



Integration, Control and Deconfliction of Joint Fires Study

Volume 2 Definition of Key Terms on Joint Fires

**Study Conducted and Report Prepared by the Strike,
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Volume 2

Definition of Key Terms on Joint Fires

Volume 2 consolidates into one document those terms commonly used in the conduct of joint fires. Most of the joint fires terms defined are found in various defense publications. Where definition of joint terms is incomplete or lacking, especially in deconfliction, the NDIA Joint Fires Study team provided working definitions. The source of each definition is noted. It is hoped that Volume 2 will provide a quick and useful reference to the war fighters engaged in the planning and executing of joint fires.

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Definition of Key Terms on Joint Fires

3D track sector. The variable keepout volume around a track initiated at track entry and projected along the planned track trajectory to the objective defined by the track mission. (Provided by Lockheed Martin GES)

AADC joint air defense firepower coordination. Joint air defense fire power Coordination consists of all measures taken under the responsibility of the Joint Force Commander, Functional Component Commanders, and Service Component Commanders, to coordinate and control all assigned air defense weapon systems. Also, to ensure that: the Integrated Air Defense System (IADS) has all potential targets positively identified; all intended targets related to air defense of the Joint Force and defended assets are effectively engaged; all weapons are used efficiently; and, friendly forces, neutrals and non-combatants are not hazarded by friendly fire. (Developed for the purpose of this study)

active air defense. Direct defensive action taken to nullify or reduce the effectiveness of hostile air action. It includes such measures as the use of aircraft, air defense weapons, weapons not used primarily in an air defense role and electronic warfare. (Joint Pub 1-02)

active defense. Operations taken to protect against theater missile attack by destroying theater missile airborne launch platforms and/or destroying theater missiles in flight. (Joint Pub 3-01.5)

advanced concept technology demonstration. DARPA sponsored programs

designed to evaluate mature technology to meet warfighter needs. Also called ACTD. Marrying new operational concepts with new technologies, ACTDs are aimed at rapidly fielding new systems, generally within two to four years. The ACTD is DoD's approach to capturing and harnessing technology and innovation rapidly for military use at reduced costs. ACTDs are designed to directly foster an alliance between the technologists and the warfighters, eliminating barriers and improving the management of these critical efforts. (DOD DefenseLink web site)

airborne early warning. The detection of enemy air or surface units by radar or other equipment carried in an airborne vehicle, and the transmitting of a warning to friendly units. (Joint Pub 1-02)

air corridor. A restricted route of travel specified for use by friendly aircraft and established for the purpose of preventing friendly aircraft from being fired on by friendly forces. (Joint Pub 1-02)

air defense. All defensive measures designed to destroy attacking enemy aircraft or missiles in the Earth's envelope of atmosphere, or to nullify or reduce the effectiveness of such attack. (Joint Pub 1-02)

air defense action area. An area and the airspace above it within which friendly aircraft or surface-to-air weapons are normally given precedence in operations except under specified conditions. (Joint Pub 1-02)

air defense area. 1. Overseas-A specifically defined airspace for which air defense must be planned and provided. 2. United States-Airspace of defined dimensions designated by the appropriate agency within which the ready control of airborne vehicles is required in the interest of national security during an air defense emergency. (Joint Pub 1-02)

air defense identification zone. Airspace of defined dimensions within which the ready identification, location, and control of airborne vehicles are required. Also called ADIZ. (Joint Pub 1-02)

air defense operations area. An area and the airspace above it within which procedures are established to minimize mutual interference between air defense and other operations; it may include designation of one or more of the following: air defense action area, air defense area, air defense identification zone, and/or firepower umbrella. (Joint Pub 1-02)

air interdiction. Air operations conducted to destroy, neutralize, or delay the enemy's military potential before it can be brought to bear effectively against friendly forces at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required. (Joint Pub 3-09)

air operations center. The principal air operations installation from which aircraft and air warning functions of combat air operations are directed, controlled, and executed. It is the senior agency of the Air Force Component Commander from which command and control of air operations are coordinated with other components and Services. Also called AOC. (Joint Pub 1-02)

airspace control. See airspace control in the combat zone. (Joint Pub 1-02) airspace control area. Airspace, which is laterally

defined by the boundaries of the area of operations. The airspace control area may be subdivided into airspace control sub-areas. (Joint Pub 1-02)

airspace control authority. The commander designated to assume overall responsibility for the operation of airspace control system in the airspace control area. (Joint Pub 1-02) airspace control order. An order implementing the airspace control plan that provides the details of the approved requests for airspace control measures. It is published either as part of the air tasking order or as a separate document. Also called ACO. (Joint Publication 1-02)

airspace control center. The airspace control authority's primary airspace control facility, including assigned Service component, host nation, and/or allied personnel and equipment. (Joint Pub 1-02)

airspace control facility. Any of the several Service component, host nation, or allied facilities that provide airspace control in the combat zone. (Joint Pub 1-02)

airspace control in the combat zone. A process used to increase combat effectiveness by promoting the safe, efficient, and flexible use of airspace. Airspace control is provided in order to prevent fratricide, enhance air defense operations, and permit greater flexibility of operations. Airspace control does not infringe on the authority vested in commanders to approve, disapprove, or deny combat operations. Also called combat airspace control; airspace control. (Joint Pub 1-02)

airspace control order. An order implementing the airspace control plan that provides the details of the approved requests for airspace control measures. It is published either as part of the air tasking order or as a

separate document. Also called ACO. (Joint Pub 1-02)

airspace control plan. The document approved by the joint force commander that provides specific planning guidance and procedures for the airspace control system for the joint force area of responsibility/joint operations area. Also called the ACP. (Joint Pub 3-52. Approved for inclusion in the next edition of Joint Pub 1-02.)

