



STC 2004

OneSAF Panel

MSDE/MPARS Interoperability

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MPARS Background

“Necessity is the Mother of Invention”

- Prior to 9/11, the 101st Airborne Division (AASLT) contacted PM OneSAF looking to update their simulation technology in support of AASLT training.
- Following 9/11, the 101st Airborne Division (AASLT) contacted PM OneSAF to utilize simulation technology to shorten the military planning process for operations.
 - Automate orders production
 - Automate rehearsals
 - Share data across all tools used in the planning process
 - Terrain
 - Scenarios
 - Task Organizations
- The application of OneSAF simulation technology to operational planning was coined the “Mission Planning and Rehearsal System”



Mission Planning and Rehearsal System – MPARS Suite

- **MPARS represents a suite of applications that are applied to Mission Planning and Rehearsal.**
 - **MSDE – Military Scenario Development Environment (OneSAF/AcuSoft)**
 - **CAPEs – Combined Arms Planning and Exercise System (CECOM/Viecore FSD)**
 - **OTB – OneSAF Test Bed (OneSAF/SAIC)**
 - **AAR – PowerSTRIPES AAR (OneSAF/AcuSoft)**
 - **3DV – AcuScene Stealth (AcuSoft)**
- **FM 101-5 Staff Organization and Operations defines the Military Decision Making Process (MDMP).**
- **The MDMP defines how the US Army plans and rehearses for military operations.**



Basic Problem Statements

- **Provide common terrain, scenarios, and task organizations across the MDMP in a time constrained environment.**
- **The MDMP relies on tools/capabilities for:**
 - **C2 Planning (MSDE, CAPES)**
 - **COA Analysis (CAPES)**
 - **Orders Production (CAPES, MSDE)**
 - **Rehearsal/Simulation (OTB, AcuScene, PowerSTRIPES)**
 - **After Action Review (PowerSTRIPES)**



MPARS & the MDMP

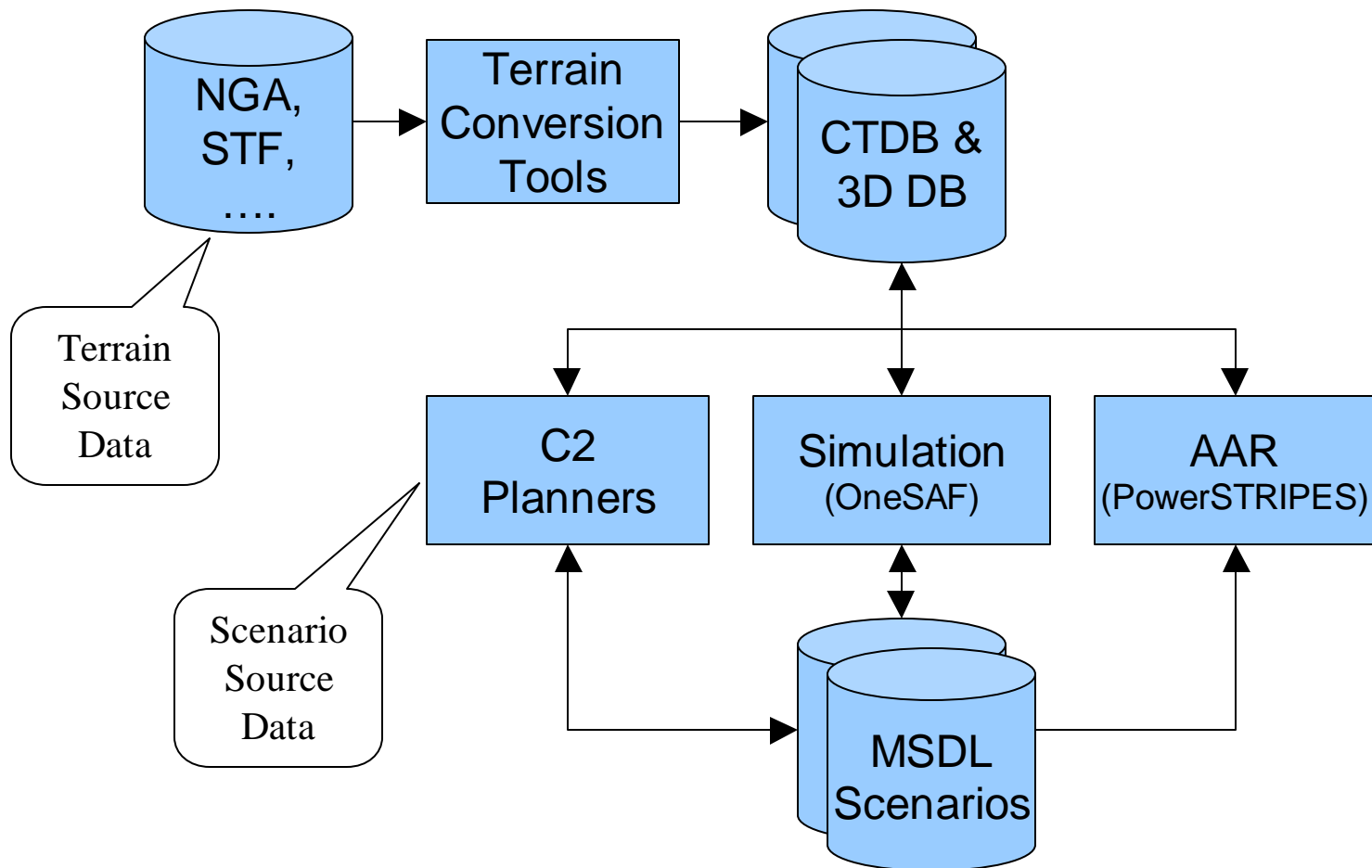
MDMP	MSDE	CAPES	OTB	AAR	3DV
Receipt of Mission					
Mission Analysis					
COA Development					
COA Analysis					
COA Comparison					
COA Approval					
Orders Production					
Rehearsal					
Execution & Assessment					

