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IN REPLY  
REFER To:

JITC Washington Operations  
Division (JTC)

Ser JTCB/072  
10 July 2003

MEMORANDUM FOR DISTRIBUTION

SUBJECT: InfoWorkSpace (IWS) Version 2.5.1 Collaboration Interoperability Evaluation Report

1. The enclosed test report documents the results of the InfoWorkSpace (IWS) Version 2.5.1 evaluation in support of the Department of Defense Collaboration Interoperability Certification Testing Program. This report provides a complete analysis of the test results.
2. During interoperability testing (see enclosure 1), IWS demonstrated that it satisfies all critical interoperability requirements via IWS and/or the Defense Collaboration Tool Suite (DCTS) reference client(s).
3. The Joint Interoperability Test Command (JITC) conducted an interoperability evaluation of IWS in the DCTS test bed (Laboratory Environment) at the JITC, from 5 May through 6 June 2003.
4. The JITC point of contact is Mr. John Socher, JITC Washington Operation Division, DSN 354-2663, commercial (301) 744-2663. His E-mail address is [socherj@ncr.disa.mil](mailto:socherj@ncr.disa.mil).

FOR THE COMMANDER:

A handwritten signature in black ink, appearing to read "Michael P. Mangan".

1 Enclosure a/s

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**DEFENSE INFORMATION SYSTEMS AGENCY**

**JOINT INTEROPERABILITY TEST COMMAND  
WASHINGTON OPERATIONS DIVISION  
INDIAN HEAD, MARYLAND**



**INFOWORKSPACE  
VERSION 2.5.1  
COLLABORATION  
INTEROPERABILITY  
EVALUATION  
REPORT**

**DOC NR: 3M14.007  
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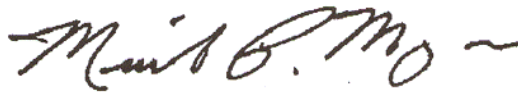
**INFOWORKSPACE  
VERSION 2.5.1  
COLLABORATION  
INTEROPERABILITY  
EVALUATION  
REPORT**

**JUNE 2003**

**Submitted by:**

**Gary M. Metcalf  
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## EXECUTIVE SUMMARY

The Department of Defense (DOD) implemented the Defense Collaboration Tool Suite (DCTS) as the interim standard collaboration tool and mandated that all collaboration tools used on DOD networks must be tested for interoperability with DCTS. InfoWorkSpace (IWS) is a desktop collaboration software package of this category.

The Joint Interoperability Test Command (JITC) evaluated the interoperability of IWS Version (V) 2.5.1 with DCTS V2.0 (Phase 1) from 5 May through 6 June 2003 in the DCTS test bed environment, JITC Washington Operations Division, Indian Head, Maryland. The operators used IWS and DCTS to access participants and tools, share information, and implement security procedures between the IWS and DCTS platforms over a Local Area Network (LAN).

Through the use of additional DCTS software (NetMeeting, Envoke or Envoke Portal, and Digital Dashboard), IWS users were able to collaborate with DCTS users. IWS users could locate collaborators, collaboration rooms, and conferences. The IWS users were also able to launch applications that enabled them to gain entry to active collaboration rooms and conferences operating on any conference server in the network. In addition, these users were able to “text chat”; import and export documents between collaboration rooms and conferences; share applications, audio, and video; and annotate still images. Finally, users were able to exercise security features including authentication, encryption, and lockdown without interfering with other collaboration software components. During the course of the tests, IWS did not disrupt the operation of DCTS during any operations and did not substantially degrade usability, stability, or network performance.

IWS users were not able to directly collaborate with DCTS users; however, IWS users were able to collaborate with DCTS users via DCTS software (NetMeeting, Envoke or Envoke Portal, and Digital Dashboard). This functionality provides an acceptable collaboration method for IWS and DCTS, as defined by the OSD/JS CTT’s “14 Interoperability Criteria.” The test results demonstrated that IWS V2.5.1 met all of the 14 interoperability criteria according to the definition of a DCTS V2.0 (Phase 1) enhancement.

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## **SYSTEM FUNCTIONAL DESCRIPTION**

InfoWorkSpace (IWS) is a desktop collaboration software package designed for groups that work in multiple locations. IWS is intended to enhance communication between these groups and individual users during day-to-day operations. This package allows an organization to reconstruct its dispersed environment into a virtual model and operate within that model, thus allowing users in separate locations to work as if they were co-located. Using IWS, a user may create secure, interactive shared spaces in the virtual model that bring information, users, and tools together. Shared spaces sit on each user's personal computer (PC). Work done in a shared space by one user is instantly seen by all participants involved in a collaborative process. Participants may work in the space together or off-line, returning to the space over time. IWS keeps all participants' PCs updated with the latest changes in participants and shared information.

## **TEST BACKGROUND**

In 1999, Congress instructed the Department of Defense (DOD) and the Intelligence Community to address the lack of interoperability between fielded collaboration tools. To respond to this Congressional direction, the Office of the Secretary of Defense (OSD) and the Joint Staff (JS) established a Collaboration Tiger Team (CTT) composed of members from the Combatant Commanders (unified commands), Services, and Agencies with a two-fold mission:

- Develop a strategy for implementing the use of collaboration tools throughout DOD
- Define and validate a prioritized list of functional requirements for DOD collaboration tools

To help the OSD/JS CTT meet its mission charter, it requested the Joint Command, Control, Communications, Intelligence, Surveillance, and Reconnaissance Battle Center (JBC) to conduct an assessment of collaboration tools focusing on the Joint Task Force (JTF) level with a recommendation for the interim collaboration standard. At the same time, unified commands faced interoperability issues caused by a mixture of incompatible collaboration tools. Viewing this assessment as a solution to their collaboration tools dilemma, the unified commands strongly supported this JBC collaboration tools assessment.

The interim DOD standard collaboration capability, the Defense Collaboration Tool Suite (DCTS), has been implemented. DCTS follows the recommendations of the JBC, which directed that the chosen collaboration capability provide the following:

- A flexible suite of collaboration tools conducive to a broad and open user community
- A minimum essential functionality for all, regardless of user community capabilities
- A capability designed to satisfy operational needs across echelons, joint mission areas, and national boundaries

On 1 November 2002, DOD released a memorandum from the Assistant Secretary of Defense, Command, Control, Communications, and Intelligence (ASD-C3I) regarding DOD collaboration interoperability standards. This memorandum mandated that all collaboration tools must be tested for interoperability with DCTS by 1 March 2003. All collaboration tools that have not been certified as interoperable will be unauthorized on DOD networks by 1 October 2003.

To comply with the Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6212.01B, *Interoperability and Supportability of National Security Systems and Information Technology Systems*, all future collaboration candidates must undergo interoperability testing by the Defense Information Systems Agency (DISA), Joint Interoperability Test Command (JITC). Additionally, this instruction provided the opportunity for vendors that were interested in receiving a certification of interoperability with DCTS to apply for interoperability testing with JITC.

JITC used its DCTS test bed environment to test, evaluate, and document the ability of IWS to interoperate, function, and meet collaboration interoperability requirements with DCTS V2.0 (Phase 1). IWS V2.5.1 was tested for compliance with the OSD/JS CTT's 14 Interoperability Criteria and several critical DCTS interoperability criteria:

- DCTS functionality must not be obstructed by the candidate collaboration tool
- The candidate collaboration tool must be able to function and communicate with DCTS
- DCTS clients must be able to communicate and function with the candidate collaboration tool

## **TEST PURPOSE**

The test was conducted to determine whether IWS V2.5.1 could interoperate with DCTS V2.0 (Phase 1) as an enhancement.

## **SCOPE AND METHODOLOGY**

JITC conducted joint interoperability testing, as defined in the *Collaboration Interoperability Test Plan*, dated October 2002. The test bed consisted of both a primary and a secondary DCTS V2.0 (Phase 1) suite and an IWS V2.5.1 suite. Trained personnel performed the testing, which supported voice; text creation; video-conferencing; document and application sharing; file transfer; “text chat”; whiteboard sharing; virtual space discovery, hosting and access; and conference discovery, hosting and access. The first IWS configuration consisted of an IWS server residing on a Windows 2000 platform; the second configuration consisted of an IWS server on a Sun Solaris 8 platform, and the third configuration consisted of both platforms. All testing occurred at the JITC, Washington Operations Division, test facility in Indian Head, Maryland. (Detailed test descriptions are contained in Appendix B.) Tests 1 through 12 were each repeated 20 times for each of the three IWS test configurations.

