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OneSAF/WARSIM/SVDR Global Terrain Generation

Stevens, Clark D.; Robbins, Bruce; Huynh, Chan; Doan, Dzung; Kohler, Todd; Neushul, James D.

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OneSAF/WARSIM/SVDR Global Terrain Generation

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Clark D. Stevens

Bruce Robbins

Chan Huynh

Dzung Doan

Program Executive Office, Simulation, Training and Instrumentation (PEOSTRI)
12350 Research Parkway
Orlando, FL 32826-3273
(407)-380-4000

stevensd@peostri.army.mil, robbinsr@peostri.army.mil, huynhc@peostri.army.mil, doand@peostri.army.mil,

Todd Kohler

Research, Development and Engineering Command (RDEC)
12350 Research Parkway
Orlando, FL 32826-3273
(407)-384-5439

Todd_Kohler@peostri.army.mil

Captain James D. Neushul, USMC
Computer Science Department
Naval Postgraduate School
Monterey, CA 93943
(831)-656-7585

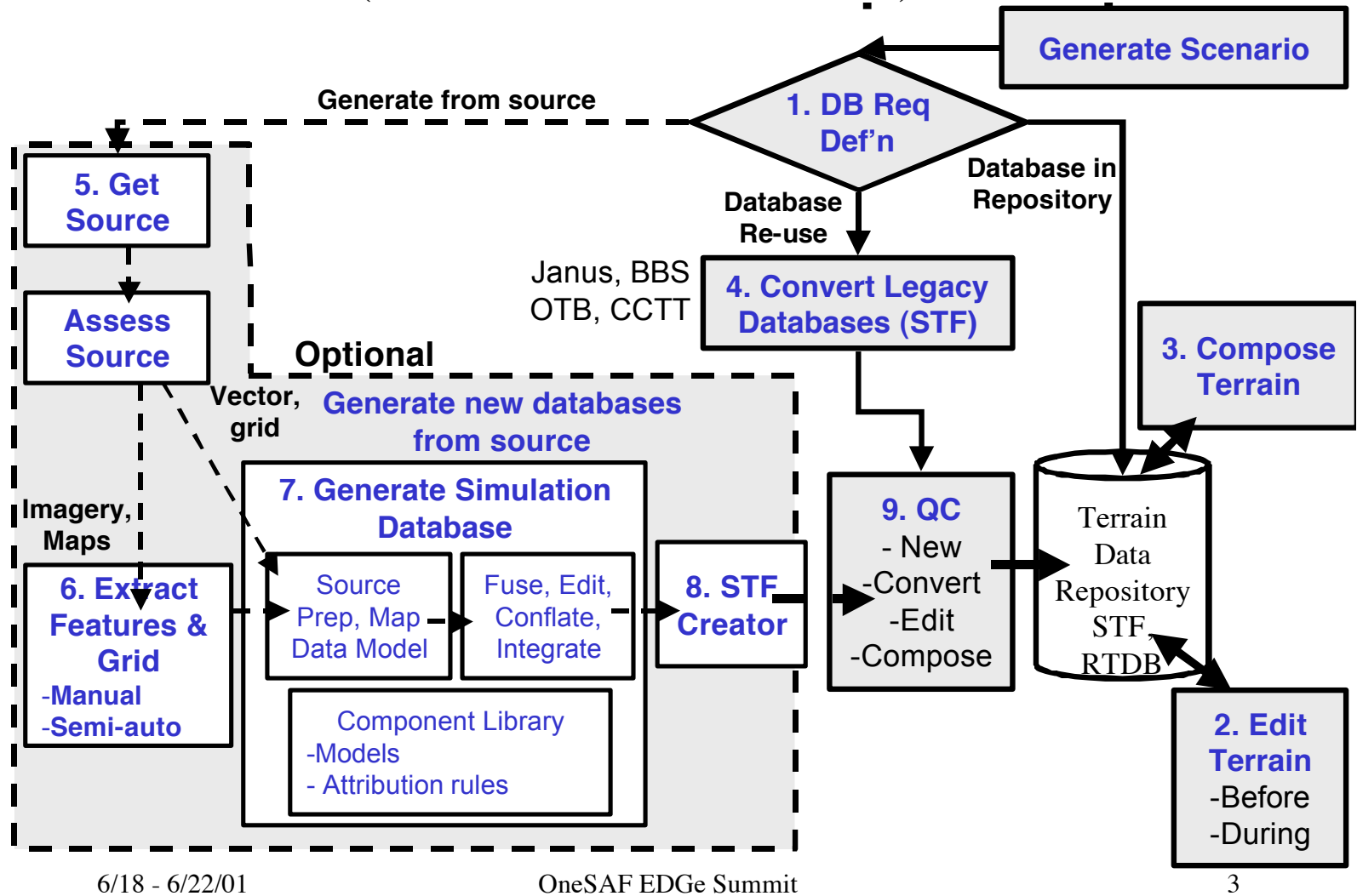
[jdneushu@nps.navy.mil](mailto:j dneushu@nps.navy.mil)

