

F-22 Stores Integration

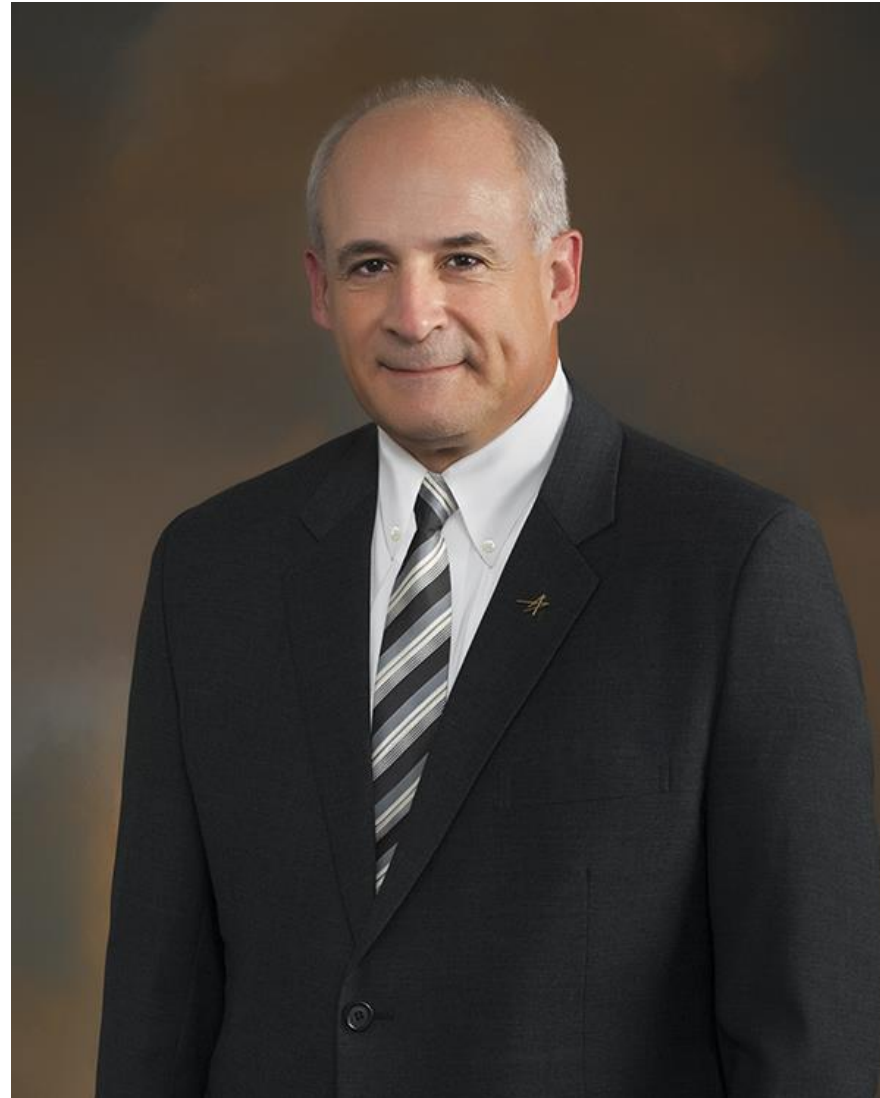
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Patriot



Recent Milestone: 20th Anniversary of First Flight (4001)



- 7 Sep 2017 at Dobbins ARB, Marietta, GA
- Piloted by Paul Metz



“The F-22 is flying. Everything else is now a target.”

BLUF

- **Raptor entered the fight in Sep 2014**
 - Since then, every unit has deployed
 - 6-month rotations
- **Weapon Integration**
 - Fielded AIM-9X and AIM-120D
- **Lessons Learned**
 - Integrating on stealth jets requires special planning



Raptor Forward



- **Initial Deployment, Sep 2014**
 - All four operational units have deployed
 - 6-month rotations to Al Dhafra
- **Weapons**
 - Typical loadouts:
 - 6 AMRAAMs/2 AIM-9X
 - 2 AMRAAMs/2 AIM-9X/8 SDBs
 - 2 AMRAAMs/2 AIM-9X/2 JDAMs



Raptor Forward



- **The Raptor's Role**
 - “Aerial Quarterback”
 - Leading 4th Gen fighters and attack a/c
 - Controlling the fight west of Raqqa
 - At times, the only fighter flying
- **Most recent deployment**
 - 588 sorties
 - 5128 FHs
 - Dropped ~225 SDBs/40 JDAMs



Weapon Integration Status



- **Weapon Integration**

- Military Grid Reference System added in Apr 2016
- Fielded AIM-9X initial capability and expanded AIM-120D capability with Update 5, Dec 2016
- Full capability delivers with Incr 3.2B in 2019

- **Helmet Mounted Cueing System planned**

- **External Tanks**

- Demonstrated successful separation event with tanks from a Low Drag Pylon





Lessons Learned with Stealth

- **Stealthy aircraft maintain performance via internal carriage**
 - Employ complex door systems and special bomb racks
 - Rely on Embedded Training systems to emulate weapon delivery

- **Lessons Learned**
 - Need weapon performance models early
 - Weapon Engagement Zones must be integrated
 - Special Test Equipment availability
 - Shot matrix development should involve aircraft integration teams
 - Aircraft lab time coordination



U.S. Air Force photo



U.S. Air Force photo



U.S. Air Force photo

Summary



- **Raptor airframe life is projected to 2060**
 - Requires strategic focus to guide mods and fleet management
- **Future integration activities require upfront coordination and constant communications throughout the process**
 - The earlier ICDs, WEZ's, flyout models and instrumented weapons can be made available, the better

