Joint Command and Control (JC2) Capability & C2 Data Model

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ADUSD (Network Centric Warfare & Interoperability)
ODUSD (advanced Systems & Concepts)

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• Provide some background on JC2
  – Joint Command and Control capability
  – Convergence and replacement for Global Command & Control System – Joint (GCCS-J) and Service variants

• Expose emergent concepts for interoperability derived from the Multilateral Interoperability Programme

• Identify programmatic opportunities
Program Schedule Synchronization
GCCS-J/JC2/DJC2/NCES

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GCCS-J Block IV

GCCS-J Block V

JC2 Block I

JC2 Block II

JC2 Block III

DJC2 Increment I

Increment II

Increment III

NCES Block I

NCES Block II

NCES Block III

AoA

Focused Analysis

Program Start

Draft as of 3 Nov 03

Actual Program Milestone ▲ Projected Program Milestone △ Potential Program Milestone
- Migrate to a single joint C2 architecture
- Support joint C2 requirements from NMCS to JTF Components
- Organized along 7 joint Mission Capability Packages and cross-functional services
- Based upon Global Information Grid (GIG) enterprise services

NMCS: National Military Command System
Joint Command and Control (JC2)

Vision

FY02 FY03 FY04 FY05 FY06 FY07

GCCS-J Block IV GCCS-J Block V JC2 Block I

GCCS Joint
GCCS Army
GCCS Maritime
GCCS Air Force

Joint C2 Architecture (Based on GIG Enterprise Services)

Force Projection MCP
Force Readiness MCP
Intelligence MCP
Situational Awareness MCP
FE-Air/Space Operations MCP
FE-Joint Fires/Maneuver MCP
Force Protection MCP

Service Applications
Deployability

4.X Development
4.X Sustainment

GCCS-J RID Svc GCCS ORDs DJC2 ORD
NCES CDD/CPD JC2 CDD w/ Svc Annexes DJC2 CDD/CPD
NCES CDD/CPD JC2 CDD/CPD w/ Svc and Deployability Annexes
Net-Centric Enterprise Services (NCES)

Enables rapid exploitation of diverse data sources by GIG users in a manner that can be customized to meet specific mission demands.
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- GIG IP-based Transport
- DoD Net-centric Data Strategy
- Transformational Communications System (TCS)
- Joint Tactical Radio System (JTRS)
- Global Information Grid – Bandwidth Expansion (GIG-BE)

9 Core Enterprise Services + APIs
- Enterprise Systems Management
- User Assist
- Messaging
- IA/Security
- Discovery
- Mediation
- Storage Services
- Collaboration
- Application
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GIG Applications and Data

GIG IP-based Transport

Transformational Communications System (TCS)
Joint Tactical Radio System (JTRS)
Global Information Grid – Bandwidth Expansion (GIG-BE)

C2 Information Exchange Data Model: C2IEDM
Canadian Architectural Implementation

**Applications**

- ATS
- SAS
- OA
- OPERA
- KMS
- LFCMS

**Canadian “GIG”**

**Applications & Data Layer**

- KMS
- LFCMS
- ATS
- OPERA
- SAS (Current version)

**Data Service Layer**

- KMS DB
- LFCMS DB
- Geo Imagery

**Services Layer**

- ODB
- Other Fmn ODB

**Transport Layer**

- C-Net
- IRIS
- MMHS

**MIP Gateway To Allies**

- ATMHS
- IEM

**C2IEDM-based**

**Transport Domains**

- Functional Canadian Architectural Implementation

**Current version**

- ATMHS
- IEM

**Future SAS**

- C2 Lite

**Back to**

- LFC2IS
A Canadian Example

ODB = (L)C2IEDM + ARM + OPERA + ATS

(L)C2IEDM --- Core MIP Database
ARM --- ATCCIS Replication Model data
OPERA --- Planning Context
ATS --- Tactical Context

“National” Extensions

“Service” Extensions
Ontologic Views of the Joint Battlespace

Other Complementary Tailored Views:
- Info Operations
- Support
- Intel

- Force Readiness View
- Air /Space Operations View
- Situational Awareness View
- Force Projection View
- Common Language (JBMC2 Info on the GIG)
- Joint Fire & Maneuver View

Deployability View
Most Important Information-Related Principles of GIG:

1. Connect “islands of interoperability.”
   (Page 1 of GIG CRD)

2. Base this interoperability on community of interest (COI) ontologies.
   (Page 15 of *DoD Net-Centric Data Strategy*)

3. Software agents will be used to find needed information.
   (Page 8 of *DoD Net-Centric Data Strategy*)

Note: These principles underlie several long-running and successful DoD efforts.
1. GIG vision is sound, but FY 08 interoperability goal requires focus and full exploitation of available assets: JBMC2 challenges provide LEADERSHIP opportunities.

2. ACTDs and ACTD-related activities have already implemented capabilities based on GIG’s information principles: continue your SUPPORT, help EDUCATE the users!

3. Implementation of GIG vision will require exemplars, hardware and software tools, doctrinal publications, and formal school graduates trained in the GIG’s principles and TTPs: continue SUPPORT

4. Industry can lead by embracing the DoD Data Strategy Concepts and usability of the C2IEDM.
Considerations:

1. Joint doctrine and similar efforts show that the first 4 or 5 years are often spent getting organized unless a leader promulgates and enforces a good vision.

2. The GIG efforts began with “Joint Vision 2010” and were formally documented with the approval of the CRD in July 2001. Data strategy was just published (2003), two years after the CRD, which indicates GIG vision is evolving, slowly.

3. Introduction of rifled-artillery technology by Prussians in 19th Century is example of rapid transformation that GIG needs to emulate if deadline is to be met.
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- **80% Interoperability**

Program Schedule Synchronization
GCCS-J/JC2/DJC2/NCES (with goal and no $ for JC2 until FY06)

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