Background

- OneSAF consists of two separate program efforts:
 - OneSAF Testbed Baseline(OTB)
 - OneSAF Objective System (OOS)
- OOS Product Line Architecture Framework/Specification (PLAF/PLAS):
 - Defines requirements for environmental components to include:
 - Environment Runtime Component (ERC)
 - Environment Repository
 - Environment Composer
 - Environmental Database Generation (EDGE) System
- EDGE IPT (6/18-22/03)
 - defined an EDGE operational “concept of operation”
 - unable to define an implementation plan within PM guidelines

OneSAF EDGE Concept of Operation

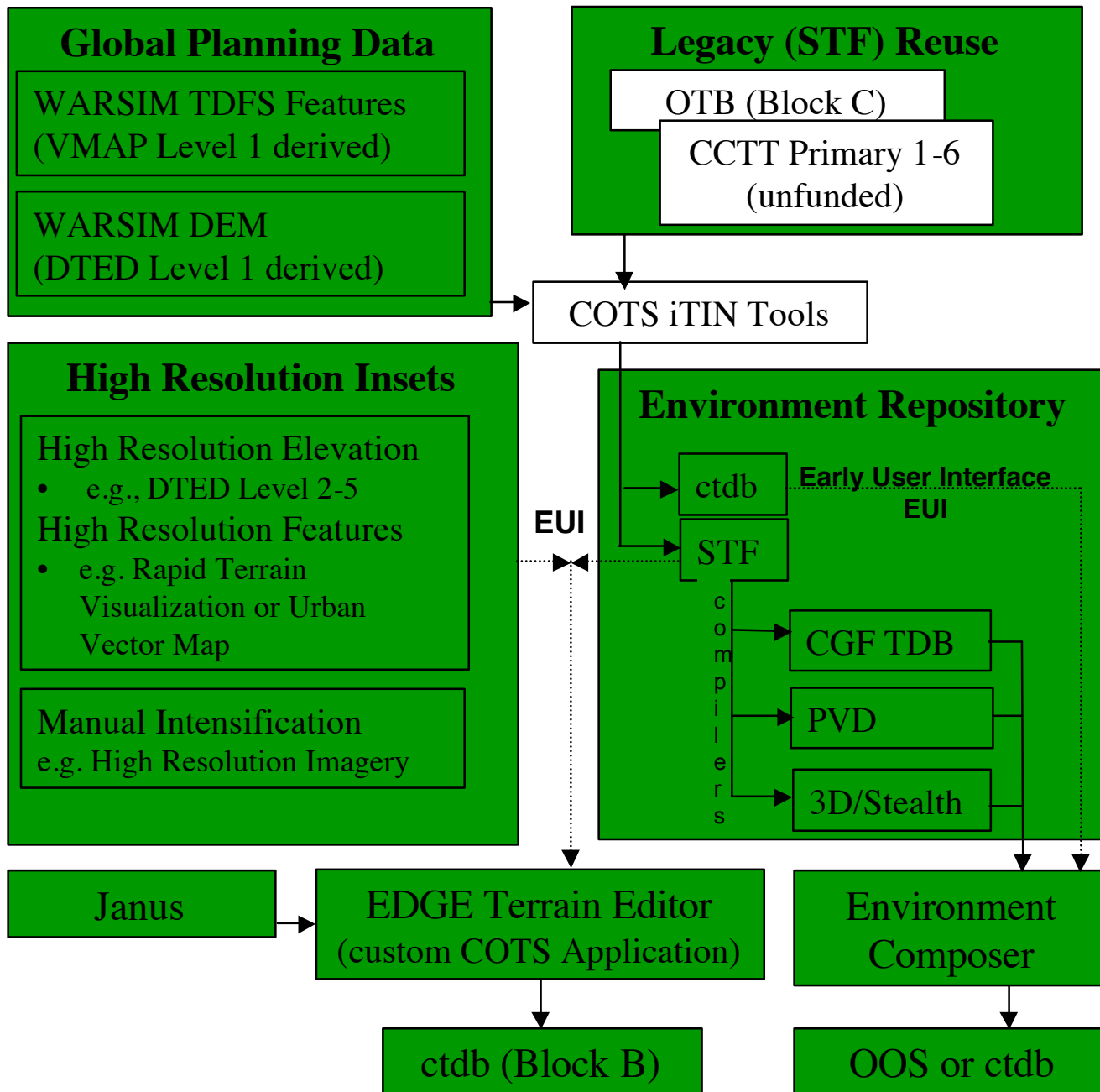
(from EDGE Summit 6/18-22/01)