airspace control sector. A sub-element of the airspace control area, established to facilitate the control of the overall area. Airspace control sector boundaries normally coincide with air defense organization subdivision boundaries. Airspace control sectors are designated in accordance with procedures and guidance contained in the airspace control plan in consideration of Service component, host nation, and allied airspace control capabilities and requirements. (Joint Pub 1-02)

airspace control system. An arrangement of those organizations, personnel, policies, procedures and facilities required to perform airspace control functions. (Joint Pub 1-02) airspace coordination area. A three-dimensional block of airspace in a target area, established by the appropriate ground commander, in which friendly aircraft are reasonably free from friendly surface fires. The airspace coordination area may be formal or informal. (Joint Pub 3-52: Approved for inclusion in the next edition of Joint Pub 1-02.)

airspace deconfliction. The process of allocating airspace as a function of time to avoid or resolve conflicts. Successful airspace deconfliction allows multiple missions to be performed at nearly the same time in the same airspace. It is necessary in order to prevent fratricide, enhance the efficiency of air

defense and land attack operations, including the effectiveness of the employment of weapons and sensors. It permits greater flexibility of operations during both planning and execution. Airspace deconfliction is accomplished by (1) using all available information to detect, track, and identify all targets in the airspace, and (2) managing the airspace in real time. (NDIA working definition)

airspace management. The coordination, integration, and regulation of the use of airspace of defined dimensions. (Joint Pub 1-02)

airspace restrictions. Special restrictive measures applied to segments of airspace of defined dimensions. (Joint Pub 1-02)

air superiority. That degree of dominance in the air battle of one force over another which permits the conduct of operations by the former and its related land, sea and air forces at a given time and place without prohibitive interference by the opposing force. (Joint Pub 1-02)

air supremacy. That degree of air superiority wherein the opposing air force is (incapable of effective interference. (Joint Pub 1-02)

air tasking order. A method used to task and disseminate to components, subordinate units, and command and control agencies projected sorties/capabilities/forces to targets and specific missions. Normally provides specific instructions to include call signs, targets, controlling agencies, etc., as well as general instructions. Also called ATO. (Joint Pub 1-02)

air traffic control facility. Any of the component airspace control facilities primarily responsible for providing air traffic control services and, as

required, limited tactical control services.
(Joint Pub1-02)

allocation. The translation of the apportionment into total number of sorties by aircraft type available for each operation/task.
(Joint Pub 1-02)

amphibious objective area. A geographical area, delineated in the initiating directive, for purposes of command and control within which is located the objective(s) to be secured by the amphibious task force. This area must be of sufficient size to ensure accomplishment of the amphibious task force's mission and must provide sufficient area for conducting necessary sea, air, and land operations. (Joint Pub 1-02)

anti-air warfare. A US Navy/US Marine Corps term used to indicate that action required to destroy or reduce to an acceptable level the enemy air and missile threat. It includes such measures as the use of interceptors, bombers, antiaircraft guns, surface-to-air and air-to-air missiles, electronic attack, and destruction of the air or missile threat both before and after it is launched. Other measures that are taken to minimize the effects of hostile air action are cover, concealment, dispersion, deception (including electronic), and mobility. (Joint Pub 1-02)

apportionment. In the general sense, distribution for planning of limited resources among competing requirements. Specific apportionments (e.g., air sorties and forces for planning) are described as apportionment of air sorties and forces for planning, etc. (Joint Pub 1-02)

area air defense commander. Within a unified command, subordinate unified command, or joint task force, the commander will assign overall responsibility for air

defense to a single commander. Normally, this will be the component commander with the preponderance of air defense capability and the command, control, and communications capability to plan and execute integrated air defense operations. Representation from the other components involved will be provided, as appropriate, to the area air defense commander's headquarters. Also called AADC. (Joint Pub 1-02)

area of responsibility. 1. The geographical area associated with a combatant command within which a combatant commander has authority to plan and conduct operations. 2. In naval usage, a predefined area of enemy terrain for which supporting ships are responsible for covering by fire on known targets or targets of opportunity and by observation. Also called AOR. (Joint Pub 1-02)

Army air-ground system. The Army system which provides for interface between Army and tactical air support agencies of other Services in the planning, evaluating, processing, and coordinating of air support requirements and operations. It is composed of appropriate staff members, including G-2 air and G-3 air personnel, and necessary communications equipment. (Joint Publication 1-02)

Army airspace command and control. Those actions that ensure the synchronized use of airspace and enhance the command and control of those forces using airspace. This system includes those organizations, personnel, facilities, and procedures required to perform the airspace control function.

