

AIR FORCE PROGRAMS

Joint Mission Planning System (JMPS)

The Joint Mission Planning System (JMPS) program began in 1997 with the objective of replacing earlier planning systems and providing aircrews with well-structured automated flight planning tools for aircraft, weapons, and sensors. JMPS will provide support for unit-level mission planning of all phases of military flight operations and will eventually evolve to support Air Force, Navy, Marine Corps, Army, and U.S. Special Operations Command fixed and rotary wing aircraft, weapons, and sensors, including precision guided munitions (PGMs), cruise missiles, and unmanned aerial vehicles. It will have the capability to provide necessary mission data for the aircrew and will also support the downloading of data to electronic data transfer devices for transfer to aircraft and weapon systems.

A JMPS for a specific aircraft type will consist of the basic operating framework, common software components, and a basic mission planner, mated with a software module called a Unique Planning Component (UPC). UPCs provide functionality unique to a particular aircraft or weapon system.

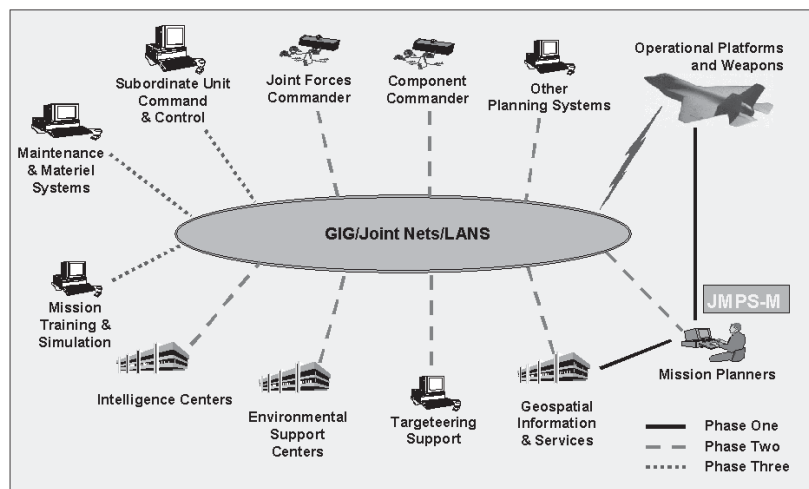
JMPS will be used in several different configurations for shipboard or land-based environments. Hardware is provided separately by each Service and will consist principally of commercial off-the-shelf computers, ranging from laptops to desktop systems to multi-processor workstations, depending upon the need for supporting specific weapon systems. Some configurations are non-network stand-alone configurations, while others include secure, network-connected systems, supported by servers. JMPS complies with the requirements of the Common Operating Environment, as applicable to Windows 2000.

Northrop Grumman Information Technology (NGIT) was selected in 1999 to develop JMPS Version 1.0 (JV1), the framework and common software components that enable basic flight planning capabilities. NGIT also delivered a Generic UPC and a Software Development Kit that can be used by independent developers to develop aircraft-specific and other common UPCs. JV1 was released on March 17, 2003, but will not be used operationally.

In July 2001, the Navy awarded a contract with NGIT to develop JMPS Version 1.1. Version 1.1 will be the first operational JMPS version to be fielded and will be used by Navy F-14, F/A-18, and E-2C aircraft. Version 1.1 augments JV1 with crypto key support, Global Positioning System almanac capability, and other functions. It also adds PGM planning capability, allows mission planning in a networked server environment, enables “walk away” mission planning, interfaces with critical data sources (weather, imagery, target data, threat data, and Strike Planning Folder), and provides functions needed to plan and prosecute Navy combat missions. JMPS Version 1.1 is being developed using a spiral development process with three beta releases. It is scheduled to enter OT&E in March 2004 and to be fielded by September 2004. JMPS Version 1.1 is also planned to replace the AV-8B Mission Support System in late 2004 and the EA-6B Tactical EA-6B Mission Support system in mid-2005.