OOS EDGE Technical Architecture

- OOS EDGE System Technical Note for Terrain:
 - Defines a Technical Architecture for OOS EDGE compliant with OOS PLAF/PLAS that meets ORD requirements
 - Validated by OneSAF Leadership 2/25/03
- Key Tenets:
 - Provides minimal organic capability for OneSAF Objective System EDGE requirements
 - Leverages heavily ongoing efforts by
 - Environmental Database (EDB) IPT
 - RDEC Urban Terrain Science and Technology Objective (STO)
 - Military Operations in Urban Terrain (MOUT) Focus Area Collaborative Team (FACT)
 - Tends heavily toward COTS (open system) solutions vice custom GOTS solution
 - OOS objective to publish format specifications by end of FY03
 - Form working relationships with COTS vendors

EDGE Technical Architecture



OneSAF Environmental Database Generation System (EDGe)

Legacy Reuse

Environment Repository

WARSIM Reuse/Interoperability
VMAP Level 1 (1:250,000 Scale)
Global Availability ~2004

Block C/D
CMTC
CCTT P6

Block A
JRTC

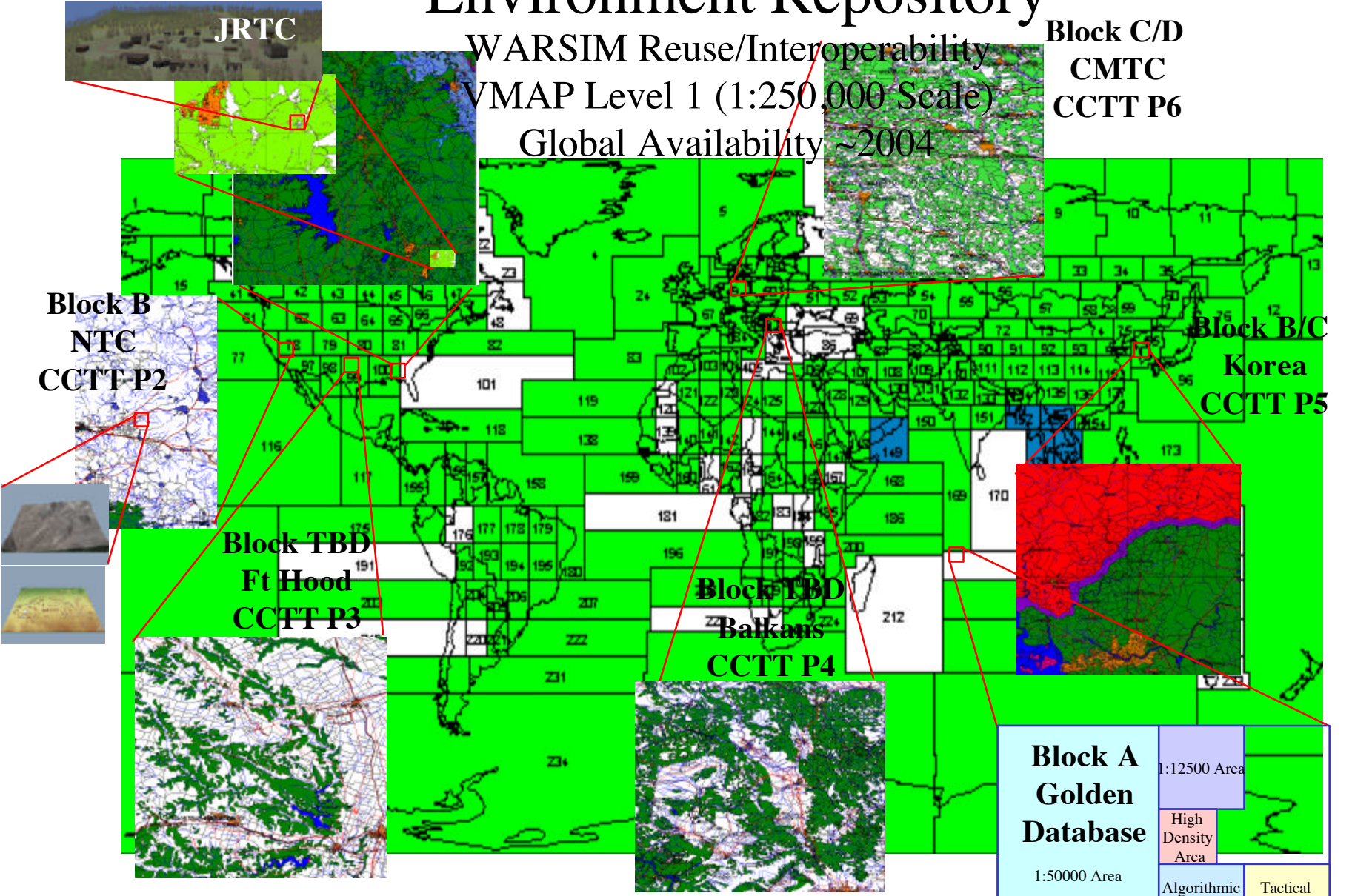
Block B
NTC
CCTT P2

Block B/C
Korea
CCTT P5

Block TBD
Ft Hood
CCTT P3

Block TBD
Balkans
CCTT P4

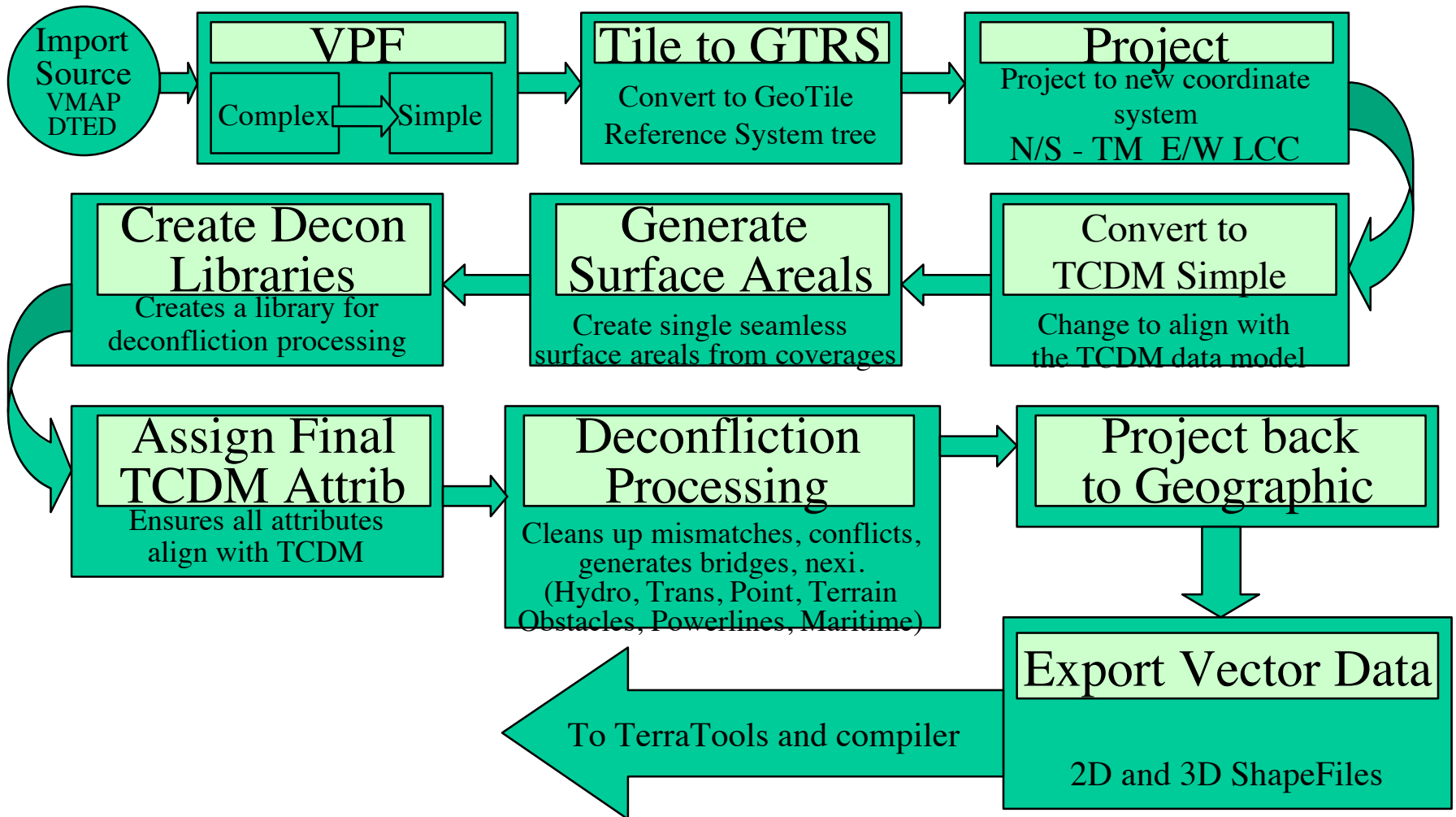
Block A Golden Database	1:12500 Area		
	High Density Area		
1:50000 Area	Algorithmic Terrain Area	Tactical Terrain Areas	