base defense zone. An air defense zone established around an air base and limited to the engagement envelope of short-range air defense weapons systems defending

that base. Base defense zones have specific entry, exit, and identification, friend or foe procedures established. Also called BDZ. (Joint Pub 1-02)

battlefield coordination detachment. An Army liaison provided by the Army component commander to the Air Operations Center (AOC) and/or to the component designated by the joint force commander to plan, coordinate, and deconflict air operations. The battlefield coordination detachment processes Army requests for tactical air support, monitors and interprets the land battle situation for the AOC, and provides the necessary interface for exchange of current intelligence and operational data. Also called BCD. (Joint Publication 1-02)

campaign plan. A plan for a series of related military operations aimed at accomplishing a strategic or operational objective within a given time and space. (Joint Pub 1-02)

close air support. Air action by fixed- and rotary-wing aircraft against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces. Also called CAS. (Joint Pub 3-09)

coherent tactical picture. (1) The coherent tactical picture, also called CTP, is the near real-time picture of air, space, surface, land and subsurface vehicular tracks as well as points, lines and areas. The intent of the CTP is to provide a clear, consistent and intuitively obvious display of all objects of interest to users in the joint force within operator selectable regions. It provides situational awareness to commanders and war fighters to execute the campaign plan. Since the CTP is the product of data provided primarily by the Joint Data Network (JDN), JICO also serves as

the theater JDN Manager. (Draft JICO Concept of Operations) (2) The coherent tactical picture is a data display that provides near-real-time information for execution. (CRD for TMD)

combat air patrol. An aircraft patrol provided over an objective area. over the force protected, over the critical area of a combat zone, or over an air defense area, for the purpose of intercepting and destroying hostile aircraft before they reach their target. (Joint Pub 1-02)

combat airspace control. See airspace control in the combat zone. (Joint Pub 1-02)

combatant command (command authority). Nontransferable command authority established by title 10 ("Armed Forces"), United States Code, Section 164, exercised only by commanders of unified or specified combatant commands unless otherwise directed by the President or the Secretary of Defense. Combatant command (command authority) cannot be delegated and is the authority of a combatant commander to perform those functions of command over assigned forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction over all aspects of military operations, joint training, and logistics necessary to accomplish the missions assigned to the command. Combatant command (command authority) should be exercised through the commanders of subordinate organizations. Normally, this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Combatant command (command authority) provides full authority to organize and

employ commands and forces as the combatant commander considers necessary to accomplish assigned missions. Operational control is inherent in combatant command (command authority). Also called COCOM. (Joint Pub 1-02)

combatant commander. A commander in chief of one of the unified or specified combatant commands established by the President. Also called CINC. (Joint Pub 1-02)

combat zone. 1. That area required by combat forces for the conduct of operations. 2. The territory forward of the Army rear area bound~. (Joint Pub 1-02)

combined operation. An operation conducted by forces of two or more allied nations acting together for the accomplishment of a single mission. (Joint Pub 1-02)

command and control warfare. The integrated use of operations security, military deception, psychological operations, electronic warfare, and physical destruction, mutually supported by intelligence, to deny information to, influence, degrade, or destroy adversary command and control capabilities, while protecting friendly command and control capabilities against such actions. Command and control warfare is a warfighting application of information warfare in military operations and is a subset of information warfare. Command and control warfare applies across the range of military operations and all levels of conflict. Also called C2W. C2W is both offensive and defensive: a. C2-attack. Prevent effective C2 of adversary forces by denying information to, influencing, degrading or destroying the adversary C2 system. b. C2-protect. Maintain effective command and control of own forces by

turning to friendly advantage or negating adversary efforts to deny information to, influence, degrade or destroy the friendly C2 system. (Joint Pub 1-02)

common operational picture. Also called COP. A data display that provides non-real-time information for situational awareness and planning. (CRD for TMD)

compatibility. The capability of two or more items or components or equipment or material to exist or function in the same system or environment without mutual interference. (Joint Pub 1-02)

concept of operations. A verbal or graphic statement, in broad outline, of a commander's assumptions or intent in regard to an operation or series of operations. The concept of operations frequently is embodied in campaign plans and operation plans; in the latter case, particularly when the plans cover a series of connected operations to be carried out simultaneously or in succession. The concept is designed to give an overall picture of the operation. It is included primarily for additional clarity of purpose. Also called commander's concept. (Joint Pub 1-02)

control and reporting element. A mobile radar element of the TACS that is subordinate to the CRC. It is normally deployed into forward areas to extend radar coverage and to provide control of air operations, early warning surveillance, and gap filler service. (USAF)

control and reporting center. A mobile command, control, and communications radar element of the US Air Force theater air control system subordinate to the air operations center. The control and reporting center possesses four Modular Control

Equipment operations modules and integrates a comprehensive air picture via multiple data links from air-, sea-, and land-based sensors as well as from its surveillance and control radars. It performs decentralized command and control of joint operations by conducting threat warning, battle management, theater missile defense, weapons control, combat identification, and strategic communications. Also called CRC. (Joint Publication 1-02)

cooperative engagement capability.