## **LIMITATIONS**

Testing occurred in a laboratory environment over the DCTS LAN using three subnets. (See Appendix C, Figure C-1, for a configuration diagram of the DCTS test bed.) If an operational environment varies significantly from the test environment, system interoperability should be verified prior to deployment.

The test environment contained two workstations configured with cameras and headsets. This test did not address audio and video collaboration of more than two simultaneous participants. The test involved only a limited number of test participants. The same results cannot be guaranteed in an operational environment when a larger number of participants attempt to hold a conference.

Criterion 14, Usability, Stability, and Performance could not be completely tested. The current DCTS configuration does not simulate 100 DCTS and IWS users. The same results cannot be guaranteed when larger numbers of users are participating.

## **INTEROPERABILITY REQUIREMENTS**

The OSD, JS, CTT, Collaboration Interoperability Working Group (CIWG), and Joint Forces Command (JFCOM) are involved in identifying, composing, and updating the DOD collaboration tools interoperability requirements.

## TEST RESULTS

IWS V2.5.1 demonstrated that it could satisfy interoperability requirements for a collaboration enhancement. Excluding the items mentioned under the “Limitations” section, all criteria were supported when using IWS, the IWS Envoke Bridge (IWS and DCTS interface), and a DCTS reference client (Digital Dashboard, NetMeeting, or Envoke application). Executing IWS on a system that was concurrently running DCTS did not cause any execution errors with either program. (The requirements and test results are detailed in Table 1, IWS Interoperability Capabilities.)

The following issues were identified and noted:

### Log on Failures

- On occasion, users were locked out of the IWS servers (Sun Solaris and Windows 2000). Rebooting the server generally resolved the problem. After the ezenia! representative installed a fix on the Sun Solaris server, this problem did not recur. The problem was observed twice on the Windows 2000 server during the test period.

### Reboot Failures

- The servers did not always restart IWS properly after a reboot.
  - Upon failure of IWS to start upon boot of the Windows 2000 server, manually executing PlaceWare or rebooting the server did not resolve the problem. This problem may have been caused by the hardware provided by ezenia!, which did not meet the minimum system requirements as stated in the IWS Server Installation Guide.
  - The Sun Solaris server did not always start up IWS properly, especially after a complete power-down. Executing the IWS start-up scripts manually or rebooting the server resolved this problem. (Rebooting procedures are included in Appendix F.)

### IWS Envoke Bridge

- When publishing the IWS presence in Envoke using the IWS Envoke presence Connector tool, the IWS presence would intermittently drop shortly after connecting. After a stable connection was made the presence would normally remain solid. Under the direction of ezenia!, the heartbeat rate to the Envoke server was changed on both IWS servers and the problem was not experienced again.
- The statement contained in the Envoke log was as follows:

*The Envoke server has not heard from iwdsemo.ezenia.com a DCTS Digital Dashboard tool, within its heartbeat interval (15 seconds). Now dropping this tools information from Envoke.*

- Occasionally, Envoke was observed publishing the IWS servers' presence in virtual spaces while the server was off-line (during a reboot of the IWS server).

Although the above items were documented, they do not significantly impact the ability of IWS to receive the DOD Collaboration Enhancement interoperability certification.

**Table 1. IWS Interoperability Capabilities**

Criterion		Description	Pass	Passed Using
1	Coexistence	Candidate shall coexist with DCTS environment	Yes	InfoWorkSpace
2	Collaborator Status	Locate any collaborator	Yes	InfoWorkSpace Bridge* and Envoke**
3	Conference Discovery	Locate any ITU compliant conference (e.g., meeting) on any server	Yes	InfoWorkSpace Bridge* and Envoke**
4	Virtual Space Discovery	Locate any persistent space (e.g., room) on any server	Yes	InfoWorkSpace Bridge* and Envoke**
5	Text Conference	Text chat with any person	Yes	Envoke** and NetMeeting
6	Virtual Space Access	Launch an application with default data to enter any "accessible" persistent space (e.g., room) on any server	Yes	InfoWorkSpace Bridge*, Envoke** and Digital Dashboard
7	Conference Join	Launch an application with default data to join any "accessible" conference (e.g., meeting) on any server	Yes	Digital Dashboard, NetMeeting
8	Application Sharing	Demonstrate ability to share applications	Yes	NetMeeting
9	Whiteboard	Demonstrate ability to annotate still images	Yes	NetMeeting
10	Audio	Demonstrate ability to share audio	Yes	NetMeeting
11	Video	Demonstrate ability to share video	Yes	NetMeeting
12	File Transfer	Import/export documents between meetings and rooms	Yes	NetMeeting
13	Authentication, Encryption, Lockdown	Provide appropriate security mechanisms (e.g., to get permission to connect to DOD networks) and not interfere with other collaboration components	Yes	InfoWorkSpace
14	Usability	Product shall not substantially degrade collaboration Usability, stability, or performance	Yes	InfoWorkSpace
15	Directory Services	<i>Gain access to "public restricted" collaboration resources through global directory services on participating networks</i>	<i>Not Applicable</i>	<i>Future</i>
LEGEND:				
DCTS	Defense Collaboration Tool Suite	e.g.	For Example (exempli gratia, Latin)	
DOD	Department of Defense	ITU	International Telecommunications Union	
* InfoWorkSpace developed a bridge between their product and the Envoke application to allow publishing of presence and awareness of InfoWorkSpace users and virtual spaces				
** Envoke maybe accessed via a local server or a network browser				

Criterion 1, Coexistence, was successfully tested. The IWS V2.5.1 did not interfere with DCTS V2.0 Phase 1 component functionality for criteria 2 through 12.

All other testing was in accordance with defined procedures. No notable anomalies were identified during the test.

## **CONCLUSION**

IWS V2.5.1 is interoperable with DCTS V2.0 Phase 1 as a DOD collaboration enhancement.

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## APPENDIX A

### ACRONYMS

API	Application Programming Interface
ASD-C3I	Assistant Secretary of Defense, Command, Control, Communications, and Intelligence
CIWG	Collaboration Interoperability Working Group
CJCSI	Chairman of the Joint Chiefs of Staff Instruction
CTT	Collaboration Tiger Team
DCTS	Defense Collaboration Tool Suite
DISA	Defense Information Systems Agency
DOD	Department of Defense
FTR	Federal Telecommunication Recommendation
GDS	Global Discovery Server
IT	Information Technology
ITU	International Telecommunications Union
IWS	InfoWorkSpace
JBC	Joint Command, Control, Communications, Intelligence Surveillance, and Reconnaissance Battle Center
JFCOM	Joint Forces Command
JITC	Joint Interoperability Test Command
JTF	Joint Task Force
JS	Joint Staff
LAN	Local Area Network
MCU	Multi-Point Control Unit
MDAP	Major Defense Acquisition Programs
MAIS	Major Automated Information System
NSS	National Security System
OS	Operating System
OSD	Office of the Secretary of Defense
PC	Personal Computer
PKI	Public Key Infrastructure

## ACRONYMS (CONTINUED)

SSL	Secure Socket Layer
STIG	Security Technical Implementation Guide
V	Version
VPN	Virtual Private Network
Win 2K	Windows 2000

## APPENDIX B

### TEST PROCEDURES AND RESULTS

#### DATA COLLECTOR'S IDENTIFICATION

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#### TEST DATES, LOCATIONS, AND TYPE OF TESTING

<u>Date</u>	<u>Location</u>	<u>Environment</u>
5 May through 6 June 2003	DCTS Test Bed, Indian Head, Maryland	Laboratory

See Appendix C for system hardware and software configurations.

#### TEST PROCEDURES AND RESULTS

Tables B-1 through B-15 highlight 14 critical interoperability test procedures and summarize test results for InfoWorkSpace (IWS) Version (V) 2.5.1 interoperability testing. All collaboration interoperability requirements must be met for a system to be certified as a joint interoperable collaboration tool.

## Criterion 1: Coexistence

**Capability To Be Demonstrated:** IWS, hereafter known as the Candidate, shall not interfere with DCTS component functionality identified in the test procedures for criteria 2 through 12, listed in table 2.

**Setup Conditions:** The test will start with a clean Operating System (OS) load.

**Minimum Acceptable Pass Criteria:** The Candidate shall not interfere or disrupt the normal DCTS functions that will be demonstrated in criteria 2 through 12, listed in table 2; neither the Candidate nor DCTS shall require special configurations to coexist. During the conduct of the entire interoperability test, a test user will exercise each of the DCTS components and major functions as described in the test procedures that follow. One of two conditions is required to pass this test:

- The Candidate system will pass all of the subsequent criteria with its own client(s) and use of the Candidate client(s) on the Candidate hardware does not interrupt any network operations or normal DCTS functions
- or
- The Candidate system will pass all of the subsequent criteria using a DCTS client on the Candidate hardware and the DCTS client is not disrupted by the presence and use of the Candidate client on the same piece of hardware.

