



COMMAND AND CONTROL (C2)

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JADO VISION FOR COMMAND AND CONTROL

The JADO vision for [command and control](#) is **joint-all-domain command and control** (JADC2). It is the art and science of decision-making and the ability to translate those decisions into action, leveraging capabilities across all domains and with mission partners to achieve operational advantage in both competition and conflict.¹ It is the natural extension of C2 across domains and functional components. The Department of the Air Force's **JADC2** vision calls for connecting distributed sensors, shooters, and data from all domains to joint forces, enabling coordinated exercise of authority to integrate planning and synchronize convergence in time, space, and purpose. To create effects in all domains this requires:

- ✦ A shared understanding of the operational environment (amplified further in this annex's chapters on **Information** and **Intelligence** joint functions).
- ✦ Integrating global and geographically-focused capabilities with command relationships.
- ✦ Supporting information synthesis and distributed decision-making.
- ✦ Operating with agility and resilience through mission-type orders and delegation of authority at each echelon.

JADC2 requires information access at all echelons. Dynamic all-domain adaptation is possible when leaders can determine which actions are appropriate for operational and strategic objectives and can detect when contextual changes invalidate assumptions underpinning command intent. JADC2 enables decision-makers to understand relationships between information from disparate domains. Cross-domain perspectives enable visibility into the impacts on joint forces, and how to enhance or mitigate those impacts.

¹ JADC2 CFT, Architectures Working Group v1.0: JADC2 High Level Graphic (OV-1)

"We need purple command and control. It takes too long for us to do air command and control, and ground command and control, and navy command and control, and then try to come back together and talk about what we are going to do."

**-- General James M. Holmes,
Commander, Air Combat Command**

JADC2 requires robust, resilient communications structures. Traditional communications structures rely on highly centralized communications nodes acting as C2 nodes while modern structures rely on multiple simultaneous paths. Effective JADC2 requires modern communications; distributed, robust, and resilient in nature. Communications systems integrated into a JADC2 architecture should be capable of integration into central C4ISR nodes, while simultaneously capable of operating independently at the tactical edge, disconnected or connected only to

other edge nodes. These systems should be capable of disconnecting and reconnecting commensurate with changes in the operational environment.

PLANNING AND EXECUTION OF C2

Mission command is the key tenet of AF doctrine (AFDP 1, [The Air Force](#)) for joint air operations (JP 3-30, [Joint Air Operations](#)). The joint air forces execute mission command² through centralized command, distributed control and decentralized execution using mission type orders³ when appropriate.

JADC2 requires an appropriate level of decentralized execution, a higher degree of delegated authority, and less dependence on central planning and mission direction than recent, low-intensity conflict operations. Decentralized execution is enabled through the designation of conditions-based authorities. Conditions-based authorities are delegation to a lower echelon are planned for and designated prior to an operation. Conditions-based authorities enable C2 processes to function under contested and degraded conditions. **To achieve decentralized execution, commanders must clearly convey intent, and subordinates must be empowered to act on that intent absent further guidance.**

Conditions-based authorities are authorities delegated to a subordinate under certain pre-defined conditions. This may include (but is not limited to):

- ★ Degradation in communications.
- ★ Significant changes in the operational environment.

² Mission command is the conduct of military operations through decentralized execution based upon mission-type orders (Joint Publication [JP] 3-31, [Joint Land Operations](#)).

³ Mission-type orders are those issued to lower units that include the accomplishment of the total mission assigned to the higher headquarters and orders units to perform the mission without specifying how it is to be accomplished (JP 3-50, [Personnel Recovery \[common access card required\]](#)).

Planning

JADC2 planning requires clear and early expression of commander's intent and force prioritization. Commanders should address the **exploit versus explore tension** when providing intent and priorities to subordinate planners and commanders. This tension is a balance between exploiting the knowledge you already have, versus exploring to discover new knowledge (e.g., the specification of specific collection assets and analysts between targeting and surveillance). The explore versus exploit tension exists between intelligence and operations as well.