Also called CEC. A system under development by the Navy which nets the sensor information from dispersed units into fire control accuracy composite tracks. (PEO TAD Paper on Naval Theater Ballistic Missile Defense ---Filling an Urgent Need)

coordinating altitude. A procedural airspace control method to separate fixed- and rotary-wing aircraft by determining an altitude below which fixed-wing aircraft will normally not fly and above which rotary-wing aircraft will normally not fly. The coordinating altitude is normally specified in the airspace control plan and may include a buffer zone for small altitude deviations. (Joint Pub 1-02)

counterair. A mission which integrates offensive and defensive operations to attain and maintain a desired degree of air superiority. Counterair missions are designed to destroy or negate those enemy forces that use the air environment, both before and after launch. (Joint Pub 3-01. Upon approval of Joint Pub 3-01, this term and its definition will modify the existing term "counter air" and its definition and will be included in Joint Pub 1-02.)

deconfliction. Process of preventing unintended collisions of objects in space, air, sea, and ground.

defense in depth. The siting of mutually supporting defense positions designed to absorb and progressively weaken attack, prevent initial observations of the whole position by the enemy, and to allow the commander to maneuver his reserve. (Joint Pub 1-02)

defensive counterair. All defensive measures designed to detect, identify, intercept, and destroy or negate enemy forces attempting to attack or penetrate the friendly air environment. Also called DCA. (Joint Pub 3-01. Upon approval of Joint Pub 3-01, this term and its definition will be included in Joint Pub 1-02.)

detonate keepout volume (cylinder).

That volume required to provide adequately for those cases where intercepts/detonations will take place within the 3D track sector volume. Keepout volumes need to be adjusted to account for overpressure, debris, smoke, and heat for a finite time. The volume is generated around the intercept point x seconds prior to intercept and is maintained for y seconds after intercept. The cylinder is of z diameter, and extends from intercept altitude + down to the surface: (Provided by Lockheed Martin GES)

direct support. A mission requiring a force to support another specific force and authorizing it to answer directly the supported force's request for assistance. (Joint Pub 1-02)

discrimination. The process of observing a set of attacking objects and differentiating between decoys or other non-threatening objects with actual threat objects. (Report to Congress, April 1988)

drone. A land, sea, or air vehicle that is remotely or automatically controlled. (Joint Pub 1-02)

electronic warfare. Any military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. Also called EW. The three major subdivisions within electronic warfare are: electronic attack, electronic protection, and electronic warfare support. a. **electronic attack.** That division of electronic warfare involving the use of electromagnetic, directed energy, or anti-radiation weapons to attack personnel, facilities, or equipment with the intent of degrading, neutralizing, or destroying enemy combat capability. Also called EA. EA includes: 1) actions taken to prevent or reduce an enemy's effective use of the electromagnetic spectrum, such as jamming and electromagnetic deception, and 2) employment of weapons that use either electromagnetic or directed energy as their primary destructive mechanism (lasers, radio frequency weapons, particle beams) or anti-radiation weapons. b. **electronic protection.** That division of electronic warfare involving actions taken to protect personnel, facilities, and equipment from any effects of friendly or enemy employment of electronic warfare that degrade, neutralize, or destroy friendly combat capability. Also called EP. c. **electronic warfare support.** That division of electronic warfare involving actions tasked by, or under direct control of, an operational commander to search for, intercept, identify, and locate sources of intentional and unintentional radiated electromagnetic energy for the purpose of immediate threat recognition. Thus, electronic warfare support provides information required for immediate decisions involving electronic warfare operations and other tactical actions such as threat avoidance,

targeting, and homing. Also called ES. Electronic warfare support data can also be used to produce signals intelligence, both communications intelligence and electronics intelligence. (Joint Pub 1-02)

fires. The effects of lethal or non-lethal weapons. (Joint Pub 1-02)
(see also **joint fires**)

fire support. Fires that directly support land, maritime, amphibious, and special operation forces to engage enemy forces, combat formations, and facilities in pursuit of tactical and operational objectives. (Joint Pub 3-09)

fire support coordination. The planning and executing of fire so that the targets are adequately covered by a suitable weapon or group of weapons. (Joint Pub 1-02)

FORCEnet is the operational construct and architectural framework for naval warfare in the information age which integrates warriors, sensors, networks, command and control, platforms and weapons into a networked, distributed combat force, scalable across the spectrum of conflict from seabed to space and sea to land. (Chief of Naval Operations)

foreign internal defense. Participation by civilian and military agencies of a government in any of the action programs taken by another government to free and protect its society from subversion, lawlessness, and insurgency. Also called FID. (Joint Pub 1-02)

forward line of own troops. A line which indicates the most forward positions of friendly forces in any kind of military operation at a specific time. The forward line of own troops normally identifies the forward location of covering and screening forces. Also called PLOT. (Joint Pub 1-02)

fratricide. Unforeseen and unintentional death or injury to friendly personnel as a result of employing friendly weapons and munitions with the intent to kill the enemy or destroy his equipment and facilities. Fratricide increases the possibility of mission failure, causes unacceptable loss of personnel and equipment, and erodes leadership effectiveness. Control measures are used to eliminate or reduce potential fratricide situations. (Army FM 6-20-40)

functional component command.

