion – 11 sites are now fully operational across Canada. Network connectivity and bandwidth were significantly improved over previous JWID events with network availability between 99% and 100% throughout the event and bandwidth more than sufficient for all IT testing. In fact, this is the first JWID where no restrictions were imposed at the main Canadian site and the peak bandwidth demand was less than one-third of the maximum capability the network could support. Furthermore, the Network supported “two-domains” on one backbone, one with 5 Nations plus NATO and one with 9 Nations plus NATO, conducting information sharing and exchange within their respective domains but cryptographically “isolated”.

CONCLUSIONS

125. Conclusions specific to each trial are reported in each of the summaries in the previous section. Given the diverse but sometimes overlapping technologies and activities, it is not easy to discern the overall impact of the 25 trials. It is clear from the observations and data collected that the impact from the “05” trial series, for example, was significant. Canada is clearly a leader in technologies related to geospatial imagery and geospatial intelligence. It is a conclusion of the assessment that these activities had a strong impact on the JWID and, for the most part, the technologies were effective and have significant potential to enhance the use of geospatial imagery and intelligence in a coalition operation.
126. One of the highlights of JWID 03 in Canada was CIT 02.04, US/Canada COP Interoperability. GCCS-M is an important technology and the opportunity to work with the US and trial a new version was very beneficial to the CFCS project and to the warfighters from the CF JOG, the NDCC and the Army. It was clear that the JWID venue provided good “value for money” in this instance.
127. The MNTG trial was described as being the most complete and perhaps the most successful CIT observed at the main Canadian site. The technical tests on a low bandwidth simulation of a naval operational network were outstanding. The engineering data collected on system performance and the practical observations as to which applications worked and which did not, are very valuable. This was a well-run trial and an example for future JWID events.
128. The Air Force’s ATO XML browser was also a very successful CIT. The technology was clearly ready for fielding and the data for the players and the scenario were well prepared. This should be a model for all trials. The JWID management obviously encourages this level of technical development as well as trial planning and preparation. Evidence of this is the more demanding vetting process instituted at the planning conferences. It is the conclusion of the assessment that this is having effect but that there were still many trials that fell below the ideal.
129. The primary conclusion that is drawn from the Canadian assessment is that JWID 03 was very successful. This is more an observation of the assessment team and a comparison with past JWID events than a derivative of the data collection. Overall, this event was well coordinated, well executed, well staffed with trial developers and warfighters, and properly analysed. Under these conditions, JWID is a valuable activity for the CF providing a structured testing environment for

technologies that will impact operations and operators in the near term. A strong warfighter presence is essential as is control over the technologies selected for testing and the proper assessment of the trials.

RECOMMENDATIONS

CONDUCT OF FUTURE JWID EVENTS

130. While JWID 03 was successful overall, the observations show that a number of trials experienced problems. In other words, there is always room for improvements. The model from JWID 03, with the Technical Assessment, Security and Warfighter Evaluation Working Group vetting the trial proposals, worked very well and will likely receive future support from Coalition nations. Furthermore it should provide advice on the grouping of trials at various sites to promote synergy, improve the warfighter's overall appreciation of the spectrum of technologies, and either avoid redundancy or promote critical comparison between competing technologies.
131. There has been debate on the place of JWID in experimentation, both nationally and internationally. JWID senior management have stated that it is their objective to evolve JWID from a "trade show" to a rigorous experimentation environment. Excellent steps have been taken in that direction, with very positive results. The program has been expanded to allow more time for set-up, training and rehearsal. A rigorous vetting of the trials has been implemented, and probably most important, a coordinated assessment program that feeds back to the senior management has been successfully developed and tested. Better coordination of the scenario events against the individual trials combined with the more critical selection and grouping of trials against JWID international and national objectives is recommended. (This is being attempted in the JWID 04 international planning conferences.) The impact of this process should be reviewed at the conclusion of JWID 04.
132. Nationally, CFEC should review the roles and mandates of the staff it provides to coordinate JWID. The benefits of JWID to the CF are greatly enhanced through a well-coordinated event. CFEC has transformed the Canadian JWID activity since it first observed the event in 2001. JWID 03 is only the second JWID event in which CFEC has had staff directly involved and the changes are substantial. The network now provides 15 megabits per second versus 1.5 in 2001. CFEC technical staff coordinated the allocation of lab space and provided much of the equipment. The most significant change of all is the presence of warfighters participating in the scenario and the interoperability trials. Virtually non-existent

in previous JWID events outside of the Air Force, the main Canadian site was fully staffed with a NCE, a NDCC, and environmental representatives. This in turn allowed for a proper assessment. Having set the benchmark in JWID 03, CFEC now has the experience to review the requirements to run JWID and develop a template for the future. Specific recommendations for this template are provided further on in this section.

FUTURE STAFFING REQUIREMENTS

133. The following are recommendations based upon experience in JWID 02 and JWID 03 to improve the coordination and effectiveness of JWID in the future to maximize the benefits of the program for the CF. The purpose here is to provide a plan that will assist CFEC in its coordination role of the JWID for the CF community while maintaining a joint experimentation program.

134. Staffing requirements have been written based upon the following considerations:

- a. Experiences in JWID 02 and JWID 03;
- b. Level of effort observations collected in JWID 03, see Annex C;
- c. Level of effort mandated of CFEC for supporting JWID; and
- d. Level of activity expected of CFEC IOC staff.

CFEC was assigned to provide the JWID National Lead on behalf of the DCDS Group starting in APS 01. Up to that time the duty was a portion of one officer's annual effort. In addition to most of the annual effort of one officer, CFEC has recently been providing technical, scientific and administrative support. The result has been very good and the CF has benefited many times the additional CFEC investment.

135. Initial studies on the capability of the CFEC IOC manning indicated that only two major experimentation streams should be conducted with the three teams. CFEC now has three streams of activity; Multinational Experimentation, National ISR Experimentation and Joint Warrior Interoperability Demonstration. This has caused stresses on the organization and delayed development in other areas. Specifically, the JEC Project, the development of Battle Lab hardware and software, staffing, reporting on completed experiments, and the development of campaign plans. Since each stream is now a valuable activity, which CFEC would be reluctant to curtail, the best way to maintain the current pace would be to increase the level of contracted support in one of these streams. JWID is the least demanding stream but one that provides excellent value to the CF relative to the investment of effort and resources. Since it is an annual event with an experienced community in the department and has a well-established format, this activity places the lowest demand on CFEC's operators and scientists. It would be the

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easiest stream to augment with contractors and so free up some organic CFEC resources. The event can be maintained with an officer as the national lead, one scientist to assist with the CIT Coordination and lead the Coalition Assessment, together with some technical support.