**Table B-1. Coexistence Test Results**

Step	Action	Pass / Fail	Tester's Comments
1	Review vendor documentation for evidence of successful COE compliance (Level 5) for their intended operating system	P	Installation successfully completed. STIGs completed on clients and server.
2	Install the Candidate system and verify proper installation and operation	P	
3	Apply the COE and DCTS security lock-down procedures and leave them in place for the duration of the test	P	
4	Review vendor licensing documentation showing that there is no licensing requirement for any user to be able to exchange information for any of the DOD interoperable services on any DOD compliant system	P	
5	Successful completion of all subsequent criteria using the Candidate client or a mix of the Candidate client and DCTS client(s)	P	
LEGEND:			
COE - Common Operating Environment		IWS - InfoWorkSpace	
DCTS - Defense Collaboration Tool Suite		P - Pass	
DOD-Department of Defense		STIG - Security Technical Implementation Guide	

## Criterion 2: Collaborator Status

**Capability To Be Demonstrated:** The Department of Defense (DOD) requires a global discovery<sup>1</sup> method to find potential collaborators. All potential collaborators shall be able to advertise their collaboration status (i.e., presence<sup>2</sup> and awareness<sup>3</sup>) on this centralized service. Candidate must publish to, and locate potential collaborators from the Global Discovery Server (GDS)\*. Candidate shall poll the GDS for a list of all potential collaborators and make that information available to its end users.

**Setup Conditions:** A reference user will log in to the GDS and establish an online presence.

### Minimum Acceptable Pass Criteria:

- Candidate shall demonstrate the ability to locate any collaborator from any system logged into and publishing its collaboration status on the GDS using either its own client or the DCTS global discovery client.
- Candidate shall demonstrate the ability to publish, to the GDS, collaboration status of the test user while the test user is logged into the Candidate.

**Table B-2. Collaborator Status Test Results**

Step	Action	Pass / Fail	Tester's Comments
6	Launch either the DCTS global discovery client or Candidate's client on Candidate system	P	Passed using the GDS (Invoke)  IWS was able to post its presence in the GDS. An IWS user can not see a DCTS user without the GDS, by design
7	Use client from the previous step to discover the presence and awareness of the DCTS test user	P	
8	Publish test user's collaboration status from Candidate system to the GDS	P	
9	On DCTS, verify collaboration status of test user in Candidate system	P	
LEGEND:			
DCTS - Defense Collaboration Tool Suite		IWS - InfoWorkSpace	
GDS - Global Discovery Server		P - Pass	

<sup>1</sup> The DCTS centralized service is provided by its GDS. Multimedia/ Collaboration Services Technical Working Group (MCTWG) Software Requirements Specification: Use of common directory services to enable discovery of users, groups, sessions, and access controls.

<sup>2</sup> Logon status of potential collaborators

<sup>3</sup> Availability of logged on collaborators for various collaboration modes

\* Invoke performs the GDS role in the DCTS test environment.

### Criterion 3: Conference Discovery

**Capability To Be Demonstrated:** The Candidate shall disclose availability and location (e.g., Universal Resource Locator, Internet Protocol Address) of all published conferences<sup>4</sup> and publish that information to the GDS. Additionally, The Candidate shall poll the GDS for a schedule of all published meetings and make that information available to its end users.

**Setup Conditions:** A reference user will log in to DCTS, schedule and establish a conference on the DCTS conferencing server (i.e., DCTS reference International Telecommunications Unions (ITU) compliant Multi-Point Control Unit (MCU)).

**Minimum Acceptable Pass Criteria:**

- Candidate shall demonstrate the ability to locate any conference from any system publishing conferences on the GDS using either its own client or the DCTS global discovery client.
- If Candidate hosts conferences, it shall also demonstrate the ability to publish to the GDS, public conferences that it hosts.

**Table B-3. Conference Discovery Test Results**

Step	Action	Pass / Fail	Tester's Comments
10	Launch either the DCTS global discovery client or the Candidate client on Candidate system	P	Passed using the GDS (Invoke)  An IWS user must launch the GDS to see published Conferences, by design
11	Use client from the previous step to discover the conference on the DCTS MCU	P	
12	If Candidate hosts conferences, publish information for the conference to the GDS	N/A	
13	On DCTS, verify the Candidate's conference on the GDS	P	
LEGEND:			
DCTS - Defense Collaboration Tool Suite		IWS - InfoWorkSpace	
GDS - Global Discovery Server		N/A - Not Applicable	
MCU - Multi-Point Control Unit		P - Pass	

<sup>4</sup> Any International Telecommunications Union (ITU) H.323/T.120 compliant conference. Also called a meeting.

## Criterion 4: Virtual Space Discovery

**Capability To Be Demonstrated:** Candidate shall poll the GDS for the location, and occupants of all published virtual spaces<sup>5</sup> from any system and make that information available to their end users. Candidates that host virtual spaces shall provide to the GDS the location and occupants of all public available virtual spaces on the Candidate.

**Setup Conditions:** A reference user will log in to DCTS and publish an online workspace.

### Minimum Acceptable Pass Criteria:

- Candidate shall demonstrate the ability to locate any published workspace, including occupants, from any system publishing its information to the GDS using either its own client or the DCTS global discovery client.
- If Candidate hosts persistent spaces, it shall also demonstrate use of the GDS to publish information on public virtual spaces and occupants available within the Candidate.

**Table B-4. Virtual Space Discovery Test Results**

Step	Action	Pass / Fail	Tester's Comments
14	Launch either the DCTS global discovery client or the candidate client on Candidate system	P	Passed using the GDS (Envoke)
15	Use the client from the previous step to discover any public virtual space, including occupants, published on the GDS	P	An IWS user must launch the GDS to see published virtual spaces, by design Cannot see occupants in Virtual Spaces. To see occupants users must look in Contacts spaces.
16	If Candidate hosts virtual spaces, publish information for the virtual space, including occupants, to the GDS	N/A	Client occasionally lost connectivity to IWS server, rebooted server to rectify problem
17	On DCTS, verify virtual space and occupants from Candidate	P	
LEGEND:			
DCTS - Defense Collaboration Tool Suite		N/A - Not Applicable	
GDS - Global Discovery Server		P - Pass	
IWS - InfoWorkSpace			

<sup>5</sup> Any persistent virtual workspace that supports collaboration. Also called a persistent workspace.

## Criterion 5: Text Conference

**Capability To Be Demonstrated:** The ability to hold text conferences with any interoperating collaborators.

**Setup Conditions:** A reference user will log in to DCTS and publish the reference user's presence.

### Minimum Acceptable Pass Criteria:

- Candidate shall exchange text messages with DCTS test users using either its own client or a DCTS reference client.

**Table B-5. Text Conference Test Results**

Step	Action	Pass / Fail	Tester's Comments
18	Launch either the DCTS reference client or the Candidate client on Candidate system	P	Passed using the GDS (Envoke)  An IWS user must use the GDS to exchange text messages with a DCTS user, by design
19	Use client from the previous step to exchange text messages with a single DCTS user	P	
20	Use client from the previous step to exchange multiple text messages with several different DCTS users; each user in a different simultaneous session	P	
21	Use client from the previous step to exchange text messages with multiple DCTS users in a group chat mode	P	
LEGEND:			
DCTS - Defense Collaboration Tool Suite		IWS - InfoWorkSpace	
GDS - Global Discovery Server		P - Pass	

## Criterion 6: Access Virtual Spaces

**Capability To Be Demonstrated:** Candidate shall access all published virtual spaces on the GDS. If the Candidate does not have a client that is capable of accessing the virtual space, the Candidate shall launch an appropriate alternate client to achieve this function. Additionally, candidates whose system hosts virtual spaces shall provide an access method (either a launch mechanism for their own client, or an Application Programming Interface (API) for other vendor use) to virtual spaces they publish on the GDS. Virtual space discovery will already have been successfully demonstrated in Criterion 4.

**Setup Conditions:** A reference user will log in to DCTS and publish a virtual space.

### Minimum Acceptable Pass Criteria:

- Candidate shall demonstrate the ability to access any workspace published on the GDS using either its own client or the DCTS global discovery client.
- If the Candidate hosts virtual spaces, the Candidate shall demonstrate the ability for users on DCTS using the DCTS global discovery client to access virtual spaces published on the GDS hosted by Candidate.