**OneSAF Environmental Database Generation System
(EDGe)**

**WARSIM Terrain Data Fusion System (TDFS)
Global Planning Resolution Database**

TDB - TDFS Data Flow

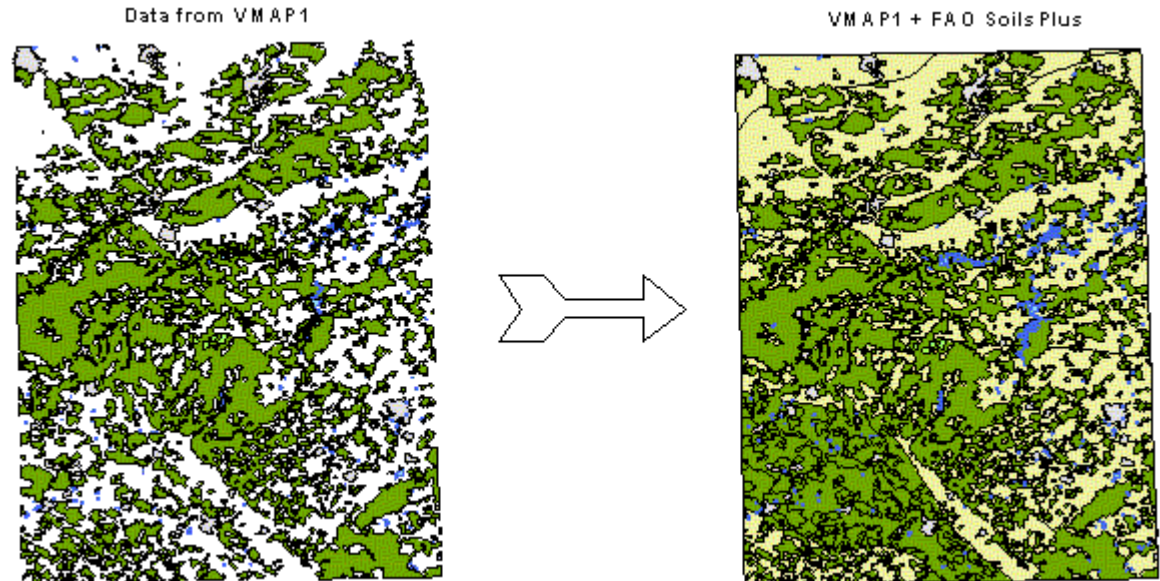


TDB - TDFS Processing

Generate Surface Areal

Goal: Produce a complete surface areal tessellation.

- No gaps, no overlaps.
- Surface Areal provide trafficability information to simulation entities.



Before

- *Overlaps (some areal coverages lie on top of others).*
- *Incomplete (all white areas are holes).*

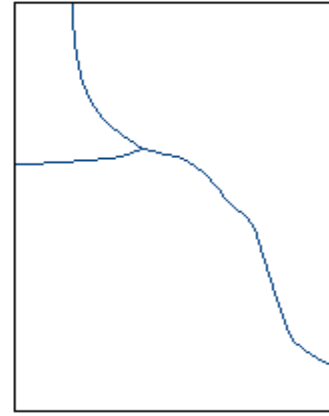
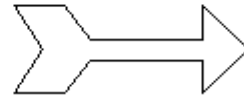
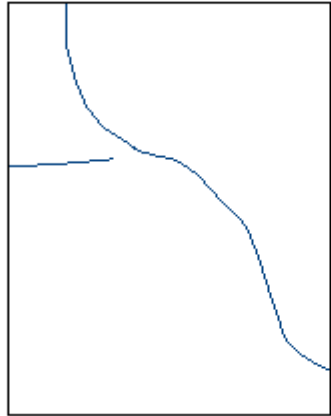
After

- *Overlaps have been erased (notice more water is visible).*
- *Holes have been filled in with backdrop of FAO Soils+ (yellow areas).*

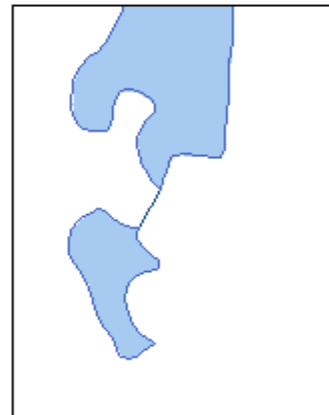
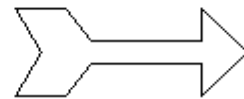
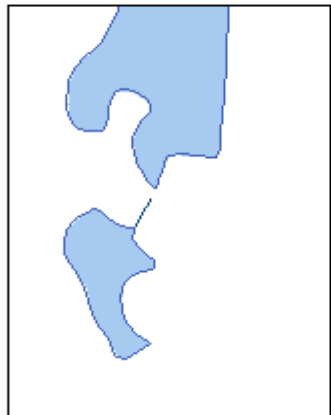
TDB - TDFS Processing

Deconflict (cont'd)