136. It is recommended that the following persons should be required to support the JWID National Lead in future JWID events and would provide the skills and services needed to coordinate the events successfully.

- a. **Technical Lead** – As the technical authority for JWID execution, this person must be competent in the technical/engineering areas addressed in JWID but have sufficient military experience to manage the CPX, including the MSEL development. He/she would attend all planning conferences and meetings and be familiar with all CITs. The Technical Lead would report to the National Lead on all activities. These would include; central coordination for CITs, liaison with CFEC tech staff on Lab preparation, central coordination for MSEL development for all CA CITs, coordination for PR and Visitor Program, coordination of Training Week, and preparation of the National AAR. All CA staff leading or participating in CITs would coordinate with CFEC through the Technical Lead. Contractor or reserve officer, 26 weeks/year.
- b. **Scientific Lead** – Advises National Lead and Technical Lead on selection of CITs and CA ITs against JWID objectives to produce a coherent experiment that furthers national objectives. Responsible for the preparation of the Canadian contribution to the Coalition Assessment Plan. Attends selected conferences/meetings, supervises assessment plan development and assessment work by contracted analysts and writes the international assessments and the assessment report. Intermediate DS internal to CFEC (ideally DS-4), 10 to 12 weeks.
- c. **PR Coordinator** – Prepare the PR program and Visits program under the guidance of the National Lead and supervision of the Technical Lead. Contractor equivalent to AS4 or 5, 8 weeks.
- d. **Senior Trial Analyst** – Assists Lead Scientist with the development of the Coalition Assessment Plan. Attends all planning conferences and provides national contribution to the AWG's CIT review process, drafts CIT questionnaires for review by Lead Scientist and drafts CA contribution to the Coalition Assessment Plan. Observes and collects data during JWID, provides first level of data assessment, and drafts assessment reports on

individual CITs/NITs. Experience in Test and Evaluation of C2 technologies and a military background with experience in wargames, CPXs, and training exercises. Senior engineer contractor, 18 weeks.

- e. **Trial Analysts** – Assists Lead Scientist and Senior Trial Analyst during JWID execution. Observes and collects data, provides first level of data assessment and drafts assessment reports on individual trials. Total number TBD by Lead Analyst based upon the number and complexity of the trials. Intermediate engineer contractor, 8 weeks each.
- f. **Technicians** – Support in addition to available CFEC technical staff to meet JWID surge requirements may be needed. The Technical Lead should identify exact requirements by the MPC. Recommend any significant changes from the level of effort needed to support normal Core Services should be identified and be supported by trial proponents. Technicians should report to Technical Lead and CFEC Battle Lab Lead.

137. In addition to the resources described above, MSEL development must be coordinated so that all trials have well designed events that provide a stimulating event for the participants, a rigorous test for the technology and a relevant JWID. Hands-on MSEL development should be supported by one or more Canadian officers from units directly involved, or with a collateral interest, in JWID. Trial proponents should assist in this activity.

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EXAMPLE OF A DETAILED COALITION INTEROPERABILITY REPORT

**CIT 05.01
COALITION GEOSPATIAL INTELLIGENCE
REQUEST FOR INFORMATION (RFI) ENHANCEMENTS**

INTRODUCTION

This CIT was based on enhancements to the Geospatial Intelligence RFI process derived from JWID 02 (C2IT011). The Canadian J2 GICI was lead on CIT 05.01.

CIT 05.01 was in keeping with the JWID 2003 objectives to provide:

- solutions to improve information sharing between nations given requirement for Multi-level security, and
- methods to share Situational Awareness information with nations using the Coalition networks

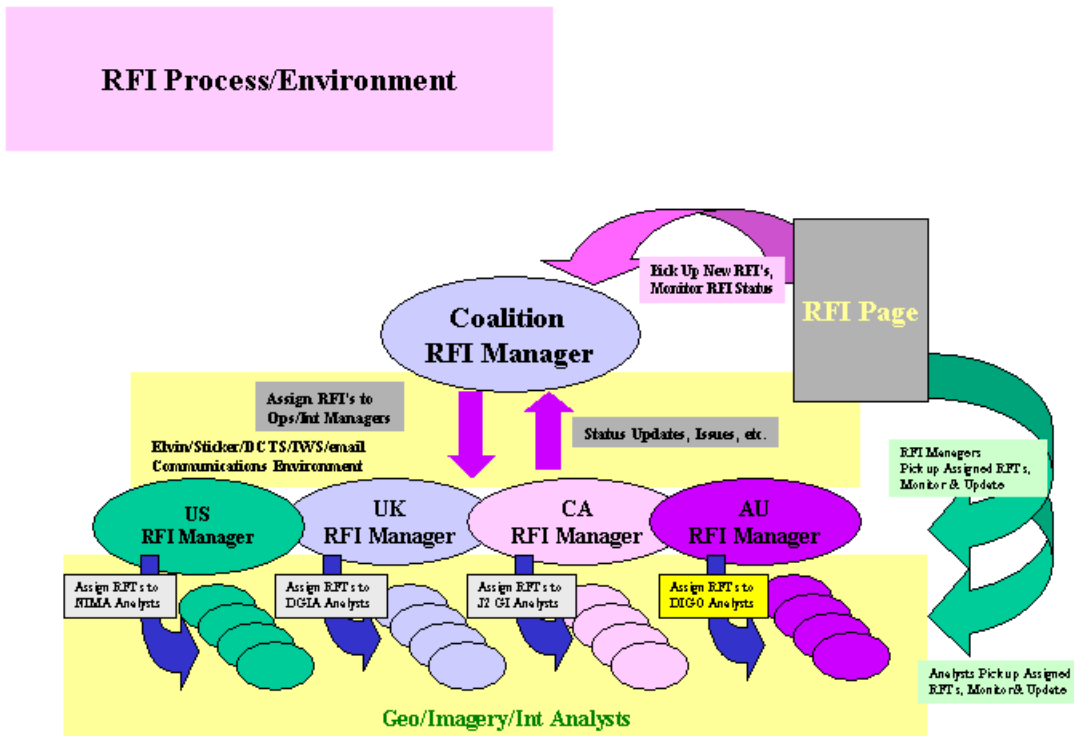


Figure A-0: RFI Process/Environment

The RFI tool often initiated activity for CIT 05.02, Coalition Geospatial Intelligence Services (CPIGS) which provided the warfighter with one place to access all imagery and geospatial information; CIT 05.03, Coalition Geospatial Intelligence Visualization tools which enabled the warfighter to view 3D terrain models; CIT 05.05, Netlink/Semscope Information routing service which would automatically deliver RFIs, without needing to visit multiple websites; CIT 05.06, Combined Geospatial Environment for Network-centric Tactical Awareness (COGENT) to provide common geospatial information for shared planning and execution; and CIT 05.08, Coalition Geospatial Intelligence Production Interoperability which co-produced special intelligence products by the coalition intelligence community.