In March 2003, the Air Force tasked NGIT to add capabilities to JMPS that will lead to JMPS Version 1.2. Version 1.2 will enable Air Force PGM planning and linking of PGM routes to aircraft routes. Other changes and enhancements to JMPS and the development of a UPC will allow fielding a JMPS planning system for the F-15E in 2005. Development of JMPS UPCs for other Air Force aircraft will begin in FY04, upon selection of a Mission Planning Enterprise contractor (or contractors).

In May 2003, the Air Force increased and centralized mission planning funding resulting in the Air Force program being designated a Preliminary-Major Defense Acquisition Program.



The Joint Mission Planning System will provide support for unit-level mission planning of all phases of military flight operations

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TEST & EVALUATION ACTIVITY

Early builds of the Navy's JMPS Version 1.1 underwent an Enhanced Development Test (EDT) at the Naval Air Warfare Center-Weapons Division, Pt. Mugu, California, and Space and Naval Warfare, Philadelphia, Pennsylvania, in October 2002. The EDT expanded on the usual developmental test activities by having aviators representing the user communities plan realistic missions and comment on how Version 1.1 performed. The fleet aviators were also invited to originate deficiency reports on problems they encountered during testing.

A second phase of EDT (EDT Phase 2) was carried out at Pt. Mugu in March 2003 on Version 1.1, Build 0.2, which was released in February 2003. EDT Phase 3 on Version 1.1, Build 0.25 was conducted at Pt. Mugu during June 2003. During these test periods, a group of multi-Service fleet aircrew evaluated the system in stand-alone and client-server configurations.

The design of Version 1.1 was frozen in September 2003. Current plans call for a nine-week period for integration testing of UPCs. In December 2003, a final EDT will be conducted on the final Version 1.1 and beta versions of UPCs. A three-month period of regression testing will then lead to an OT&E readiness review in February 2004. OPEVAL of Version 1.1 will proceed in parallel for all aircraft platforms for a six-month period beginning in March 2004. Fleet release is expected in September 2004.

TEST & EVALUATION ASSESSMENT

The EDT periods conducted on JMPS Version 1.1 have been valuable in identifying performance issues of concern to aircrews early-on that are being addressed before delivery of the final product. EDT Phase 1 identified numerous discrepancies and high-risk operational issues that could have prevented JMPS from being effective and suitable. The areas with the most discrepancies were route planning, printing of briefing materials, performance calculations, and tasking.

EDT Phase 2 saw progress in JMPS performance and a reduction in the number of deficiencies reported. Stability and maturity of the software was improved; however, system performance issues persisted. Among the concerns reported were slowness in accessing mapping data, calculating route data, starting up the program, and filtering threats. Some functions were rated as "user-unfriendly," because of the complexity of operation or the time it took for execution.

EDT Phase 3 provided fleet user evaluations of several new Version 1.1 functions, including mission binders, collaborative planning, early versions of UPCs for F/A-18, E-2C, EA-6B, and the Electronic Warfare Tactical Information Report and Management System. Over 80 hours of testing was conducted using operationally realistic scenarios. Once again, performance problems requiring further development were identified and a significant number of deficiency reports were generated. Nevertheless, the user community assessment concluded that JMPS Version 1.1, Build 0.25 had a markedly lower risk for entry into OT&E compared to previous developmental versions of the software.

Test planning for OT&E of JMPS Versions 1.1 (Navy) and 1.2 (Air Force) continued throughout FY03. The planned test programs appear to be adequate; however, the details of these plans have yet to be documented in approved Test and Evaluation Master Plans (TEMPs) or test plans. Both the Navy and Air Force TEMPs are still in draft form. The Air Force TEMP is in final coordination within the Air Force. The Navy (JMPS-Maritime) TEMP is not expected to complete Navy coordination until January 2004. Delays in the TEMPs resulted in part from delays in approval of the Services' Operational Requirements Documents (ORDs). The Navy's ORD was signed in June 2003, but the Air Force ORD remains in coordination.

Considering the status of JMPS, the Navy's TEMP and test plans are seriously overdue and the Air Force TEMP and test plans need to be delivered soon. This represents a high risk to the Navy system entering OT&E on schedule.