**Table B-6. Access Virtual Space Test Results**

Step	Action	Pass / Fail	Tester's Comments
22	Launch either the DCTS global discovery client or the candidate client on Candidate system	P	Passed using the GDS (Envoke)  An IWS user must Launch the GDS to discover and access published virtual spaces  When accessing a DCTS virtual space through Envoke, the space selected is not the space entered. Users enter the Default DCTS space and move manually.
23	Use the client from the previous step to discover a public virtual space hosted on the GDS	P	
24	Using the client from the previous step, access and verify proper operation of DCTS virtual space on Candidate	P	
25	Verify ability to access multiple public virtual spaces	P	
26	If Candidate hosts virtual spaces, publish information for a Candidate virtual space, including occupants, to the GDS from Candidate	N/A	
27	On DCTS, verify the virtual space published by Candidate	P	
28	On DCTS, gain access to Candidate's virtual space	P	
29	On DCTS, verify ability to leave and enter another publicly accessible virtual space	P	
LEGEND:			
DCTS - Defense Collaboration Tool Suite		N/A - Not Applicable	
GDS - Global Discovery Server		P - Pass	
IWS - InfoWorkSpace			

## Criterion 7: Conference Join

**Capability To Be Demonstrated:** Candidate shall demonstrate the ability to join any available conference listed on the GDS. Conference discovery will already have been successfully demonstrated in Criterion 3.

**Setup Conditions:** A reference user will log in to DCTS, schedule a conference, and join the conference using a DCTS conferencing client.

### Minimum Acceptable Pass Criteria:

- Candidate shall demonstrate the ability to join any published, available online conference using its own client or the reference DCTS conferencing client.
- If the Candidate hosts conferences, the Candidate shall demonstrate the ability for users on DCTS to join conferences published on the GDS that are hosted by the Candidate's MCU using the DCTS reference client.

**Table B-7. Conference Join Test Results**

Step	Action	Pass / Fail	Tester's Comments
30	Launch either a DCTS conferencing client or the candidate client on Candidate system	P	Passed using the GDS (Envoke)  An IWS user must launch the GDS to discover and access published conferences, by design  Initial results were inconsistent when joining video conferences but usually were successful on the second attempt  Sometimes one user will not receive Video feed. Problem was reproduced, but we could not find a sequence in which the problem occurred every time  Conferences were successfully initiated and joined by both users
31	Use client from the previous step to join conference	P	
32	Verify proper operation of client from the previous step on Candidate by interacting with the user on DCTS	P	
33	Verify ability to leave this meeting, join another meeting and then rejoin the original meeting	P	
34	From Candidate, schedule a conference on a DCTS conferencing server	P	
35	On DCTS, verify the conference created from Candidate and join it	P	
36	If Candidate hosts conferences, publish information for the conference to the GDS	N/A	
37	From DCTS, join the Candidate conference using a DCTS conference client	P	
38	From Candidate, join the conference and verify proper operation of Candidate conferencing client by interacting with the DCTS user	P	
39	Verify ability to leave this meeting, join another meeting and then rejoin the original meeting	P	
LEGEND:			
DCTS - Defense Collaboration Tool Suite		N/A - Not Applicable	
GDS - Global Discovery Server		P - Pass	
IWS - InfoWorkSpace			

## Criterion 8: Application Sharing

**Capability To Be Demonstrated:** Candidate shall demonstrate the capability to participate in a shared application session both as an active participant (in control) and as a passive observer.

**Setup Conditions:** A reference user shall join a conference hosted on DCTS.

### Minimum Acceptable Pass Criteria:

- Candidate shall demonstrate the ability to participate in an application sharing session with a DCTS conferencing client, using its own client or the reference DCTS conferencing client hosted on the Candidate system.
- If the Candidate hosts conferences, the Candidate shall demonstrate the ability for users on DCTS to join conferences published on the GDS that are hosted by the Candidate's MCU using the DCTS reference client.

**Table B-8. Application Sharing Test Results**

Step	Action	Pass / Fail	Tester's Comments
40	Launch either a DCTS conferencing client or the Candidate conferencing client	P	<p>Passed using a DCTS reference client (NetMeeting)</p> <p>For an IWS user to share an application with a DCTS user, the IWS user must launch NetMeeting, by design</p> <p>Sharing process very slow, with significant delays</p> <p>Win 2K users can see shared Sun window but cannot take control. "Memory could not be read", error message received</p> <p>Win 2K users could see shared Sun client window but IWS control options were grayed out</p> <p>Users shared Calculator, MS Word, PowerPoint and Excel applications</p>
41	Use the conferencing client from the previous step to join a published conference hosted by DCTS	P	
42	Verify proper operation of the application sharing function of the conferencing client from the previous step while interacting with the user on DCTS by: <ul style="list-style-type: none"> <li>• sharing a graphically intensive application from Candidate to DCTS</li> <li>• relinquishing control from Candidate to DCTS</li> <li>• taking control of the application back from DCTS user</li> </ul>	P	
43	If Candidate hosts conferences, schedule and publish information for a conference to the GDS from Candidate and join the conference from Candidate using the conferencing client from the previous step	N/A	
44	Launch a DCTS conferencing client on DCTS	P	
45	Use the conferencing client on DCTS to discover and join the conference hosted by Candidate	P	
46	Verify proper operation of DCTS conferencing client with Candidate while interacting with the test user on Candidate by: <ul style="list-style-type: none"> <li>• sharing a graphically intensive application from Candidate to DCTS</li> <li>• relinquishing control from Candidate to DCTS</li> <li>• taking control of the application back from DCTS user</li> </ul>	P	
LEGEND:			
DCTS - Defense Collaboration Tool Suite		N/A - Not Applicable	
GDS - Global Discovery Server		P - Pass	
IWS - InfoWorkSpace		PC - Personal Computer	

## Criterion 9: Whiteboard

**Capability To Be Demonstrated:** Candidate shall demonstrate the capability to join a whiteboard session and interact with other users in the session using the DCTS reference whiteboard.

**Setup Conditions:** A reference user shall join a conference hosted on DCTS.

### Minimum Acceptable Pass Criteria:

- Candidate shall demonstrate the ability to participate in a whiteboard session with a DCTS conferencing client using its own client or the reference DCTS conferencing client hosted on the Candidate system.
- If the Candidate hosts conferences, the Candidate shall demonstrate the ability for users on DCTS to join conferences published on the GDS that are hosted by the Candidate's MCU using the DCTS reference client.

**Table B-9. Whiteboard Test Results**

Step	Action	Pass / Fail	Tester's Comments
47	Launch either a DCTS conferencing client or the Candidate conferencing client	P	<p>Passed using a DCTS reference client (NetMeeting)</p> <p>For an IWS user to whiteboard with a DCTS user, the IWS user must launch NetMeeting, by design</p> <p>IWS workstations locked-up for users during login, rebooting server fixed the problem</p> <p>Users were able to paste images to the Whiteboard and multiple users were able to annotate the image using all the tools available</p>
48	Use the conferencing client from the previous step to join a published conference hosted by DCTS	P	
49	Verify proper operation of whiteboard function of the conferencing client from the previous step by sharing and annotating a still image on the whiteboard, with a DCTS conferencing client	P	
50	If Candidate hosts conferences, schedule and publish information for a conference to the GDS from Candidate and join the conference from Candidate using the conferencing client from the previous step	N/A	
51	Launch a DCTS conferencing client on DCTS	P	
52	Use the conferencing client on DCTS to discover and join the conference hosted by Candidate	P	
53	Verify proper operation of DCTS conferencing client with Candidate conference by sharing and annotating, with the user on Candidate, a still image on the whiteboard	P	
LEGEND:			
DCTS - Defense Collaboration Tool Suite		N/A - Not Applicable	
GDS - Global Discovery Server		P - Pass	
IWS - InfoWorkSpace			

## Criterion 10: Audio

**Capability To Be Demonstrated:** Candidate shall demonstrate the capability to join an audio session and interact with other users in the session exchanging audio with DCTS users using a DCTS conferencing client.

**Setup Conditions:** A reference user shall join a conference hosted on DCTS.

### Minimum Acceptable Pass Criteria:

- Candidate shall demonstrate the ability to participate in an audio session with a DCTS conferencing client using its own client or the reference DCTS conferencing client hosted on the Candidate system.
- If the Candidate hosts conferences, the Candidate shall demonstrate the ability for users on DCTS to join conferences published on the GDS that are hosted by the Candidate's MCU using the DCTS reference client.