The sponsor of this CIT expects that the RFI process will become a core service for JWID 2004.

PERFORMANCE

To test this RFI process, there were a total of 46 events, distributed over the first five days of play; these were repeated in the second week of the exercise. The events were allocated to Army, Navy, Air Force and Marine Corps players and JDCAT responses were elicited from players from Canada, Australia, New Zealand, and United States: NIMA, SPAWAR, PACOM, Hanscom AFB, and Dahlgren. The JDCAT questionnaire provided for 18 multiple-choice answers and two narrative responses. The two narrative responses are melded into the sections concerning the Warfighter Perspective, Warfighter Comments, and the Conclusions. The multiple choice results are summarized in the following tables.

Training for this tool was not provided in sufficient detail to the players prior to the exercise. Also, there was a lack of user material on the web and some did not find the application to be intuitive. However, the developer of this tool was the CIT Manager and he was available to assist players throughout the exercise. Once some initial communications issues were resolved, the players gained familiarity with the tool and processes through usage such that by the end of the exercise, 100% stated the process worked well and more than 85% of the responders recommended that the process be fielded for use. Indeed the system was so good that a number of responses examined the processes for real world use rather than as a way of expediting Geospatial service within JWID.

**TABLE A-
JDCAT RESPONSES TO SURVEY CIT 05.01 (YES/NO RESPONSE TYPE)**

| # | Questions | Week 1 17 Responses | | | | Week 2 15 Responses | | | |
|----|---|------------------------|----|-----|-------------------------|------------------------|----|-----|-------------------------|
| | | Yes | No | N/A | No Basis for Comparison | Yes | No | N/A | No Basis for Comparison |
| 1 | The RFI Site was available when I attempted to access it. | 15 | 1 | 1 | | 15 | | | |
| 3 | The logon and account creation within the RFI site was accessible. | 16 | | 1 | | 15 | | | |
| 4 | I was able to successfully create a user profile. | 16 | | 1 | | 15 | | | |
| 11 | Is this RFI process an improvement over previous processes? | 8 | 3 | | 6 | 10 | 1 | | 4 |
| 12 | Did the RFI enhancements allow you to complete your task in a more timely manner? | 14 | 1 | | 2 | 11 | 2 | 1 | 1 |
| 13 | Did the RFI process work well during JWID? | 15 | 2 | | | 15 | | | |
| 14 | Did the enhancements meet your expectation? | 14 | 1 | | 2 | 12 | 2 | | 1 |
| 15 | I feel that this CIT is within my area of expertise. | 16 | | 1 | | 15 | | | |
| 16 | The training that I received prior to JWID was sufficient to complete my tasks. | 7 | 9 | 1 | | 7 | 8 | | |
| 18 | Would you take this RFI process to the field today? | 11 | 6 | | | 13 | 2 | | |

**TABLE A-
JDCAT RESPONSES TO SURVEY CIT 05.01 (SCALED RESPONSE TYPE)**

| # | Questions | Week 1: 17 Responses | | | | | | |
|----|---|-------------------------|---------------------------------|-------------------|-------------------|------------|-------------------|-----|
| | | Fully Capable | Capable with Minor Deficiencies | Partially Capable | Severely Degraded | In capable | | |
| 2 | What is your opinion of this RFI? | 3 | 9 | 5 | | | | |
| # | Questions | Strongly Agree | Agree | Somewhat Agree | Somewhat Disagree | Disagree | Strongly Disagree | N/A |
| 5 | I found the RFI form to be functional with sufficient data fields | 1 | 7 | 5 | 2 | 1 | | 1 |
| 6 | The collaborative sessions were useful. | 3 | 5 | 6 | | | | |
| 7 | I could easily submit an RFI into the system. | 3 | 9 | 1 | 2 | | | 2 |
| 8 | I received timely notification that the RFI was accepted. | 3 | 7 | 2 | 4 | | | 1 |
| 9 | I was able to track status and any changes to the RFI at any time. | 1 | 11 | 1 | 2 | | | 2 |
| 10 | The information transfer of the received RFI was complete and error free. | 2 | 4 | 6 | 2 | | | 3 |
| 20 | The RFI site was easily accessible through the JWID portal. | 4 | 9 | 2 | | | 1 | 1 |

| # | Questions | Week 2: 15 Responses | | | | | | |
|----|---|-------------------------|---------------------------------|-------------------|-------------------|------------|-------------------|-----|
| | | Fully Capable | Capable with Minor Deficiencies | Partially Capable | Severely Degraded | In capable | | |
| 2 | What is your opinion of this RFI? | 8 | 6 | 1 | | | | |
| # | Questions | Strongly Agree | Agree | Somewhat Agree | Somewhat Disagree | Disagree | Strongly Disagree | N/A |
| 5 | I found the RFI form to be functional with sufficient data fields | 2 | 11 | 1 | | | | 1 |
| 6 | The collaborative sessions were useful. | 1 | 7 | 1 | | 1 | | 5 |
| 7 | I could easily submit an RFI into the system. | 3 | 10 | 1 | | | | 1 |
| 8 | I received timely notification that the RFI was accepted. | 2 | 7 | 2 | 2 | 1 | | 1 |
| 9 | I was able to track status and any changes to the RFI at any time. | 3 | 10 | 1 | | 1 | | |
| 10 | The information transfer of the received RFI was complete and error free. | 3 | 8 | | 2 | | | 2 |
| 20 | The RFI site was easily accessible through the JWID portal. | 5 | 9 | | 1 | | | |

CAPABILITIES/FINDINGS

This CIT had three capabilities that were assessed.

- **First capability:** *Provide a common interface to the warfighter to submit an RFI to all coalition Geospatial Intelligence partners.* As can be noted in the foregoing tables, 100% of the players were able to easily submit RFIs using the process by end of week two.
- **Second capability:** *Provide the warfighter with feed back during the RFI process.* As can be noted in the foregoing tables, most players were able to monitor progress of the RFI using the “sticker” and e-mail notification. The reason a few players were not able to monitor the process was due to lack of training/information. Only the New Zealand players were unable to access the products requested; this was due to limited bandwidth. Several players commented that information provided was “canned” and not always what was requested. However, one must be cognizant of the condensed timeframes and limitations imposed on the intelligence agencies by the exercise.
- **Third capability:** *Enable the Geospatial Intelligence community to coordinate between nations and organizations.* The role of RFI Manager was traded amongst American, British, Australian and Canadian players on a daily basis. These managers in turn directed RFIs to all national intelligence agencies playing JWID 03.