A command normally, but not necessarily, composed of forces of two or more Military Departments which may be established to perform particular operational missions that may be of short duration or may extend over a period of time. (Joint Pub 1-02)

graceful degradation. A condition in which a system continues to operate, providing service in a degraded mode rather than failing completely or catastrophically. (in the CRD for TMD, from Federal Standard 1037B)

ground space deconfliction. Ground space deconfliction is the process of eliminating fratricide or minimizing exposure to potential fratricide of friendly ground forces. (NDIA working definition)

high-altitude missile engagement zone. See weapon engagement zone. (Joint Pub 1-02)

high-density airspace control zone. Airspace designated in an airspace control plan or airspace control order, in which there is a concentrated employment of numerous and varied weapons and airspace users. A high-density airspace control zone has defined dimensions, which usually coincide with geographic features or navigational aids. Access to a high-density

airspace control zone is normally controlled by the maneuver commander. The maneuver commander can also direct a more restrictive weapons status within the high-density airspace control zone. Also called HIDACZ. (Joint Pub 1-02)

identification, friend or foe. A system using electromagnetic transmissions to which equipment carried by friendly forces automatically responds, for example, by emitting pulses, thereby distinguishing themselves from enemy forces. Also called IFF. (Joint Pub 1-02)

identification, friend or foe/selective identification feature procedures. The directives that govern the use of identification, friend or foe selective identification feature equipment. (Joint Pub 1-02)

intelligence preparation of the battlespace. An analytical methodology employed to reduce uncertainties concerning the enemy, environment, and terrain for all types of operations. Intelligence preparation of the battlespace builds an extensive database for each potential area in which a unit may be required to operate. The database is then analyzed in detail to determine the impact of the enemy, environment, and terrain in operations and presents it in graphic form. Intelligence preparation of the battlespace is a continuing process. Also called IPB. (Joint Pub 1-02)

integrated air defense system. Also called IADS. See integration.

integration. (1) The combination of separate systems, capabilities, functions, etc., in such a way that individual elements can operate singly or in concert without adversely affecting other elements. (2) Act of putting

together as a final end item various components of a system. (BMDO Glossary)

intersecting sectors. Variable keepout volumes around the present or projected position of other tracks that intersect the track's sector that is under examination. (Provided by Lockheed Martin GES)

interoperability. (1) The ability of systems, units, or forces to provide services from others systems, units, or forces and to use the services so exchanged to enable them to operate effectively together. (2) The condition achieved among communication- electronics systems or items of communications- electronics equipment when information or services can be exchanged directly and satisfactorily between them and/or their users. The degree of interoperability should be defined when referring to specific cases. (Joint Pub 1-02)

joint air defense firepower coordination. See AADC joint air defense firepower coordination.

joint continuous strike environment. A DARPA program focused on the optimization of the use of joint and combined weapons suites on time-critical targets. Also called JCSE. (From DoD Defense Link web site)

joint engagement zone. See weapon engagement zone. (Joint Pub 1-02)

joint composite tracking network. (1) A network of communications- electronics systems that passes real-time and near-real- time, precision sensor measurement information data among participants. Also called JCTN. (TMD C2 Plan) (2) The JCTN is based on the cooperative engagement capability (CEC)

which provides very high- speed transfer of precision sensor measurement data and enables an extremely accurate tactical picture, as well as unprecedented cooperation and flexibility in the execution of theater missile defense. (TMD SDD)

joint data network. (1) A network of communication-electronics systems that carried near real time, TADIL J (Link 16) and space-based early warning information. (TMD C2 Plan) (2) A collection of nets and standards used for high-speed transfer of time-critical track and C2 information. This network includes the TADILs used in theater air defense operations and modified for TMD operations as well as systems used to provide early warning. JDN is made up of: TADIL A/Link 11, TADIL J/Link 16, TIBS, TDDS, and voice circuits. (TMD SDD) joint fires. Fires produced during the employment of forces from two or more components in coordinated action toward a common objective. (Joint Pub 3-09)

joint fires. Fires produced during the employment of forces from two or more components in coordinated action toward a common objective. (Joint Pub 1-02) (NDIA working definition: **joint fires** are those produced during the employment of joint forces in coordinated action. Joint Fires are defensive and offensive in nature and include all types of ordnance – bombs, rockets, missiles and artillery, as well as non-lethal means against enemy targets.)

joint fires coordination. Measures taken to coordinate and control joint fires so that targets are identified and effectively engaged, and friendly forces are not hazarded by friendly fire. (NDIA working definition)

joint fires deconfliction. The process of effectively utilizing space (air, surface, and land) and time to avoid or resolve conflict,

prevent fratricide, and enhance the efficient use of weapons and sensors. Deconfliction includes coordination of planning activities and resolving conflicts which emerge prior to or during execution of joint fires. (NDIA working definition)

joint fire support. Joint fires that assist land, maritime, amphibious, and special operations forces to move, maneuver, and control territory, populations, and key waters. (Joint Pub 3-09)

joint force. A general term applied to a force composed of significant elements, assigned or attached, of two or more Military Departments, operating under a single commander authorized to exercise operational control. (Joint Pub 1-02)

joint force air component commander. The joint force air component commander derives authority from the joint force commander who has the authority to exercise operational control, assign missions, direct coordination among subordinate commanders, redirect and organize forces to ensure unity of effort in the accomplishment of the overall mission. The joint force commander will normally designate a joint force air component commander. The joint force air component commander's responsibilities will be assigned by the joint force commander (normally these would include, but not be limited to, planning, coordination, allocation, and tasking based on the joint force commander's apportionment decision). Using the joint force commander's guidance and authority, and in coordination with other Service component commanders and other assigned or supporting commanders, the joint force air component commander will recommend to the joint force commander apportionment of air sorties to various missions or geographic areas. Also called JFACC. (Joint Pub 1-02)