**Table B-10. Audio Test Results**

Step	Action	Pass / Fail	Tester's Comments
54	Launch either a DCTS conferencing client or the Candidate conferencing client	P	Passed using a DCTS reference client (NetMeeting)  For a IWS user to have an audio session a DCTS user, the IWS user must launch NetMeeting, by design  Audio was consistantly received by both users with headsets
55	Use the conferencing client from the previous step to join a published conference hosted by DCTS	P	
56	Verify proper audio operation of the conferencing client from the previous step by initiating, with a DCTS conferencing client a point-to-point audio conversation	P	
57	Verify proper audio operation of the conferencing client from the previous step by initiating, with several DCTS conferencing clients, a multi-point audio conversation	P	
58	If Candidate hosts conferences, schedule and publish information for a conference to the GDS from Candidate and join the conference from Candidate using the conferencing client from the previous step	N/A	
59	Launch a DCTS conferencing client on DCTS	P	
60	Use the conferencing client on DCTS to discover and join the conference hosted by Candidate	P	
61	Verify proper audio operation of DCTS conferencing client with Candidate conference by initiating, with the user on Candidate, a point-to-point audio conversation	P	
62	Verify proper audio operation of DCTS conferencing client with Candidate conference by initiating, with several users on Candidate, a multi-point audio conversation	P	
LEGEND:			
DCTS - Defense Collaboration Tool Suite		N/A - Not Applicable	
GDS - Global Discovery Server		P - Pass	
IWS - InfoWorkSpace			

## Criterion 11: Video

**Capability To Be Demonstrated:** Candidate shall join a DCTS video session and interact with other users in the session. Candidate clients shall share video with DCTS users who are using a DCTS conferencing client.

**Setup Conditions:** A reference user shall join a conference hosted on DCTS.

### Minimum Acceptable Pass Criteria:

- Candidate shall use its own client or the reference DCTS conferencing client on the client system to demonstrate the ability to participate in a video session with a DCTS user.
- If the Candidate hosts conferences, the Candidate shall demonstrate the ability for users on DCTS to join conferences published on the GDS that are hosted by the Candidate's MCU using the DCTS reference client.

**Table B-11. Video Test Results**

Step	Action	Pass / Fail	Tester's Comments
63	Launch either a DCTS conferencing client or the Candidate conferencing client on the Candidate system.	P	<p>Passed using a DCTS reference client (NetMeeting)</p> <p>For an IWS user to have an video session with a DCTS user, the IWS user must launch NetMeeting, by design</p> <p>All users with NetMeeting were able to receive video feeds.</p>
64	Use the conferencing client from the previous step to join a published conference hosted by DCTS	P	
65	Verify proper video operation of the conferencing client from the previous step by initiating, with a DCTS conferencing client, a point-to-point video session	P	
66	Verify proper video operation of the conferencing client from the previous step by initiating, with several DCTS conferencing clients, a multi-point video session	P	
67	If Candidate system hosts conferences, schedule and publish information for a conference to the GDS from Candidate and join the conference from Candidate using the conferencing client from the previous step	N/A	
68	Launch a DCTS conferencing client on DCTS	P	
69	Use the conferencing client on DCTS to discover and join the conference hosted by Candidate	P	
70	Verify proper video operation of DCTS conferencing client with Candidate conference by initiating, with the user on Candidate, a point-to-point video session	P	
71	Verify proper video operation of DCTS conferencing client with Candidate conference by initiating, with several users on Candidate, a multi-point video session	P	
LEGEND:			
DCTS - Defense Collaboration Tool Suite		N/A - Not Applicable	
GDS - Global Discovery Server		P - Pass	
IWS - InfoWorkSpace			

## Criterion 12: File Transfer

**Capability To Be Demonstrated:** Candidate shall demonstrate the capability to import documents from DCTS and export them to DCTS.

**Setup Conditions:** A reference user shall log in to a published DCTS workspace.

### Minimum Acceptable Pass Criteria:

- Candidate shall accept documents exported from the DCTS virtual space to the Candidate's virtual space and provide them locally to a Candidate user.
- Candidate shall export documents to a DCTS virtual space.

**Table B-12. File Transfer Test Results**

Step	Action	Pass / Fail	Tester's Comments
72	Launch either a DCTS client or the Candidate client on the Candidate and access a public virtual space on DCTS	P	Passed using a DCTS reference client (NetMeeting)  For an IWS user to transfer a file to a DCTS user, the IWS user must launch NetMeeting  Over 60 files were successfully transferred via NetMeeting the largest file selected was 397,824 bytes
73	Use the client from the previous step to export a document to the DCTS virtual space from the Candidate	P	
74	Use the DCTS global discovery client on DCTS to access the DCTS public virtual space and import the document to the local DCTS client machine	P	
75	On DCTS client machine, verify the document's accessibility and integrity (open the document using the application that created it and ensure that the document is usable)	P	
76	Launch a DCTS client and access the public virtual space on the Candidate system from DCTS	P	
77	Use the client from the previous step to export a document from DCTS to the Candidate virtual space	P	
78	On the Candidate system access the Candidate's virtual space and verify import of the document to the local Candidate client machine	P	
79	On Candidate client machine, verify the document's accessibility and integrity (open the document using the application that created it and ensure that the document is usable)	P	
LEGEND:			
DCTS - Defense Collaboration Tool Suite		P - Pass	
IWS - InfoWorkSpace			

### Criterion 13: Authentication, Encryption, and Lockdown

**Capability To Be Demonstrated:** Those systems used for Command and Control meet basic security criteria.

**Setup Conditions:** A reference user shall log in to DCTS.

**Minimum Acceptable Pass Criteria:**

- Candidate shall demonstrate that authentication via password or certificate (Public Key Infrastructure - PKI) is required before a user is allowed to access any system features.
- Candidate shall demonstrate that it is capable of encryption via either Secure Socket Layer (SSL) or Virtual Private Network (VPN).
- Candidate shall demonstrate that workstations and servers can be locked down according to type accreditation requirements.

**Table B-13. Authentication, Encryption, and Lockdown Test Results**

Step	Action	Pass / Fail	Tester's Comments
80	Launch Candidate's client and verify that without a proper user name and password the client cannot provide access to any collaborators, conferences, or virtual spaces	P	Not implemented in DCTS Version 2.0 Phase 1  Per server installation guides & client Security Technical Implementation Guide (STIG)
81	During normal system operation verify that Candidate provides end to end encryption of the data using either SSL, VPN, or equivalent technology	N/A	
82	Demonstrate that Candidate's workstations and servers can be locked down according to the appropriate type accreditation requirements	P	
LEGEND:			
DCTS - Defense Collaboration Tool Suite		SSL - Secure Socket Layer	
N/A - Not Applicable		STIG - Security Technical Implementation Guide	
P - Pass		VPN - Virtual Private Network	

## Criterion 14: Usability, Stability, and Performance

**Capability To Be Demonstrated:** Those systems used for Command and Control meet basic usability, stability and performance criteria.

**Setup Conditions:** A reference user shall log in to DCTS.

### Minimum Acceptable Pass Criteria:

- Usability – To Be Developed.
- Stability – Candidate shall be stable throughout all of the test procedures in this section.
- Performance – Candidate shall demonstrate negligible changes in performance for all of the test procedures as in the stability with 10 users on each system, and with 100 simulated users on DCTS

**Table B-14. Usability, Stability, and Performance Test Results**

Step	Action	Pass / Fail	Tester's Comments	
83	DCTS user invites user of Candidate to a DCTS conference room	P	This Criterion was only partially tested  Specific problems were addressed in the TEST RESULTS section, however, none of the problems noted were significant enough to impact the Enhancement Certification	
84	User of Candidate activates link to DCTS conference room and joins conference	P		
85	Engage in text chat conference for ½ hour, with whiteboarding, application sharing, and posting/retrieval of documents	P		
86	Conclude conference	P		
87	DCTS user invites user of Candidate to a DCTS conference room in another building	P		
88	User of Candidate activates link to DCTS conference room and joins conference	P		
89	Engage in audio conference for ½ hour, with whiteboarding, application sharing and posting/retrieval of documents	P		
90	Conclude conference	P		
91	DCTS user invites user of Candidate to a DCTS conference room in another building	P		
92	User of Candidate activates link to DCTS conference room and joins conference	P		
93	Engage in audio/video conference for ½ hour, with whiteboarding, application sharing, and posting/retrieval of documents	P		
94	Conclude conference	P		
LEGEND:				
DCTS - Defense Collaboration Tool Suite		P - Pass		

### Criterion 15: Directory Services

**Capability To Be Demonstrated:** DOD requires global directory services. A global capability does not exist at the time of this test. This test will be developed and conducted in the future.