WARFIGHTER PERSPECTIVE

The warfighter comments and the responses to the JDCAT questionnaires were positive and indicated clearly that the RFI tool performed the intended functions well and was easy to use. There were 17 respondents in Week 1 and 15 in Week 2, sufficient numbers to place confidence in the returns given that the responses were all fairly positive except for question 16 on training. Warfighters provided a number of good suggestions for improvements and changes. This showed the participants saw potential for more development, but overall still approved of this CIT.

WARFIGHTER COMMENTS

The following comments from warfighters (users) tend to support the findings indicated in the capabilities/findings section.

- I think it is a great tool to augment the coalition based information sharing and mission accomplishment.
- Sticker kept me up to date.... also an e-mail was sent with updated information... I could also go to the ICECAP website.
- This exercise only provided canned responses, therefore difficult to comment meaningfully. Seemed to work.
- OK No problems.... Excellent.....easy to use, even for someone with as little experience as I.
- It may hold future promise but is not ready for practical use in the fleet.
- As it exists today, in the real world, fragmented. As envisioned by the RFI Manager being tested, nice.
- The JWID RFI process was somewhat unrealistic. In reality, the chain of command would be followed. So units (LCC, ACC, MCC) would fwd RFI to NCE who would send it to NDCC. NDCC would send it to the best organisation to answer it. Units/NCE would not go directly to J2 Geomatics. In other words, submit their own RFIs on the ICECAP.
- Good application that support the process.

CONCLUSIONS

CIT 05.01 was a success. The RFI process and associated Geospatial Intelligence Services were used extensively throughout the exercise play. However, there is a need for better training prior to using the tool; there should be a user manual/help file incorporated into the application. Valuable feedback was provided on features to further improve the tool/process.

RECOMMENDATIONS

This RFI manager should be implemented as a core service to support all INT and GEO requests and be established for the use of operational commands to task resources at all levels and agencies. As pointed out in the comments below, however, the sponsor of this CIT should review the warfighter feedback, as there were specific recommendations for enhancements. The RFI tool is multilingual for data entry; however, operators might need a tool to do translations if the requests come from other nations.

The following are comments/recommendations of warfighters concerning the RFI tool/process.

- This RFI process can facilitate the information needed to accept or forward a request based on the requirement and resources available. This is the most versatile and solid solution available.
- With improvements it would be a very useful tool.
- The RFI process works well. However it needs some changes to make it work effectively.
- This RFI Manager, associated sticker and Outlook Express news group capability is a great improvement over what exists in the field today. FIELD IT NOW.
- Solid software. Easily adopted by users in the JWID GI community. We should insert it into the standard business practices ASAP.

DATA COLLECTION CHARTS

This annex provides templates and examples of the various forms used for the data collection in JWID 03. Table B-I shows a template of the daily form completed for the interoperability assessment. This form was filled in and submitted to the US at the end of each day. It identifies the progress and status of the interoperability assessment for each CIT that took place in Canada. Tables B-II to B-IV represent three tabs in an Excel spreadsheet that each CIT had to complete in order to participate in JWID 03. The input, output and process-procedures provided were then verified during the execution of the event. Tables B-V and B-VI provide an example of the spreadsheet used to determine which MSELs were occurring at various times along with the CITs and warfighters involved. Finally, Table B-VII displays the questions for CIT 05.01 as an example of the questionnaires from JWID 03.

TABLE B-
TEMPLATE OF DAILY INTEROPERABILITY FORM

| CIT NUMBER | CIT NAME | CANADA | | | |
|------------|--|---------|-------------|----------|-----|
| | | Pending | In-progress | Complete | N/A |
| CIT01.01 | DISSEMINATE | | | | |
| CIT01.03 | Collaboration Guard | | | | |
| CIT01.04 | TrustLogic | | | | |
| CIT01.06 | Defense Collaborating Tool Suite (DCTS) Role Based Security | | | | |
| CIT01.08 | Guarded Sharing of Information with XML (GSIX) | | | | |
| CIT01.09 | NORCCIS II Cross-domain Data Transfer and Access | | | | |
| CIT02.02 | US GCCS COP with NATO Bi-SC AIS and other National C2 Systems | | | | |
| CIT02.03 | US GCCS COP with Australian | | | | |
| CIT02.04 | US GCCS COP with CA GCCS-M | | | | |
| CIT02.05 | (GCCS-COP) with New Zealand (NZ) GCCS-M | | | | |
| CIT02.06 | (GCCS-COP) with United Kingdom (UK) | | | | |
| CIT02.09 | Coalition Blue Force Tracking | | | | |
| CIT03.01 | Language Translation Systems | | | | |
| CIT03.02 | Joint Document and Media Exploitation Capability Translation Assistance Tool (J-TAT) | | | | |
| CIT03.03 | Bi-directional Korean Machine Translation Strategic Tool Suite | | | | |
| CIT03.04 | Defense Collaboration Tool Suite (DCTS) Streaming Server | | | | |
| CIT03.05 | Defense Collaboration Tool Suite (DCTS) VTC End Point | | | | |
| CIT03.06 | Voice Language Translation Services (Voice LTS) | | | | |

| CIT NUMBER | CIT NAME | CANADA | | | |
|--------------|---|---------|-------------|----------|-----|
| | | Pending | In-progress | Complete | N/A |
| CIT05.01 | Geospatial Intelligence Request for Information (RFI) Management Enhancements | | | | |
| CIT05.02 | CPIGS Multi-Source Extensions | | | | |
| CIT05.03 | Coalition Geospatial Intelligence (GI) Visualization Tools | | | | |
| CIT05.05 | Netlink/NeoQuest Information Routing Service | | | | |
| CIT05.06 | Network-centric Tactical Awareness (COGENT-Awareness 02-03) | | | | |
| CIT05.08 | Coalition Geospatial Intelligence Production Interoperability | | | | |
| CIT06.01 | Directory Services and Military Messaging Trials | | | | |
| CIT06.02 | PKI Express | | | | |
| CIT07.01 | Coalition - Information Assurance Common Operational Picture | | | | |
| CIT07.02 | Secure Multi-Domain Network Management (SE-MDNM) | | | | |
| CIT07.03 | Peakflow | | | | |
| CIT07.09 | Search Box: Network information search utility | | | | |
| CIT07.10 | DISA GCCS GEMS Situational Awareness Capability | | | | |
| CIT07.11 | NetScout | | | | |
| CIT07.12 | IA-CND | | | | |
| CIT08.03 | Canadian (CA) Air Tasking Order (ATO)/ ACO Extendible Markup Language (XML) Browser | | | | |
| CIT08.05 | Canadian (CA) Wing and Squadron Planner (WASP) | | | | |
| CIT08.08 | Info Translation between aircrew mission planning systems | | | | |
| CIT09.01 | Coalition Warfare Program (CWP) | | | | |
| CIT09.06 | Expand Networks Accelerators | | | | |
| CIT09.07 | AUSCANNZUKUS Multinational Naval Task Group (MNTG) | | | | |
| CIT09.08 | AltiGEN-AltiServ OfficePlus with Alti-IP 600 Phone | | | | |
| CIT09.09 | Artillery Interoperability based on ASCA | | | | |
| CIT09.13 | Coalition Satellite Broadcast System Architecture | | | | |
| CIT STATUS: | | | | | |
| SITE STATUS: | | | | | |