joint force commander. A general term applied to a combatant commander, subordinate unified commander, or joint task force commander authorized to exercise combatant command (command authority) or operational control over a joint force. Also called JFC. (Joint Pub 1-02)

joint interface control officer. Acting for the supported commander, JICO is responsible to develop and maintain the Coherent Tactical Picture (CTP). This includes not only connectivity and interoperability, but also CTP quality. The CTP is the near real-time picture of air- space, surface, land and subsurface vehicular tracks as well as points, lines and areas. The intent of the CTP is to provide a clear, consistent and intuitively obvious display of all objects of interest to users in the joint force within operator selectable regions. It provides situational awareness to commanders and war fighters to execute the campaign plan. Since the CTP is the product of data provided primarily by the Joint Data Network (JDN), JICO also serves as the theater JDN Manager. The JDN includes the Joint Force Multi-TADIL network and those interfaces between the Multi- TADIL network and national data nets. (Draft JICO Concept of Operations)

joint operation area. An area of land, sea, and airspace, defined by a geographic combatant commander or subordinate unified commander, in which a joint force commanders (normally a joint task force commander) conducts military operations to accomplish a specific mission. Joint operations areas are particularly useful when operations are limited in scope and geographic area or when operations are to be conducted on the boundaries between theaters. Also called JOA. (Joint Pub 1-02)

joint planning network. (1) The Global Command and Control System (GCCS) - based network of communication-electronics systems accessed by personnel responsible for planning. Non-real-time information is generally exchanged over this network. Also called JPN. (TMD C-Plan) (2) The primary means of connectivity and data exchange for operational planning among the theater CINC, subordinate commanders, and principal operational nodes. The purpose of the JPN is to provide the methods and means to transfer the data necessary to conduct planning for TMD operations. (TMD SDD)

joint suppression of enemy air defenses. A broad term that includes all suppression of enemy air defense activities provided by one component of the joint force in support of another. Also called J-SEAD. (Joint Pub 1-02)

joint targeting coordination board. A group formed by the joint force commander to accomplish broad targeting oversight functions that may include but are not limited to coordinating targeting information, providing targeting guidance and priorities, and preparing and/or refining joint target lists. The board is normally comprised of representatives from the joint force staff, all components, and if required, component subordinate units. Also called JTCB. (Joint Pub 1-02)

joint technical architecture. The Joint technical Architecture is a document that identifies a common set of mandatory information technology standards and guidelines to be used in all C41 systems and the interfaces of C41 systems with other key assets. Also called JTA. (Joint Technical Architecture web page frequently

asked questions, found at: <http://www-ita.itsi.disa.mil/fita/faa.html>)

joint theater air and missile defense. Joint Theater Air and Missile Defense, also called Joint TAMD or JTAMD, is the integrated capability to detect, identify, intercept, and destroy (or negate the effectiveness of) enemy aircraft and missiles prior to launch, or while in flight, in order to protect U.S. and coalition forces, selected units, and population centers within an organized theater of operations. (TAMD Master Plan 98B)

joint theater missile defense. The integration of joint force capabilities to destroy enemy theater missiles in flight or prior to launch or to otherwise disrupt the enemy's theater missile operations through an appropriate mix of mutually supportive passive missile defense, active missile defense, attack operations, and supporting command, control, communications, computers, and intelligence measures. Enemy theater missiles are those that are aimed at targets outside the continental United States. Also called JTMD. (Joint Pub 1-02)

Link-4A. TADIL C (NATO Link 4A) is a netted, time division data transmission link between control station and controlled aircraft that can operate in either one-to-one or one-to-many/many-to-one modes. It provides the capability for automatic transmission of orders, status, and other information. Data exchange is accomplished on a fully automatic link at 5,000 BPS, using serial transmission. TADIL C is a nonsecure link that operates in the UHF frequency range. It has unique message standards and protocols and does not interface directly with TADIL A, B, and J.

Link -11. TADIL A (NA TO Link 11) is a half-duplexed, netted link that normally

operates by roll call from a Net Control Station (NCS). TADIL A can also operate in the broadcast mode. The roll-call mode of operation used in the TADIL A interface requires that each PU respond in turn while all other stations are receiving. A NCS initiates the roll call by addressing and transmitting an interrogation message to a specific PU that then responds by transmitting its data. The NCS then interrogates the next PU in the prescribed roll call.

TADIL A can be transmitted on high frequency (HF) and/or ultra high frequency (UHF) bands. Data speed can be selected from bit rates of 2,250 or 1,364 bits per second (BPS). Dual side band diversity operation and Doppler shift correction features improve reliability and accuracy of data exchange.

Link-16. TADIL J (NATO Link 16) is a nodeless, high-capacity, multifunctional, secure, jam resistant tactical data link designed for the exchange of fixed format and voice messages using the Joint Tactical Information Distribution System (JTIDS) Class 2/multifunctional Information Distribution System (MIDS) terminal. JTIDS uses the principle of Time Division Multiple Access (TDMA), an architecture that employs time slot interleaving to provide multiple, simultaneous communications nets. Since JTIDS is an UHF system, transmitted messages can only be received by units that are within Line of Sight (LOS) However, JTIDS provides a means to relay beyond LOS. All JUs are preassigned sets of multiple time slots in which to transmit their data and in which to receive data from other units. The time slots of a net can be parceled out to one or more Network Participation Groups (NPGs). An NPG is defined by its function and also by the types of messages that will be transmitted on it. This division of the net into functional groups allows JUs to participate

only on the NPGs for the functions they perform.

low-altitude missile engagement zone.