**Setup Conditions:**

**Minimum Acceptable Pass Criteria:**

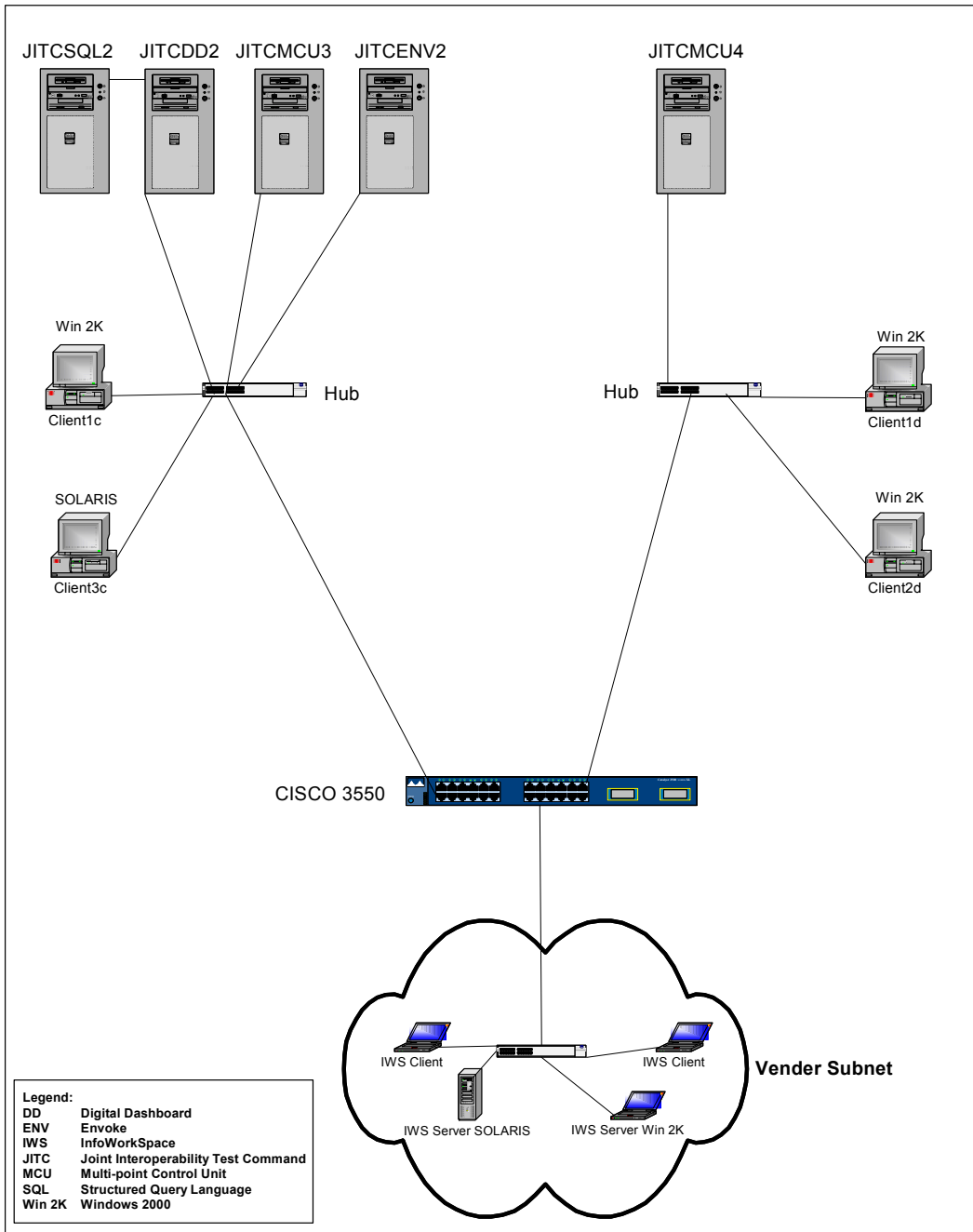
**Table B-15. Directory Services Test Results**

Step	Action	Pass / Fail	Tester's Comments
95	To be defined	N/A	Not tested
96	To be defined	N/A	
97	To be defined	N/A	
LEGEND:			
N/A – Not Applicable			

# APPENDIX C

## CONFIGURATION DIAGRAM

**TEST NETWORK DESCRIPTION.** The test network in figure C-1, *DCTS Test Bed*, depicts the Defense Collaboration Tool Suite (DCTS) network at the Joint Interoperability Test Command, Washington Operations Division, Building 900, Indian Head, Maryland.



**Figure C-1. DCTS Test Bed.**

**SYSTEM CONFIGURATIONS.** The hardware configuration and installed operating systems for all systems (server and client) used during the interoperability test are documented in table C-1. The installed applications on all systems (server and client) used during the interoperability test are documented in table C-2.

**Table C-1. Hardware Configuration and Operating Systems**

<b>InfoWorkSpace (IWS) Systems</b>	
student1 (client) <ul style="list-style-type: none"> <li>• Dell Latitude</li> <li>• Pentium III – 600MHz</li> <li>• 260MB RAM</li> <li>• 9GB HD</li> <li>• Win 2000 5.00 2195 SP3</li> </ul>	Demo3 (client) <ul style="list-style-type: none"> <li>• Dell Inspiron 2600</li> <li>• Celeron 1.6GHz</li> <li>• 260MB RAM</li> <li>• 4GB HD</li> <li>• Win 2000 5.00 2195 SP3</li> </ul>
iws4demo (server) <ul style="list-style-type: none"> <li>• Dell Inspiron 2600</li> <li>• Celeron 1.6GHz</li> <li>• 260MB RAM</li> <li>• 5GB HD</li> <li>• 13GB HD</li> <li>• Win 2000 5.00.2195 SP3</li> </ul>	iws4test (server) <ul style="list-style-type: none"> <li>• SUN Ultra 60</li> <li>• Dual 360 MHz UltraSparc II</li> <li>• 512MB RAM</li> <li>• Dual 9GB HD</li> <li>• Solaris 8</li> </ul>
<b>DCTS Servers</b>	
Jitcsql2 <ul style="list-style-type: none"> <li>• DELL Power Edge 1650</li> <li>• Pentium III Dual 1400MHz</li> <li>• 1GB RAM</li> <li>• RAID 1 Dual 18GB HD</li> <li>• Windows 2000 5.00.2195 SP3</li> </ul>	Jitcdd2 <ul style="list-style-type: none"> <li>• DELL Power Edge 1650</li> <li>• Pentium III Dual 1400MHz</li> <li>• 1GB RAM</li> <li>• RAID 1 Dual 18GB HD</li> <li>• Windows 2000 5.00.2195 SP3SP3</li> </ul>
Jitcmcu4 <ul style="list-style-type: none"> <li>• DELL Power Edge 1650</li> <li>• Pentium III Dual 1400MHz</li> <li>• 1GB RAM</li> <li>• RAID 1 Dual 18GB HD</li> <li>• Windows 2000 5.00.2195 SP3</li> </ul>	Jitcenv2 <ul style="list-style-type: none"> <li>• DELL Power Edge 1650</li> <li>• Pentium III Dual 1400MHz</li> <li>• 1GB RAM</li> <li>• RAID 1 Dual 18GB HD</li> <li>• Windows 2000 5.00.2195 SP3</li> </ul>
Jitcmcu3 <ul style="list-style-type: none"> <li>• DELL Power Edge 1650</li> <li>• Pentium III Dual 1400MHz</li> <li>• 1GB RAM</li> <li>• RAID 1 Dual 18GB HD</li> <li>• Windows 2000 5.00.2195 SP3</li> </ul>	
<b>DCTS Clients</b>	
Client_1c <ul style="list-style-type: none"> <li>• Gateway E-4200</li> <li>• Pentium III – 500MHz</li> <li>• 128MB RAM</li> <li>• 2GB HD</li> <li>• 17GB HD</li> <li>• Windows 2000 5.00 2195 SP3</li> </ul>	Client_1d <ul style="list-style-type: none"> <li>• Gateway E-4200</li> <li>• Pentium III – 500MHz</li> <li>• 128MB RAM</li> <li>• 2GB HD</li> <li>• 17GB HD</li> <li>• Win 2000 5.00 2195 SP3</li> <li>• Windows 2000 5.00 2195</li> </ul>
Client_2d <ul style="list-style-type: none"> <li>• Gateway E-4200</li> <li>• Pentium III – 500MHz</li> <li>• 128MB RAM</li> <li>• 2GB HD</li> <li>• 17GB HD</li> <li>• Windows 2000 5.00 2195 SP3</li> </ul>	Client_3c <ul style="list-style-type: none"> <li>• SUN Blade 1000</li> <li>• Pentium III</li> <li>• 1024 MB RAM</li> <li>• 6GB HD</li> <li>• Solaris 8</li> </ul>
Legend	
DCTS Defense Collaboration Tool Suite DD Digital Dashboard ENV Envoke GB Gigabyte HD Hard Drive IWS InfoWorkSpace JITC Joint Interoperability Test Command	MB Megabyte MHz Megahertz MCU Multi-Point Conferencing Unit RAID Redundant Arrays of Independent Drives RAM Random Access Memory SP Service Pack SQL Software Query LAnguage