TABLE B-
 TEMPLATE FOR INPUT DATA

| Survey Question | UJTL # (Universal Joint Task List) | Data Product Type | Data Product Format | Data Transfer Method | How will your CIT use this data? | Data Source | Will this interface be simulated during JWID Execution? | Capability Demonstrated | Associated MSELs | Witnessed Product Transfer? |
|---|---|-------------------------|---------------------------|----------------------------|--|----------------|---|----------------------------|---------------------|-----------------------------------|
| <u>During JWID Execution</u> , will your system perform processing on data that is received from an external source (i.e. database, other system)? (Yes/No) | | | | | | | | | | |
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TABLE B-
TEMPLATE FOR OUTPUT DATA

| Survey Question | UJTL # (Universal Joint Task List) | Data Product Type | Data Product Format | Data Transfer Method | How will the data be used by the receiving system? | Receiving system | Will this interface be simulated during JWID Execution? | Capability Demonstrated | Associated MSELs | Witnessed Product Transfer? |
|---|---|-------------------------|---------------------------|----------------------------|--|---------------------|---|----------------------------|---------------------|-----------------------------------|
| <u>During JWID Execution</u> , will your system provide data to other systems and/or CITs that will use that data as input to their internal processing (i.e. database updates, message generation, imagery, etc.) or viewed by the JTF Staff? (Yes/No) | | | | | | | | | | |
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TABLE B-
TEMPLATE FOR PROCESS-PROCEDURES

| PROCESS/PROCEDURE DESCRIPTIONS | | | | |
|---|--|---|--|---|
| This sheet should be completed by all CITs that participate in JWID. The purpose of this sheet is to further define the capabilities, interfaces and processes that will be demonstrated and/or tested during the JWID Execution. This document should be completed in outline format that identifies the high level activities associated with your CIT. | | | | |
| Capability/Test Procedure Name: | | | | |
| Objective: | | | | |
| Interface: | | | | |
| Data Type and Format: | | | | |
| Description: | | | | |
| STEP # | Action to be taken | Expected Results | JWID Objective Reference | Observations/Comments |
| Enter step number | Identify the action to be taken by the warfighter/test engineer in this step | Identify the expected results from this step. | Identify the JWID objective this step satisfies. | Enter any observations, comments or problems encountered here (to be completed by the warfighter or test engineer). |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Please copy and paste additional steps as required to identify all of the capabilities to be demonstrated or test procedures to be executed that are associated with your

**TABLE B-
EXAMPLE OF SCHEDULE BY MSEL AND CIT**

| Schedule | | MSEL | Scenario Event | COALITION INTEROPERABILITY TRIALS | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|------|----------------------------|---|-----------------------------------|------|------|------|------|--------|------|------|------|------|------|------|------|------|------|------|------|--------|--------|--------|--------|------|------|------|--------|------|
| Day | Hour | Master Scenario Event List | | Battle Rhythm | 1.03 | 1.04 | 1.06 | 2.04 | 2.09 * | 3.01 | 3.04 | 3.05 | 5.01 | 5.02 | 5.03 | 5.05 | 5.06 | 5.08 | 6.01 | 6.02 | 7.01 * | 7.09 * | 7.11 * | 7.12 * | 8.03 | 8.05 | 9.01 | 9.06 * | 9.07 |
| 1 | 1600 | 104 | DCP session between CA ACC and all Canadian Squadrons | | | | | | | X | | | | | | | | | | | | | | | X | X | | | |
| 1 | 1600 | 976 | CFLCC Commander issues warning order to subordinate commanders for conduct of Peace Keeping Operations in South Tindoro Island in the vicinity of the Fingal Enclave | X | | | | | X | | | | | | | | | | | | | | | | | | | | |
| 1 | 1600 | 1440 | Role Players who will submit RFIs during the JWID scenario, log-in to RFI site and create accounts | | | | | | | | | X | | | | | | | | | | | | | | | | | |
| 1 | 1601 | 1127 | IAW Maritime Campaign plan CTG posts MNTG Plan of the Day (POD) to MNTG Website. Tasked MNTG units downloads POD and e-mail | | | | | | | | | | | | | | | | | | | | | | | | | X | |
| 1 | 1615 | 1 | Commander, Multinational Task Force (CMTF) Tindoro Planning conference session with Component Commanders | X | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1615 | 427 | CA Bde establishes liaison with GE Bn and UK CDO Bde on taking up TAORs in ISB Gastonia | | | | | | X | | | | | | | | | | | | | | | | | | | | |
| 1 | 1630 | 55 | MTF/Components search CPIGS for geospatial intelligence products to support NEO planning for NEO operations Hobart 425300S, 1472000E. This also includes sending a SEMANDEX query. MTF then submits an RFI for additional Geospatial Intelligence Information | | | | | | | | | X | X | | X | | | | | | | | | | | | | | |
| 1 | 1640 | 294 | Commander CA National Command Element (NCE) holds DCP with CA LCC, CA MCC, and CA ACC | X | | | | | | X | | | | | | | | | | | | | | | | | | | |
| 1 | 1645 | 1232 | All MNTG provide operational status to CTG MNTG via webpage. CTG MNTG will query specific details with individual MNTG units as required via encrypted e-mail | | | | | | | | | | | | | | | | X | | | | | | | | | | X |
| 1 | 1700 | 3 | Land Component Commander (CFLCC) conducts DCP session with subordinate land formations and units - Commanders Intent and Subordinate backbrief | X | X | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1700 | 142 | Pull XML ATO & ACO from Dahlgren | | | | | | | | | | | | | | | | | | | | | | X | X | | | |
| 1 | 1700 | 422 | CA NCE J4 staff conduct liaison with MTF and other nation logistics staff to coordinate host nation and logistics support | | | | | | | | | | | | | | | | X | | | | | | | | | | |
| 1 | 1700 | 516 | Squadron Commanders will return to conference room to review recorded session from earlier meeting | | | | | | | X | | | | | | | | | | | | | | | X | X | | | |
| 1 | 1700 | 1238 | CTG MNTG accesses latest ATO/ACO and posts on Domino. CTG advises MNTG units that ATO/ACO is available for review | | | | | | | | | | | | | | | | | | | | | | | | | | X |
| 1 | 1709 | 1005 | NZ Bn sends an RFI for 3-D visualization graphic and terrain analysis of key built up areas and imagery to support deployment into South Tindoro | | | | | | | | | X | X | X | X | X | | | | | | | | | | | | | |
| 1 | 1715 | 23 | CFACC conducts DCP session; receiving daily operational status briefing from subordinate elements | X | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1715 | 1233 | CTG MNTG promulgates outline replenishment plan via webpage for MNTG units to input their bids. MNTG units forward bids via e-mail. CTG to promulgate final plan on MNTG website (separate MSEL event) | | | | | | | | | | | | | | | | X | X | | | | | | | | | X |