Connectivity
Improve linear
connectivity for rivers



Snapping
Snap Rivers to Lakes and
Oceans

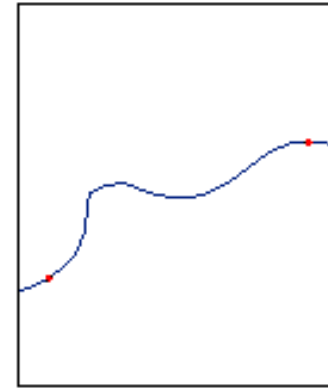
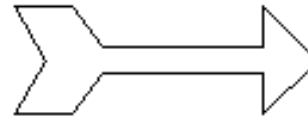
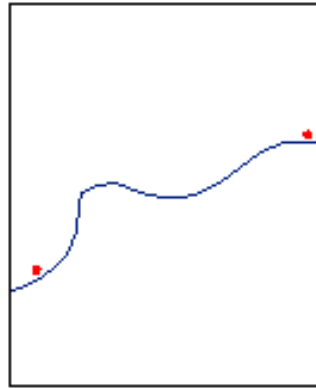


TDB - TDFS Processing

Decomplict (cont'd)

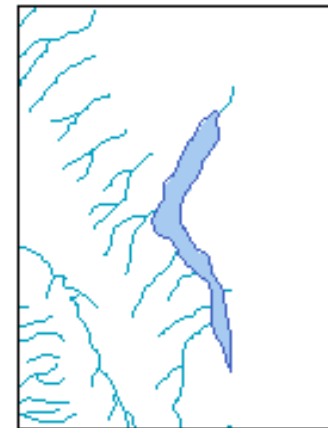
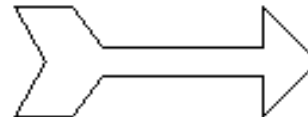
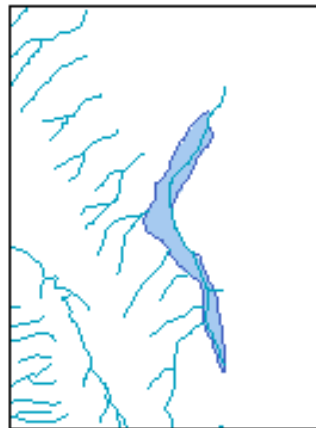
Alignment

Align dams to rivers.