See weapon engagement zone. (Joint Pub 1-02)

low-level transit route. A temporary corridor of defined dimensions established in the forward area to minimize the risk to friendly aircraft from friendly air defenses or surface forces. (Joint Pub 1-02)

measures to deconflict. NDIA working definition: Measures to Deconflict (MTD), a new term of reference, is a set of guidelines aimed at preventing mutual interference and collision of friendly objects in air, surface, land, and subsurface. MTD is envisioned as part of the joint fires planning and execution function will heighten awareness of all command levels to its importance psychologically, tactically, and politically.

minimum-risk route. A temporary corridor of defined dimensions recommended for use by high-speed, fixed-wing aircraft that presents the minimum known hazards to low-flying aircraft transiting the combat zone. Also called MRR. (Joint Pub 1-02)

minimum-risk level. A specific altitude or altitude block that allows homebound aircraft to return in a homebound direction without lateral restrictions. Also called MRL. (Joint Pub 1-02)

near real time. Pertaining to the timeliness of data or information which has been delayed by the time required for electronic communication and automatic data processing. This implies that there are no significant delays. (Joint Pub 1-02)

non-real-time data. Data or information exchange that has been significantly delayed by the communications means, automated data processing, and/or human intervention. (In context of USACOM Capstone Requirements Document for Theater Missile Defense (CRD for TMD), 1 July 1998)

offensive counterair. Offensive operations to destroy, disrupt, or neutralize enemy aircraft, missiles, launch platforms, and their supporting structures and systems both before and after launch, but as close to their source as possible. Offensive counterair operations range throughout enemy territory and are generally conducted at the initiative of friendly forces. These operations include: I surface strikes, attack operations, fighter sweep, escort, and SEAD. Also called OCA. (Joint Pub 3-01. Upon approval of Joint Pub 3-01, this term and its definition will be included in Joint Pub 1-02.)

operational control. Transferable command authority that may be exercised by commanders at any echelon below the level of combatant command. Operational control is inherent in combatant command (command authority). Operational control may be delegated and is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. Operational control includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command. Operational control should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force

commanders and Service and/or functional component commanders. Operational control normally provides full authority to organize commands and forces as the commander in operational control considers necessary to accomplish assigned missions. Operational control does not, in and of itself, include any authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training. Also called OPCON. (Joint Pub 1-02)

passive air defense. All measures, other than active air defense, taken to minimize the effectiveness of hostile air and missile threats against friendly forces and vital assets. These measures include camouflage, deception, dispersion, and the use of protective construction. (Joint Pub 3-01. Upon approval of Joint Pub 3-01, this term and its definition will modify the existing term and its definition and will be included in Joint Pub 1-02.)

point defense. The defense or protection of special vital elements and installations; e.g., command and control facilities, air bases. (Joint Pub 1-02)

positive control. A method of airspace control which relies on positive identification, tracking, and direction of aircraft within an airspace, conducted with electronic means by an agency having the authority and responsibility therein. (Joint Pub 1-02)

procedural control. A method of airspace control which relies on a combination of previously agreed and promulgated orders and procedures. (Joint Pub 1-02)

real time. Pertaining to the timeliness of data or information which has been delayed only

by the time for electronic communication. This implies there are no noticeable delays. (Joint Pub 1-02)

real-time deconfliction. A dynamic process utilizing timely data and information for identifying conflicts in prosecuting time-sensitive targets and immediate calls for fire, and resolving conflicts by directing munitions, friendly aircraft, ships, or land forces prior to or during employment in the battlespace. (NDIA working definition)

resolution options. Those options that are evaluated to resolve keepout volume conflicts. Available options include: (a) weapons: adjust launch; adjust trajectory; re-target; command destruct; do nothing, and (b) controlled aircraft: adjust launch; adjust altitude, speed, heading; do nothing. (Provided by Lockheed Martin GES)

restricted operations area. Airspace of defined dimensions, designated by the airspace control authority, in response to specific operational situations/requirements within which the operation of one or more airspace users is restricted. (Joint Pub 1-02)

rules of engagement. Directives issued by competent military authority which delineate the circumstances and limitations under which United States forces will initiate and/or continue combat engagement with other forces encountered. Also called ROE. (Joint Pub 1-02)

service component command. A command consisting of the Service component commander and all those Service forces, such as individuals, units, detachments, organizations and installations under the command including the support forces, that have been assigned to a

combatant command or further assigned to a subordinate unified command or joint task force. (Joint Pub 1-02)

short-range air defense engagement zone. See weapon engagement zone. (Joint Pub 1-02)

single integrated air picture. Also called SIAP. The SIAP is the product of fused, common, continuous, unambiguous tracks of all airborne objects in the surveillance area. Each object within the SIAP has one, and only one, track number and set of associated characteristics. The SIAP fuses near-real-time and real-time data, and is scaleable and filterable to support situation awareness (SA), battle management (BM), and target engagements. The SIAP is the critical enabler that will provide the warfighter the ability to perform effective, efficient, and integrated theater air and missile defense (TAMD) utilizing advanced engagement concepts. (TAMD Master Plan 1998-A, April 1998; CRD for MD)