**TABLE B-
EXAMPLE OF SCHEDULE BY MSEL AND WARFIGHTER**

| Schedule | | MSEL | JOG | | | | | | J2 GI | NDCC | | | | NAVY | | ARMY | | AIR FORCE | | | | | | | |
|----------|------|----------------------------|-------------|--------------|-----------|-----------|---------------|--------------|-------------|--------------|---------------|------------|-----------------|----------|---------------|---------------|--------------|----------------|-----------------|-----------------|--------|---------------|----------------|---------------|----------------|
| Day | Hour | Master Scenario Event List | CA NCE Comd | CA NCE J1/J4 | CA NCE J2 | CA NCE J3 | CA NCE J3 Ops | CA NCE Watch | RFI Manager | GI Analyst 1 | CA NDCC Watch | NDCC Ops 1 | NDCC IM Manager | NDCC SWO | CA NDCC Int 1 | HMCS Coalcomb | HMCS Renfrew | CA Bde Comd G3 | CANBAT 1 CO/Ops | CANBAT 2 CO/Ops | CA ACC | CA 407 Sqn CO | CA 407 Sqn Ops | CA 419 Sqn CO | CA 419 Sqn Ops |
| 1 | 1600 | 104 | | | | | | | | | | | | | | | | | | | | X | X | | ? |
| 1 | 1600 | 976 | | | | | | | | | | | | | | | | X | | | | | | | |
| 1 | 1600 | 1440 | | X | X | | | | | | | | | X | | | X | X | | | | | | | |
| 1 | 1601 | 1127 | | | | | | | | | | | | | X | X | | | | | | | | | |
| 1 | 1615 | 1 | X | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1615 | 427 | | | | | | | | | | | | | | | | X | | | | | | | |
| 1 | 1630 | 55 | | | | | | | X | | | | | | | | | | | | | | | | |
| 1 | 1640 | 294 | X | | | X | | | | | | | | | | | X | | | | X | | | | |
| 1 | 1645 | 1232 | | | | | | | | | | | | | X | X | | | | | | | | | |
| 1 | 1700 | 3 | | | | | | | | | | | | | | | X | | | | | | | | |
| 1 | 1700 | 142 | | | | X | | | | | | | | | | | | | | | X | | X | | X |
| 1 | 1700 | 422 | | X | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1700 | 516 | | | | | | | | | | | | | | | | | | | X | | X | | X |
| 1 | 1700 | 1238 | | | | | | | | | | | | | X | X | | | | | | | | | |
| 1 | 1709 | 1005 | | | | | | | X | | | | | | | | | | | | | | | | |
| 1 | 1715 | 23 | | | | | | | | | | | | | | | | | | | X | | | | |
| 1 | 1715 | 1233 | | | | | | | | | | | | | X | X | | | | | | | | | |

For Table B-VII, in addition to the response options shown below, comments are requested in all of the questions to explain replies such as Yes, No, Agree, etc.

TABLE B-VII
JDCAT SURVEY QUESTIONS FOR CIT 05.01

| # | Questions | Responses | | | |
|----|---|-----------|----|-----|-------------------------|
| | | YES | No | N/A | No Basis for Comparison |
| 1 | The RFI Site was available when I attempted to access it. | | | | |
| 3 | The logon and account creation within the RFI site was accessible. | | | | |
| 4 | I was able to successfully create a user profile. | | | | |
| 11 | Is this RFI process an improvement over previous processes? | | | | |
| 12 | Did the RFI enhancements allow you to complete your task in a more timely manner? | | | | |
| 13 | Did the RFI process work well during JWID? | | | | |
| 14 | Did the enhancements meet your expectation? | | | | |
| 15 | I feel that this CIT is within my area of expertise. | | | | |
| 16 | The training that I received prior to JWID was sufficient to complete my tasks. | | | | |
| 18 | Would you take this RFI process to the field today? | | | | |

TABLE B-VII (CONTINUED)

| # | QUESTIONS | RESPONSES | | | | | | |
|----|---|----------------|----------------------|-------------------|-------------------|-----------|-------------------|-----|
| | | Fully Capable | Capable ² | Partially Capable | Severely Degraded | Incapable | | |
| 2 | What is your opinion of this RFI? | | | | | | | |
| | | Strongly Agree | Agree | Somewhat Agree | Somewhat Disagree | Disagree | Strongly Disagree | N/A |
| 5 | I found the RFI form to be functional with sufficient data fields. | | | | | | | |
| 6 | The collaborative sessions were useful. | | | | | | | |
| 7 | I could easily submit an RFI into the system. | | | | | | | |
| 8 | I received timely notification that the RFI was accepted. | | | | | | | |
| 9 | I was able to track status and any changes to the RFI at any time. | | | | | | | |
| 10 | The information transfer of the received RFI was complete and error free. | | | | | | | |
| 20 | The RFI site was easily accessible through the JWID portal. | | | | | | | |
| | | REPLY | | | | | | |
| 17 | What additional improvements would you like to see in the RFI process? | | | | | | | |
| 19 | What is your overall opinion of the RFI process? | | | | | | | |

² Capable with Minor Deficiencies

LEVEL OF EFFORT DATA

This is the data collection matrix used to record the level of effort to plan and execute JWID 03. Not all of the efforts put toward planning JWID 03 were captured. This was due to the movements of participants to different sites during JWID and the annual posting cycle. As such, estimates from this table will be conservative and the authors should be consulted for advice.