Common Terrain & Common Scenarios



MPARS Vision

Shared Terrain & Scenarios





Common Terrain Through SEDRIS

- **Common Terrain is provided for by SEDRIS**
 - Operational C2 planners use NGA data for planning
 - In MPARS SEDRIS tools are used transform NGA data into:
 - Compact Terrain Database (CTDB)
 - Visual Databases (OpenFlight and ASDB)
 - Depending on time/resource constraints MPARS can generate terrain using:
 - The high fidelity OneSAF EDGE process capable of fixing source problems and enhancing the source data.
 - The low fidelity SEDRIS GOTS software capable of lossless transformation of terrain data.



SEDRIS Related Applications

- **CAPEX** – Provides area of interest data sets in NGA format.
- **AcuScene Evolver** transforms NGA data into CTDB, OpenFlight, and ASDB through the utilization of SEDRIS Tools/Plugins.
- **OTB (OneSAF)** simulates on CTDB terrain generated from STF source data.
- **MSDE/AAR** utilize CTDB to generate tactical maps.
- **AcuScene** utilizes ASDB to visualize terrain during planning, rehearsal, execution, and AAR



Common Task Organizations Through MSDL

- **US Army Modified Task Organization and Equipment (MTO&E)**
- **MTO&E data was used by MSDE & CAPES for planning purposes**
- **MSDE mapped the MTO&E organizations to DIS enumerations for use in the OneSAF Test Bed**



Common Scenarios Through MSDL

- **Common Scenarios are provided for by the OneSAF Military Scenario Development Language DIF (MSDL).**
 - **C2 Planning applications generate MSDL.**
 - **MSDL is an XML based data representation format.**
 - **MSDL relies on Military Standards for a common and explicit understanding of data.**
 - **MSDL is required to be application independent.**
 - **OneSAF MSDL exists to provide for interoperability of scenarios between simulations and C2 planning applications.**



MSDL Scenario Applications

- **C2 Planners** – Through early integration efforts taken by CECOM and USMC MSDL is now being supported by automated military C2 planners.
 - C2PC exports MSDL for use in OneSAF under the USMC Combined Arms Staff Trainer (CAST) upgrade.
 - CAPES – The Combined Arms Planning and Exercise System exports MSDL for mission rehearsal in OTB.
- **Simulations** – Through OneSAF integration efforts, MSDL is not being supported by simulation.
 - OneSAF Objective System (currently under development)
 - OneSAF Test Bed (MPARS and OTB 2.0)
 - OneSAF AAR (PowerSTRIPES & OOS AAR)
 - CCTT Scenario Harvesting
- The acceptance of MSDL by M&S/operational systems can be attributed to the application independence of MSDL.
- Application independence represents the cornerstone for interoperability of scenario data.



Military Scenario Development Environment

Background



Military Scenario Development Environment

- MSDE integrates C2 planning capabilities into the Microsoft Office applications, integrating simulation technology into the user's desktop applications.
- The MSDE supports the definition of the military scenario that will be used in simulation events.
- It provides a GUI-based mechanism for selection of force structure, overlays, and control measures that bound the scenario.
- MSDE case use operational graphics generated by organic C4I systems through the consumption of MSDL.



PowerSTRIPES AAR System

Background



PowerSTRIPES AAR System

- **PowerSTRIPES integrates AAR capabilities into the Microsoft Office applications, integrating simulation technology into the user's desktop applications.**
- **PowerSTRIPES supports the development of the After Action Reviews that are used in simulation events.**
- **Utilizes ODBC data collected from:**
 - **Military Scenarios (MSDL)**
 - **CCTT Data Collector**
 - **OOS Data Collector**
 - **PowerSTRIPES Database**
- **Generates AAR packages in PowerPoint. Individual AAR products are created in standard formats**
 - **Excel workbooks, bitmaps, PowerPoint slides**



MSDE and AAR Interoperability Demonstrations

CCTT Scenario TBK3D



MSDE Demonstration Script

- **Convert CCTT (TBK3D) Scenario to MSDL**
- **Import TBK3D Scenario into MSDE**
- **Demonstrate MSDE Functionality**
 - **Application of Military Standards**
 - **Office Application Interoperability**
 - **2D Terrain Capabilities**
 - **Mission Functions**
 - **Map Generation (Print)**
 - **3D Terrain Capabilities**
 - **Fly through**
 - **Placement of Platforms**
- **Export to AAR for Back Brief Generation**
 - **Generate Back Brief**



AAR Demonstration Script

- **Open CCTT Scenario (TBD3D) Binder**
- **Replay Events (Visualize in 3D)**
- **Launch AAR Product Viewer**
- **Demonstrate AAR Generation Capabilities**
 - **Product Scripts**
 - **Media Formats**
 - **Data Sources**
 - **DICE**
 - **Build Products**
 - **Hot Wash Products**

Conclusions

- **MPARS Interoperability Means**
 - **Terrain and Scenario Interchange Realized Through**
 - Application Independent Formats
 - Application Independent Standards
 - **Application Interoperability**
 - Simulation Applications
 - Operational Applications
 - Training Applications
 - Desktop (Office) Applications
 - **End User Benefits**
 - The user is empowered to create common terrain and scenarios
 - The user is empowered to