JADO enables better management of this tension through enhanced information gathering, processing, and sharing across domains. JADC2 tools and methods harness the existing capability of the joint force to both surveil widely, and focus their gaze narrowly. Analytic modeling and simulation tools should be employed to support and enhance commander decision making and inform strategic balances such as apportionment.

The current air tasking order (ATO) must evolve into an integrated tasking order (ITO) that directs assigned, attached, and supporting forces and capabilities. The ITO incorporates capabilities across components and domains. Joint force visibility on intended actions presents synchronization opportunities allowing for mutual support and opportunistic convergence. Knowledge of joint force capabilities, a common lexicon, and the ability to communicate across echelons enables DAF forces to integrate across domains.

"It is a given in future conflicts that the joint force will be conducting operations in a contested environment. We must be prepared to execute in a degraded C2 environment where clearly delineated and forward-thinking commander's intent will be a requirement. It is imperative senior leaders provide our commanders with conditions-based authorities delegated to the lowest capable and competent level, and empower command by negation to accept the appropriate level of risk, all while working toward moments of clear C2."

**-- General C.Q. Brown, Jr.,
Commander, Pacific Air Forces (2019)**

Early planning visibility allows forces to sustain initiative despite degradation. Longer planning cycles with faster adaptation and refinement permit subordinate commanders to understand and execute intent when communication is degraded for extended periods. The longer planning cycle induces inefficiencies, but those inefficiencies are outweighed by increased adaptability and flexibility of the force.

JADC2 Plans Considerations:

- ★ Desired effects and supported objectives.
- ★ Second- or third-order effects and consequence management plans.

- ★ Limiting factors.
- ★ Effects timing, including start time, duration, and flexibility.
- ★ Capabilities used to create an effect and required accesses.
- ★ Lead times required to access needed capabilities.
- ★ Authorities required and from whom they are delegated.
- ★ [Rules of engagement](#) and judge advocate review.
- ★ Integration of Nuclear Command, Control, and Communications (NC3) for Conventional-Nuclear Integration (CNI).
- ★ Reusability of non-kinetic capabilities for follow-on operations.
- ★ Integration of partners and allies.

Execution

JADC2 synchronizes integrated kinetic and nonkinetic actions with lethal and nonlethal effects, and adjusts weight of effort, requiring monitoring and adapting integrated operations plans with forces and capabilities. Execution priorities:

- ★ Synchronize application of available forces and capabilities.
- ★ Establish conditions to delegate authorities.
- ★ Synthesize the legal and policy implications of force employment.
- ★ Commence, accelerate, delay, or terminate execution of ongoing operations for maximum advantage and desired operational pace.
- ★ Mitigate operational disadvantages in one domain through action in or through other domains.
- ★ Exploit advantages in one domain to create opportunities in others.
- ★ Ensure effective tactical action through mission-type orders.
- ★ Create effects via supporting (not assigned or attached) forces, through effective coordination between combatant commands.
- ★ Develop follow-up actions for unexecuted orders.

- ★ Ensure transition criteria account for the full range of conditions across domains.

ASSESSMENT

JADC2 assessment provides the commander answers to three questions:

JADC2 Assessment Considerations	
Category	Examples of key questions
Are we doing the right things?	<ul style="list-style-type: none"> ★ What effects were late-to-need due to authorities delegation delays? ★ What were we not able to accomplish due to a lack of authorities? ★ What opportunities advanced the JFC's objectives through all-domain synchronization?
Are we doing things right?	<ul style="list-style-type: none"> ★ Did we have the right communication channels in place between air, space, and cyberspace forces to enable convergence? ★ Did we sequence effects between domains as planned? ★ Did we achieve the desired operations tempo?
Are we measuring the right things?	<ul style="list-style-type: none"> ★ How do we measure the effectiveness of the integrated air, space, and cyberspace portions of our campaign? ★ Can we use indicators from one domain to make assessments in others? ★ Do we have the means to collect relevant metrics within operationally relevant timeframes?

JADC2 Assessment Considerations