**TABLE C-1
LEVEL OF EFFORT DATA FOR JWID 03**

| ORG | Role | Position | Activities | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-----------------|-----------------------|------------|---------|-----|------|-----|------|-----|------|------|------|--------|---------|----------|---------|---------|---------|---------|---------|------|---------|-------|----|--|-----|----|
| | | | CF | JWID | CF | JWID | CF | JWID | CF | JWID | MSEL | Prep | Prelim | Ex Wk 1 | Ex Wk 2 | Ex Wk 3 | Ex Wk 4 | CF | JWID | Reports | Tear | Assmnts | Total | | | | |
| COORDINATION/ | | | Concept | Concept | IPC | IPC | MPC | MPC | FPC | FPC | | | Week | Set up | Training | Play | Play | Hotwash | Hotwash | | Down | | | | | | |
| TECHNICAL SUPPORT | | | Develop | Develop | | | | | | | | | | | | | | | | | | | | | | | |
| CFEC | Project Coord | Major | 1 | 5 | 3 | 5 | 3 | 5 | 3 | 5 | | 95 | 5 | 5 | 5 | 5 | 5 | 2 | 5 | | | | | | | 157 | |
| | Technical Coord | Maj | | | 1 | 5 | 1 | 5 | 1 | 5 | | 5 | 5 | 5 | 5 | 5 | 5 | | 1 | | | | | | | 49 | |
| | IT Tech | CS 3 | | | | | | | | | | 5 | 5 | 5 | 5 | 5 | 5 | | | | 10 | | | | | 40 | |
| | OR/CIT Coord | Senior Analyst (DS) | | | | | | | | 2 | | | | 5 | 5 | 5 | 5 | 1 | | | | | | 15 | | 38 | |
| | | Analyst (DS) | | | | | 6 | 1 | 2 | | 25 | | | 5 | 6 | 6 | 6 | 1 | | 30 | | | | 15 | | 103 | |
| | | Contractor (Observer) | | | | | | | | | | | | 2 | 5 | 5 | 5 | 1 | | | | | | 21 | | 39 | |
| | | Contractor (Observer) | | | | | | | | | | | | | 5 | 5 | 5 | 1 | | | | | | 21 | | 37 | |
| | Special Project | Contractor (Analyst) | | | | | | | | | | | | | | | | | | | | | | | | 0 | |
| | | Senior Analyst (DS) | | | | | | | | | | | | | 5 | 5 | 5 | | | | | | | | | 15 | |
| | LO UK | Analyst (DS) | | | | | | | | | | | | | 5 | 7 | | | | | | | | | | 12 | |
| | LO Australia | Analyst (DS) | | | | | | | | | | | | | 5 | 7 | | | | | | | | | | 12 | |
| | Adm Sp | Warrant Officer | | | | | | | | | | 5 | 2 | 2 | 2 | 2 | 2 | | | | | | | | | 15 | |
| IM Group | IT Tech | Contractor (Senior) | | | 1 | 5 | 1 | 5 | 1 | 5 | | 5 | 5 | 5 | 5 | 5 | 5 | | | | | | | | | 48 | |
| | | Maj | | | 1 | 5 | 1 | 5 | 1 | 5 | | | | 2 | 2 | 2 | 2 | | | | | | | | | 26 | |
| | | Eng | | | 1 | 5 | 1 | 5 | 1 | 5 | | | | 5 | 5 | 5 | 5 | | | | | | | | | 38 | |
| CFIOG | Security | Captain | | | 1 | 5 | 1 | 5 | 1 | 5 | | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | | | | | | | | | 33 | |
| JWID WARFIGHTERS/NATIONAL PLAYERS | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NDCC | NDCC | Captain | | | | | | | | | | | | | 5 | 5 | 5 | 1 | | | | | | | | | 16 |
| | Observer (USA) | CWO4 | | | | | | | | | | | | | 5 | 5 | 5 | | | | | | | | | | 15 |
| | | Sgt | | | | | | | | | | | | | 5 | 5 | 5 | | | | | | | | | | 15 |
| | | Sgt | | | | | | | | | | | | | 5 | 5 | 5 | | | | | | | | | | 15 |
| | | Contractor | | | | | | | | | | | | | 5 | 5 | 5 | 1 | | | | | | | | | 16 |
| | | PO | | | | | | | | | | | | | 5 | 5 | 5 | | | | | | | | | | 15 |
| JOG | Comd | Maj | | | | | | | | | | | | | 5 | 5 | 5 | 1 | | | | | | | | | 16 |
| | J2 | Capt | | | | | | | | | | | | | 5 | 5 | 5 | | | | | | | | | | 15 |
| | J3 | Maj | | | | | | | | | | | | | 5 | 5 | 5 | | | | | | | | | | 15 |
| | J3 Ops/DutyOff | Lt | | | | | | | | | | | | | 5 | 5 | | | | | | | | | | | 10 |
| | J4 | Capt | | | | | | | | | | | | | 5 | 5 | 5 | | | | | | | | | | 15 |
| | J6 | Lt(N) | | | | | | | | | | | | | 5 | 5 | 5 | | | | | | | | | | 15 |
| | Observer (USA) | LCol | | | | | | | | | | | | | 5 | 5 | | | | | | | | | | | 10 |
| | | Maj | | | | | 1 | 5 | 1 | 5 | 10 | | | | | | | | | | | | | | | | 22 |