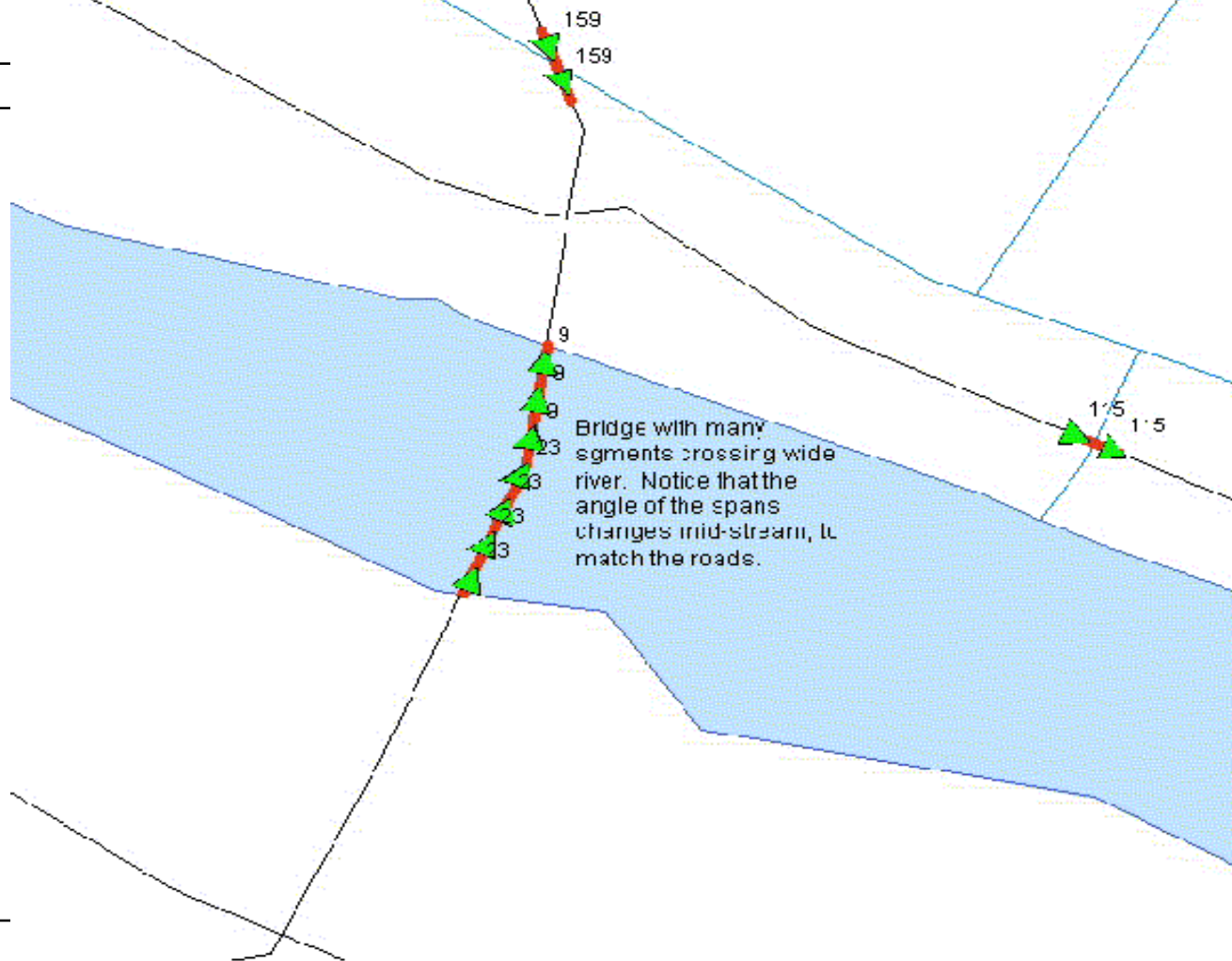
Intersection

Remove river segments which intersect lakes and oceans.



TDB - TDFS Processing

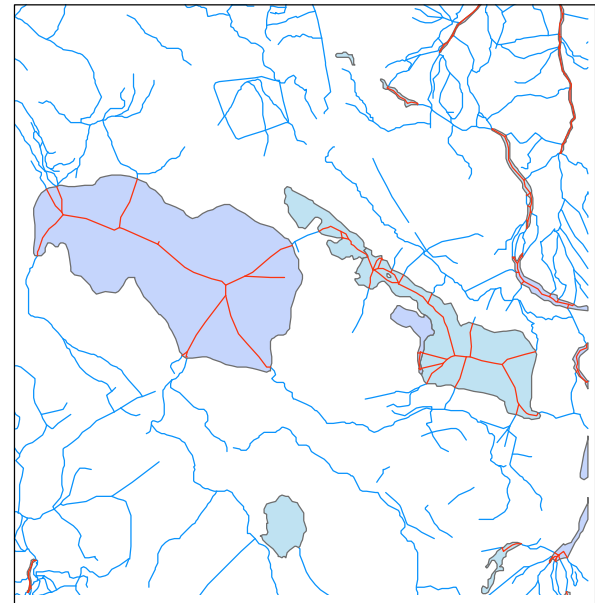
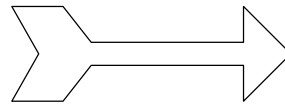
Value Added Data - Bridge Construction



TDB - TDFS Processing

Value Added Data -

- Establishes linear transportation routes through areal hydrographic features.



Supports riverine and air routing operations .

OneSAF Environmental Database Generation System (EDGe)

SNE Virtual Database Repository (SVDR) Prototype Demonstration

Environment Composer

http://www.modsaf.org/sne/worldmapnew/world_init.html

SNE Virtual Database Repository (SVDR) Demonstration

**Auxiliary Data Sources
NIMA Extranet**

www.extranet.nima.mil

Fort Benning Manual Intensification



CADRG with edits/intensification

EDGE Summary

- Custom OOS EDGE solution is undesirable
 - prohibitively expensive
 - impedes interoperability
- OOS proposed EDGE Technical Architecture
 - meets ORD requirements
 - heavily leverages COTS capabilities and legacy data
 - provides integration path for incremental capabilities from:
 - EDB IPT
 - Urban Terrain STO
 - MOUT FACT
 - etc.
 - extends invitation for cooperation to all!