**Table C-2. Installed Applications**

<b>InfoWorkSpace (IWS) Systems</b>		
<p>student1 (client)</p> <ul style="list-style-type: none"> <li>• InfoWorkSpace V2.5a Build 1735</li> <li>• NetmeetingV3.01</li> <li>• Envoke V1.1.4</li> <li>• IE V6.0</li> <li>• Windows 2000 Hotfix</li> <li>• Windows Media Player V7.1</li> <li>• WinZip V8.1</li> <li>• Adobe Acrobat V5.0</li> <li>• Duplicate Email Remover</li> <li>• InfoWorkSpace V2.5.1.2</li> <li>• InfoWorkSpace V2.5.1.2 Browser Plugin</li> <li>• Intel USB Video Camera III</li> <li>• Java 2 Runtime Environment Standard Edition V1.3.1_07</li> <li>• McAfee VirusScan V4.5.0</li> <li>• MGI PhotoSuite V8.1</li> <li>• Microsoft Internet Explorer 6 SP1</li> <li>• Microsoft Office 2000 SR-1 Professional V9.00.9327</li> <li>• Microsoft Windows Journal Viewer V1.5.2315.0</li> <li>• PlaceWare Add-in for PowerPoint V7</li> <li>• PlaceWare Media Plug-In PWS:CC+PDK-4.0.2-1#i6q2y6</li> <li>• PlaceWare Plug-Ins 4.02, V2.5.1</li> <li>• PlaceWare Snapshot Plug-In PWS:CC+PDK-4.0.2-1#i6q2y6</li> <li>• QuickTime</li> <li>• RealPlayer G2</li> <li>• Shockwave</li> </ul>	<p>Demo3 (client)</p> <ul style="list-style-type: none"> <li>• InfoWorkSpace V2.5a Build 1735</li> <li>• Netmeeting V3.01</li> <li>• Envoke V1.1.4</li> <li>• IE V5.01</li> <li>• InfoWorkSpace V2.5.1.2</li> <li>• Intel USB Video Camera III</li> <li>• Intel Extreme Graphics Driver Software</li> <li>• Java 2 Runtime Environment Standard Edition</li> <li>• Netscape Communicator V4.73</li> <li>• PlaceWare Add-in for PowerPoint V7</li> <li>• PlaceWare Media Plug-In PWS:CC+PDK-4.0.2-1#i6q2y6</li> <li>• PlaceWare Snapshot Plug-In PWS:CC+PDK-4.0.2-1#i6q2y6</li> <li>• RealPlayer G2</li> <li>• SigmaTel AC97 Audio Drivers</li> <li>• UltraEdit-32 Uninstall</li> </ul>	
<p>lws4demo (server)</p> <ul style="list-style-type: none"> <li>• AsPerl</li> <li>• IE V5.0</li> <li>• InfoWorkSpace V2.5.1.2 Browser Plugin</li> <li>• Intel Extreme Graphics Driver Software</li> <li>• iPlanet Server Products V5.0</li> <li>• iPlanet Web Server V6.0</li> <li>• IWS2511 V2.5.1.1</li> <li>• IWS2512 V2.5.1.2</li> <li>• IWSb2511304 InfoWorkSpace patch</li> <li>• IWSsp251 Service Pack 1</li> <li>• Java 2 Runtime Environment Standard Edition</li> <li>• PlaceWare Server on port 8087</li> <li>• UltraEdit-32 Uninstall</li> <li>• Windows 2000 Service Pack 2</li> </ul>	<p>lws4test (server)</p> <ul style="list-style-type: none"> <li>• MS SQL Server 2000 V8.00.194</li> <li>• InfoWorkSpace Management Server V2.1.1549</li> <li>• InfoWorkSpace Management Server Supporting Libraries V1.00</li> <li>• IE V5.0</li> <li>• IWS2512153 patches</li> </ul>	
<b>DCTS Servers</b>		
<p>Jitcsql2</p> <ul style="list-style-type: none"> <li>• Microsoft SQL 2000 Sever SP2</li> </ul>	<p>Jitcdd2</p> <ul style="list-style-type: none"> <li>• Infomentum Active File</li> <li>• IP*Works (ASP Edition)</li> <li>• ASPSmartSecurity</li> </ul>	<p>Jitcmcu3</p> <ul style="list-style-type: none"> <li>• CUSeeMe Conference Server (50 user)</li> </ul>
<p>Jitcenv2</p> <ul style="list-style-type: none"> <li>• Envoke V1.1.4</li> </ul>	<p>Jitcmcu4</p> <ul style="list-style-type: none"> <li>• CUSeeMe Conference Server (25 user)</li> </ul>	

## DCTS Clients

<p>Client_1c</p> <ul style="list-style-type: none"> <li>• NetMeeting V3.01</li> <li>• IE V6.0</li> <li>• Winnov Videum NT V2.10</li> <li>• Java 2 Runtime V1.3.1_06</li> <li>• MS Office 2000 Pro V9.0.4402 SR-1</li> </ul>	<p>Client_1d</p> <ul style="list-style-type: none"> <li>• NetMeetingV3.01</li> <li>• IE V6.0</li> <li>• Winnov Videum NT V2.10</li> <li>• Java 2 Runtime V1.3.1_06</li> </ul>																								
<p>Client_2d</p> <ul style="list-style-type: none"> <li>• NetMeeting V3.01</li> <li>• IE V6.0</li> <li>• Winnov Videum NT V2.10</li> <li>• Java 2 Runtime V1.3.1_06</li> <li>• InfoWorkSpace V2.5.1</li> </ul>	<p>Client_3c</p> <ul style="list-style-type: none"> <li>• SunForum V3.2.6502.7</li> <li>• Netscape V4.76</li> <li>• InfoWorkSpace V2.5.1</li> </ul>																								
<p>Legend</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 33%;">DCTS</td> <td style="width: 33%;">Defense Collaboration Tool Suite</td> <td style="width: 33%;">MCU</td> <td style="width: 33%;">Multi-point Conferencing Unit</td> </tr> <tr> <td>DD</td> <td>Digital Dashboard</td> <td>MS</td> <td>Microsoft</td> </tr> <tr> <td>ENV</td> <td>Envoke</td> <td>NT</td> <td>New Technology</td> </tr> <tr> <td>IE</td> <td>Internet Explorer</td> <td>SP</td> <td>Service Pack</td> </tr> <tr> <td>IWS</td> <td>InfoWorkSpace</td> <td>SQL</td> <td>Structured Query Language</td> </tr> <tr> <td>JITC</td> <td>Joint Interoperability Test Command</td> <td>V</td> <td>Version</td> </tr> </table>		DCTS	Defense Collaboration Tool Suite	MCU	Multi-point Conferencing Unit	DD	Digital Dashboard	MS	Microsoft	ENV	Envoke	NT	New Technology	IE	Internet Explorer	SP	Service Pack	IWS	InfoWorkSpace	SQL	Structured Query Language	JITC	Joint Interoperability Test Command	V	Version
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JITC	Joint Interoperability Test Command	V	Version																						

## **APPENDIX D**

### **REFERENCES**

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#### **JOINT INTEROPERABILITY TEST COMMAND (JITC)**

JITC Instruction 210-85-01, "Documentation of Test and Evaluation Activities," dated 1 October 2000.

**APPENDIX E**  
**POINTS OF CONTACT**

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**INFOWORKSPACE**

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**APPENDIX F**  
**RELEASE NOTES FOR**  
**INFOWORKSPACE, VERSION 2.5.1**

\*\*\*\*\*  
InfoWorkspace 2512153 DCTS Interoperability Patch (DRAFT)  
Copyright 2003 Ezenia! Inc. All Rights Reserved.  
\*\*\*\*\*  
READ THIS FILE COMPLETELY BEFORE ATTEMPTING TO INSTALL 2512153  
\*\*\*\*\*

Contents

- 1.0 Introduction
  - 1.1 Resolutions in this enhancement
- 2.0 Installation and Setup Procedure for InfoWorkSpace DCTS component
  - 2.1 Installation Procedure
    - 2.1.1 Notes for Windows Server
    - 2.1.2 Notes for Solaris Server
  - 2.2 Setup Procedure
- 3.0 InfoWorkSpace Server Power-Up Procedure
  - 3.1 Notes for Windows Server
  - 3.2 Notes for Solaris Server
  - 3.3 Post-Installation
- 4.0 Reporting Problems

\*\*\*\*\*

1.0 Introduction

This enhancement is to be installed only on InfoWorkSpace 2.5.1.2 servers BEFORE passing the "STIG" procedures and if being deployed as a component of DCTS.