standard use army aircraft flight route. Routes established below the coordinating altitude to facilitate the movement of Army aviation assets. Routes are normally located in the corps through brigade rear areas of operation and do not require approval by the airspace control authority. Also called SAAFR. (Joint Pub 1-02)

special tactics team. An Air Force team composed primarily of special operations combat control and para rescue personnel. The team supports joint special operations by selecting, surveying, and establishing assault zones; providing assault zone terminal guidance and air traffic control; conducting direct action missions; providing medical care and evacuation: and, coordinating, planning,

and conducting air, ground, and naval fire support operations. (Joint Publication 1-02)

state vector. Information on the position, velocity and track covariance (diagonal and off-diagonal elements) of an object. (CRD for TMD)

supported commander. The commander having primary responsibility for all aspects of a task assigned by the Joint Strategic Capabilities Plan or other joint operation planning authority. In the context of joint operation planning, this term refers to the commander who prepares operation plans, or operation orders in response to requirements of the Chairman of the Joint Chiefs of Staff. (Joint Pub 1-02) **supporting commander.** A commander who provides augmentation forces or other support to a supported commander or who develops a supporting plan. Includes the designated combatant commands and Defense agencies as appropriate. (Joint Pub 1-02)

suppression of enemy defenses. That activity which neutralizes, destroys, or temporarily degrades surface-based enemy air defenses by destructive and/or disruptive means. Also called SEAD. (Joint Pub 1-02)

tactical airspace integration system. TAIS is a mobile, digitized battlefield automated system designed to deconflict airspace as key Army system to minimizing fratricide, and to be fully compatible and interoperable with AFATDS. (Army PEO AV, Air Traffic Control System)

tactical control. Command authority over assigned or attached forces or commands, or military capability or forces made available for tasking, that is limited to the detailed and, usually, local direction and

control of movements or maneuvers necessary to accomplish missions or tasks assigned. Tactical control is inherent in operational control. Tactical control may be delegated to, and exercised at any level at or below the level of combatant command. Also called TACON. (Joint Pub 1-02)

tactical warning. 1. A warning after initiation of a threatening or hostile act based on an evaluation of information from all available sources. 2. In satellite and missile surveillance, a notification to operational command centers that a specific threat event is occurring. The component elements that describe threat events are: Country of origin--country or countries initiating hostilities. Event type and size- identification of the type of event and determination of the size or number of weapons. Country under attack- determined by observing the trajectory of an object and predicting its impact point. Event time-time the hostile event occurred. Also called integrated tactical warning. (Joint Pub 1-02)

theater. Geographical area outside CONUS for which a commander of a unified or specified command has been assigned. (BMDO Glossary) theater air and missile defense. Also called T AMD. (See joint theater air and missile defense)

theater air-ground system. A system of systems consisting of the theater air control system (TACS) (USAF), the Army air ground system (AAGS) (USA), the Marine air command and control system (MACCS) (USMC), and the Navy tactical air control system (NTACS) (USN).

theater missile. A missile, which may be a ballistic missile, a cruise missile, or an air-to-surface missile (not including short-range, non-nuclear, direct fire missiles,

bombs, or rockets such as Maverick or wire-guided missiles), whose target is within a given theater of operation. (Joint Pub 1-02)

time-sensitive targets. Those target requiring immediate response because they pose (or will soon pose) a danger to friendly forces or are highly lucrative, fleeting targets of opportunity. Also called **TSTs**. (JP 3-60)

unmanned aerial vehicle. A powered, aerial vehicle that does not carry a human operator, uses aerodynamic forces to provide vehicle lift, can fly autonomously or be piloted remotely, can be expendable or recoverable, and can carry a lethal or non-lethal payload. Ballistic or semi-ballistic vehicles, cruise missiles, and artillery projectiles are not considered unmanned aerial vehicles. Also called UAV. (Joint Pub 1-02)

weapon engagement zone. In air defense, airspace of defined dimensions within which the responsibility for engagement of air threats normally rests with a particular weapon system. Also called WEZ. (Joint Pub 1-02)

- a. **fighter engagement zone.** In air defense, that airspace of defined dimensions within which the responsibility for engagement of air threats normally rests with fighter aircraft. Also called FEZ.
- b. **high-altitude missile engagement zone.** In air defense, that airspace of defined dimensions within which the responsibility for engagement of air threats normally rests with high-altitude surface-to-air missiles. Also called HIMEZ.
- c. **low-altitude missile engagement zone.** In air defense, that airspace of defined dimensions within which the responsibility for engagement of air threats normally rests with low- to

medium-altitude surface-to-air missiles. Also called LOMEZ.

- d. **short-range air defense engagement zone.** In air defense, that airspace of defined dimensions within which the responsibility for engagement of air threats normally rests with short-range air defense weapons. It may be established within a low- or high- altitude missile engagement zone. Also called a SHORADEZ.
- e. **joint engagement zone.** In air defense, that airspace of defined dimensions within which multiple air defense systems (surface- to-air missiles and aircraft) are simultaneously employed to engage air threats. Also called JEZ.

weapons free zone. An air defense zone established for the protection of key assets or facilities, other than air bases, where weapon systems may be fired at any target not positively recognized as friendly. (Joint Pub 1-02)