| ORG | Role | Position | Activities | CF | JWID | CF | JWID | CF | JWID | CF | JWID | MSEL | Prep | Prelim | Ex Wk 1 | Ex Wk 2 | Ex Wk 3 | Ex Wk 4 | CF | JWID | Reports | Tear | Assmnts | Total | | | | | | | | | | | | | | | | | | | | | | |
|--|----------------|--------------------------|------------|---------|---------|-----|------|-----|------|-----|------|------|------|--------|---------|----------|---------|---------|---------|---------|---------|------|---------|-------|----|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|-----|
| | | | | Concept | Concept | IPC | IPC | MPC | MPC | FPC | FPC | | | Week | Set up | Training | Play | Play | Hotwash | Hotwash | | Down | | | | | | | | | | | | | | | | | | | | | | | | |
| COORDINATION/ TECHNICALS SUPPORT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Army | Comd | Maj | | | | | | | | | | | | | | 5 | 5 | 5 | 1 | | | | | | 16 | | | | | | | | | | | | | | | | | | | | | |
| Airforce | Ottawa | Maj | | | 1 | 5 | 1 | 5 | 1 | 5 | | | | | | | 5 | 5 | | | | 3 | | | 31 | | | | | | | | | | | | | | | | | | | | | |
| | | Maj | | | | | | | | | | | | | 5 | 5 | | | 1 | | | | | | 26 | | | | | | | | | | | | | | | | | | | | | |
| | | Capt | | | | 5 | 1 | 5 | 1 | 5 | | | | | 5 | | | | | | | | 10 | | 82 | | | | | | | | | | | | | | | | | | | | | |
| | | Sgt | | | | | | | | | | | | | | | 5 | 5 | | | | | | | 10 | | | | | | | | | | | | | | | | | | | | | |
| | | MCpl | | | | | | | | | | | | | | | 5 | 5 | | | | | | | 10 | | | | | | | | | | | | | | | | | | | | | |
| | | MCpl | | | | | | | | | | | | | 5 | 5 | | | | | | | | | 10 | | | | | | | | | | | | | | | | | | | | | |
| | Observer USA | LCol | | | | | | | | | | | | | | | 5 | 5 | | | | | | | 10 | | | | | | | | | | | | | | | | | | | | | |
| | Observer RAF | Sqn Ldr | | | | | | | | | | | | | | | | 5 | 5 | | | | | | 10 | | | | | | | | | | | | | | | | | | | | | |
| | Hanscom AFB | Maj | | | | | | | | | | | | | | | 5 | 5 | | | | | | | 10 | | | | | | | | | | | | | | | | | | | | | |
| | | Maj | | | | | | | | | | | | | | 5 | | | | | | | | | 5 | | | | | | | | | | | | | | | | | | | | | |
| | | Capt | | | | | | | | | | | | | 5 | 5 | 5 | 5 | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | | |
| | | 2 Lt | | | | | | | | | | | | | 5 | 5 | | | | | | | | | 10 | | | | | | | | | | | | | | | | | | | | | |
| | | Sgt | | | | | | | | | | | | | 5 | 5 | | | | | | | | | 10 | | | | | | | | | | | | | | | | | | | | | |
| | | MCpl | | | | | | | | | | | | | | | 5 | 5 | | | | | | | 10 | | | | | | | | | | | | | | | | | | | | | |
| | SHAPE | Maj | | | | | | | | | | | | | 5 | | | | | | | | | | 5 | | | | | | | | | | | | | | | | | | | | | |
| | N.B. 16 hour d | Capt | | | | | | | | | | | | | | 5 | 5 | 5 | 5 | | | | | | 15 | | | | | | | | | | | | | | | | | | | | | |
| | | MCpl | | | | | | | | | | | | | 5 | 5 | | | | | | | | | | 10 | | | | | | | | | | | | | | | | | | | | |
| | N.B. 16 hour d | Contractor | | | | | | | | | 5 | | | | | | | 5 | 5 | | | | | | | 15 | | | | | | | | | | | | | | | | | | | | |
| | CFB Winnipeg | Capt | | | | | | | | | | | | | 5 | 5 | 5 | 5 | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | |
| | | Contractor | | | | | | | | | | | 10 | | 5 | 5 | 5 | 5 | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | |
| | | Contractor | | | | | | | | | | | 10 | | 5 | 5 | | | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | |
| | CFB Valcartier | Maj | | | | | | | | | | | | | 20 | 5 | 5 | 5 | 5 | | | | | | | 40 | | | | | | | | | | | | | | | | | | | | |
| | | 2 Lt | | | | | | | | | | 10 | | | | | 5 | 5 | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | |
| | | CS | | | | | | | | | | | 20 | | 5 | 5 | 5 | 5 | | | | | | | | 40 | | | | | | | | | | | | | | | | | | | | |
| Navy | | Lead (Lt(N)) | | | | | | 1 | 5 | 1 | 5 | | | | | 5 | 5 | 5 | 5 | | | | | | | 27 | | | | | | | | | | | | | | | | | | | | |
| | | Lt(N) | | | | | | | | | | | | | 5 | 5 | 5 | 5 | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | |
| | | Lt(N) | | | | | | | | | | | | | 5 | 5 | 5 | 5 | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | |
| | | PO1 | | | | | | | | | | | | | 5 | 5 | 5 | 5 | | | | | | | | 20 | | | | | | | | | | | | | | | | | | | | |
| COP 21 | | LCdr | | | 1 | 5 | 1 | 5 | 1 | 5 | | | | | | | | | 5 | | | | | | | 23 | | | | | | | | | | | | | | | | | | | | |
| J2GIS | | Senior Tech | | | 1 | 5 | 1 | 5 | 1 | 5 | | 10 | 5 | 5 | 5 | 5 | 5 | 5 | 1 | | | | | | | 59 | | | | | | | | | | | | | | | | | | | | |
| | | Tech | | | | 5 | | 5 | | 5 | | | | | | 5 | 5 | 5 | 1 | | | | | | | 31 | | | | | | | | | | | | | | | | | | | | |
| | | Senior Engr | | | | 5 | | 5 | | 5 | | | | | | 5 | 5 | 5 | | | | | | | | 30 | | | | | | | | | | | | | | | | | | | | |
| CFCS | D PD | Lead (Maj) | | | 1 | 5 | 1 | 5 | 1 | 5 | | | | | 5 | 5 | 5 | 5 | 1 | | | | | | | 39 | | | | | | | | | | | | | | | | | | | | |
| | DCTS SME | Contractor (Senior Tech) | | | 1 | 5 | 1 | 5 | 1 | 5 | | | | | 5 | 5 | 5 | 5 | | | | | | | | 38 | | | | | | | | | | | | | | | | | | | | |
| | IT Tech Mgr | Contractor (Tech) | | | | | | | | | | | | | | 5 | 5 | 5 | | | | | | | | 15 | | | | | | | | | | | | | | | | | | | | |
| | | Contractor (Tech) | | | | | | | | | | | | | | 5 | 5 | 5 | | | | | | | | 15 | | | | | | | | | | | | | | | | | | | | |
| | GCCS III SME | Contractor (Senior Engr) | | | 1 | 5 | 1 | 5 | 1 | 5 | | | | | 5 | 5 | 5 | 5 | | | | | | | | 38 | | | | | | | | | | | | | | | | | | | | |
| Total Number of person days engaged in JWID 03 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 860 |

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This report documents the process, observations and results of the Canadian assessment of interoperability trials during the 2003 Joint Warrior Interoperability Demonstration. This was a three week event conducted in June 2003 in which the Canadian Forces hosted and coordinated 25 interoperability trials within a Coalition framework over the Combined Federated Battle Lab network. Recommendations are made for the conduct of future JWID events.

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