This readme outlines:

- 1. Installation and set-up procedure for the InfoWorkSpace DCTS component.  
The DCTS component enables InfoWorkSpace to communicate with Asynchrony's Envoke Server.
- 2. InfoWorkSpace Server Power-UP Procedures

=====

The following classes are replaced:

- ActiveUsersPod\$ConnectionMgmtData.class
- ActiveUsersPod\$PrematureMsg.class
- ActiveUsersPod
- AuthorizationDataManager\$DataRequest.class
- AuthorizationDataManager
- AuthorizationDOC\$AuthorizationDOCImpl.class
- AuthorizationDOC
- AuthorizationDOS\$ArrayProcessor.class
- AuthorizationDOS\$PermissionProcessor.class
- AuthorizationDOS\$PrivilegeProcessor.class
- AuthorizationDOS

The following classes are new:

EnvokeAgent.class

The following jars are removed:

- Windows:
  - xerces.jar

The following packages are removed:

Windows:

- javax.xml.parsers
- org.w3c.dom
- org.xml.sax

The following jar files are new:

Solaris:

- activation.jar
- commons-logging.jar
- dom4j.jar
- mail.jar
- saaj-api.jar
- saaj-ri.jar
- xercesImpl.jar
- xml-apis.jar

Windows:

- activation.jar
- commons-logging.jar
- dom4j.jar
- mail.jar
- saaj-api.jar
- saaj-ri.jar
- xercesImpl.jar
- xml-apis.jar

The following data files are new:

envoke.properties

### 1.1 Resolutions in this enhancement

CR 7530: Provide Capability as described in the JITC Interoperability Criteria Phase 1.

\*\*\*\*\*

## 2.0 Installation and Setup Procedure for InfoWorkSpace DCTS component

### 2.1 Installation Procedure

#### 2.1.1 Notes for Windows Servers

This is to be installed only on InfoWorkSpace 2.5.1.2 servers

{DRAFT} -----

If you are enhancing a Windows server, perform the following steps:

1. Copy the IWS2512153.exe to the server to be patched.
2. Double-click the IWS2512153.exe file and indicate the target directory to which you want to extract files. IWS2511.exe is a self-extracting zip file which will inflate the following files:
  - IWS2512153.msi
  - IWS2512153\_readme.txt
3. Once the files are inflated, click "OK."
4. Click "Close" to close the self-extracting zip file.
5. Double click IWS2511.msi to start the installer.
6. When the "Welcome to the InstallShield Wizard for IWS2512153" window appears, click "Next".
7. A License Agreement window displays. Read the terms of the agreement. Select "I accept the terms of this license agreement" and click "Next".
8. A Customer Information window displays. Enter your User Name and Organization. Indicate that this software will be accessible by "Anyone who uses this computer" and click "Next".

9. A Ready to Install Program window displays. Click "Install" to Start the installation.
10. An Oracle Password window then displays. Enter the password for the Oracle System account. If you enter the wrong password you will receive an invalid password error message. Click "OK" once the correct password has been entered.

Note: This process takes approximately 30 minutes to complete based on the speed of your system and the size of your database.

11. A command prompt window displays and you are prompted to "Press Enter to Continue". Press the "Enter" key when this message displays in the command prompt window.
12. After a moment the InstallShield Wizard Complete dialog window displays. Click "Finish".
13. If you are using the iPlanet Web Server, some of the configuration files for the web server have been changed and the new versions must be loaded into the web server:

Use a web browser to contact port 10002 of your InfoWorkSpace server

Login to the web server as admin

Click "Manage"

Click "OK" when prompt to load the changes

Click "Apply"

Click "Load Configuration Files"

Click "OK" to return to previous page

Click "Server Off"

Click "OK" to return to previous page

Click "Server On"

Click "OK" to return to previous page

#### 2.1.2 Notes for Solaris Server

This is to be installed only on InfoWorkSpace 2.5.1.2 servers

{DRAFT} If you are enhancing a Solaris Server, perform the following steps:

1. Copy the IWS2512153.bin to the server to be patched.
2. Execute IWS2512153.bin. IWS2512153.bin is a self-extracting zip file which will inflate the following files into your current working directory:  
IWS2512153  
IWS2512153\_readme.txt
3. Add the patch to the server by typing "pkgadd -d IWS2512153".

NOTE: A "Press Enter to Continue" message displays periodically throughout the installation. This message should be ignored as the process will continue if you do not press Enter.

4. Press "Enter" to select the IWS2512153 package.
5. You receive the message "Do you want this directory created now?"
6. Enter "Y" (yes) to unpack the install files. A "Do you want to continue with the installation of IWS2512153" message displays. Enter "Y" (yes) to continue the installation. A "Stopping iPlanet Web Server" message displays, as well as some tar error messages. These error messages are expected and can be ignored. You receive a message that the old files are being backed up prior to the installation of new files. PlaceWare is installed after this occurs. A "Start PatchSpecificTasks" message displays. You are then prompted for the Oracle System password.

NOTE: This password is typed in plain text, not starred characters, so others may be able to view this password as you are entering it.

Enter the password for the Oracle System account

7. The following error message display. They are expected and can be ignored.  
/var/iws\_install/Patches/IWS2512153/database/\*\_schema\_\*.sql:  
No such file or directory  
/var/iws\_install/Patches/IWS2512153/database/\*\_data\_\*.sql: No such file or directory  
Can't open perl script "iws\_orclsyn\_mgr": No such file or Directory  
grep: can't open /var/iws\_install/synonyms.log
8. 8 You receive an Installation Successful message and are returned to the command prompt.
9. 9 Some of the configuration files for the iPlanet Web Server have been changed and the new versions must be loaded into the web server: Use a web browser to contact port 10002 of your InfoWorkSpace server  
Login to the web server as admin  
Click "Manage"  
Click "OK" when prompt to load the changes  
Click "Apply"  
Click "Load Configuration Files"  
Click "OK" to return to previous page  
Click "Server Off"  
Click "OK" to return to previous page  
Click "Server On"  
Click "OK" to return to previous page
10. At this point the server is ready for use.

## 2.2 Setup Procedure for DCTS component within InfoWorkSpace 1 {DRAFT}

\*\*\*\*\*

## 3.0 Power-Up Procedure for InfoWorkSpace v2.5.1.3 Server

### 3.1 Notes for Windows

1. The installation of v2.5.1.3 places a Placeware Icon on the desktop.
2. After Power-Up, open the Windows Task Manager
  - a. Select the keys: CTRL, ALT, DELETE
  - b. Click on Task Manager
3. Click on Processes
4. Click View -> Select Columns
5. Select Virtual Memory Size
6. Observe the Oracle executable virtual memory size
7. When the Oracle virtual memory size stops growing, double click on the Placeware Icon.
8. Log on to the InfoWorkSpace Server using the InfoWorkSpace client
9. If an error message reading "Connection Error - Unable to connect server. Please select another server. If this problem persists, contact the system administrator", double click on the Placeware icon again.
10. RE-Log on to the InfoWorkSpace server using the InfoWorkSpace client.

### 3.2 Notes for Solaris

If an error message reading "Connection Error - Unable to connect server. Please select another server. If this problem persists, contact the system administrator", the following commands should be executed on the server:

1. At the command prompt, type cd /etc/rc2.d
2. Type: ps -ef | grep iplanet
3. Results should be displayed as:

```
opt/iplanet/servers/admin-serv/config
opt/iplanet/servers/admin-serv/config
opt/iplanet/serviws/https-admserv/config
opt/iplanet/serviws/https-admserv/config
opt/iplanet/serviws/https-admserv/config
opt/iplanet/servers/[servername]/config
opt/iplanet/servers/[servername]/config
opt/iplanet/servers/[servername]/config
```

4. If the results are not displayed as above, services will need to be started manually by typing: `./98ns-iPlanet start`. Please Note that the letter 'P' in iPlanet is a capital letter.

### 3.3 Post-Installation

Upon completion of either 3.1 or 3.2, InfoWorkSpace client should log in successfully to the InfoWorkSpace server.

\*\*\*\*\*

### 4.0 Reporting Problems

- helpdesk@infoworkspace.com
- 1-800-760-3205

\*\*\*\*\*

InfoWorkSpace 2512153 DCTS Interoperability Patch (DRAFT)

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Reprint authorization granted by Nunzio Napoleone, Ezenia!, on 23 May 2003.