2003

OneSAF/WARSIM/SVDR Global Terrain Generation

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Monterey, California: Naval Postgraduate School.

OneSAF/WARSIM/SVDR Global Terrain Generation

03S-SIW-089

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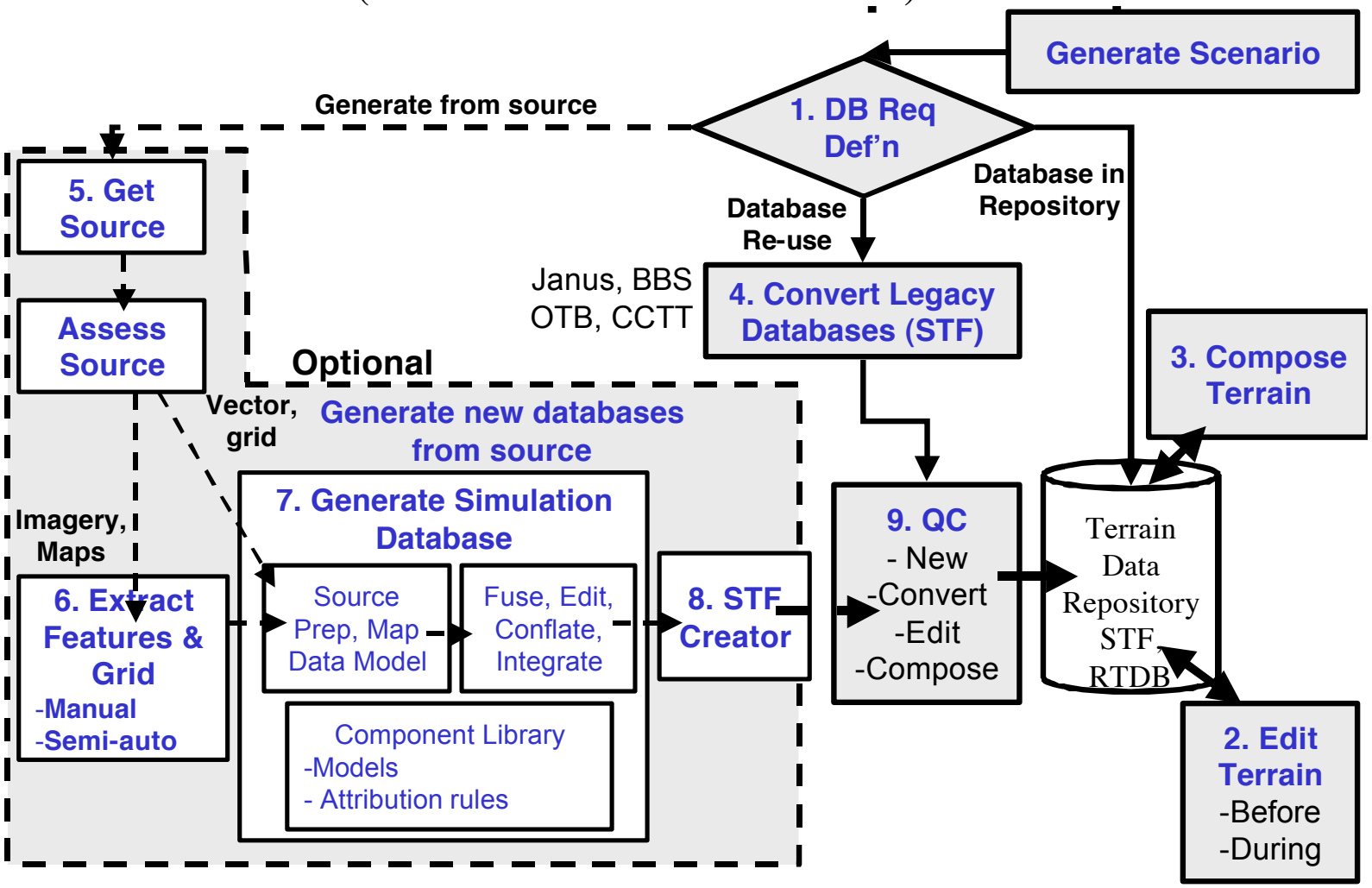
Background

- 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

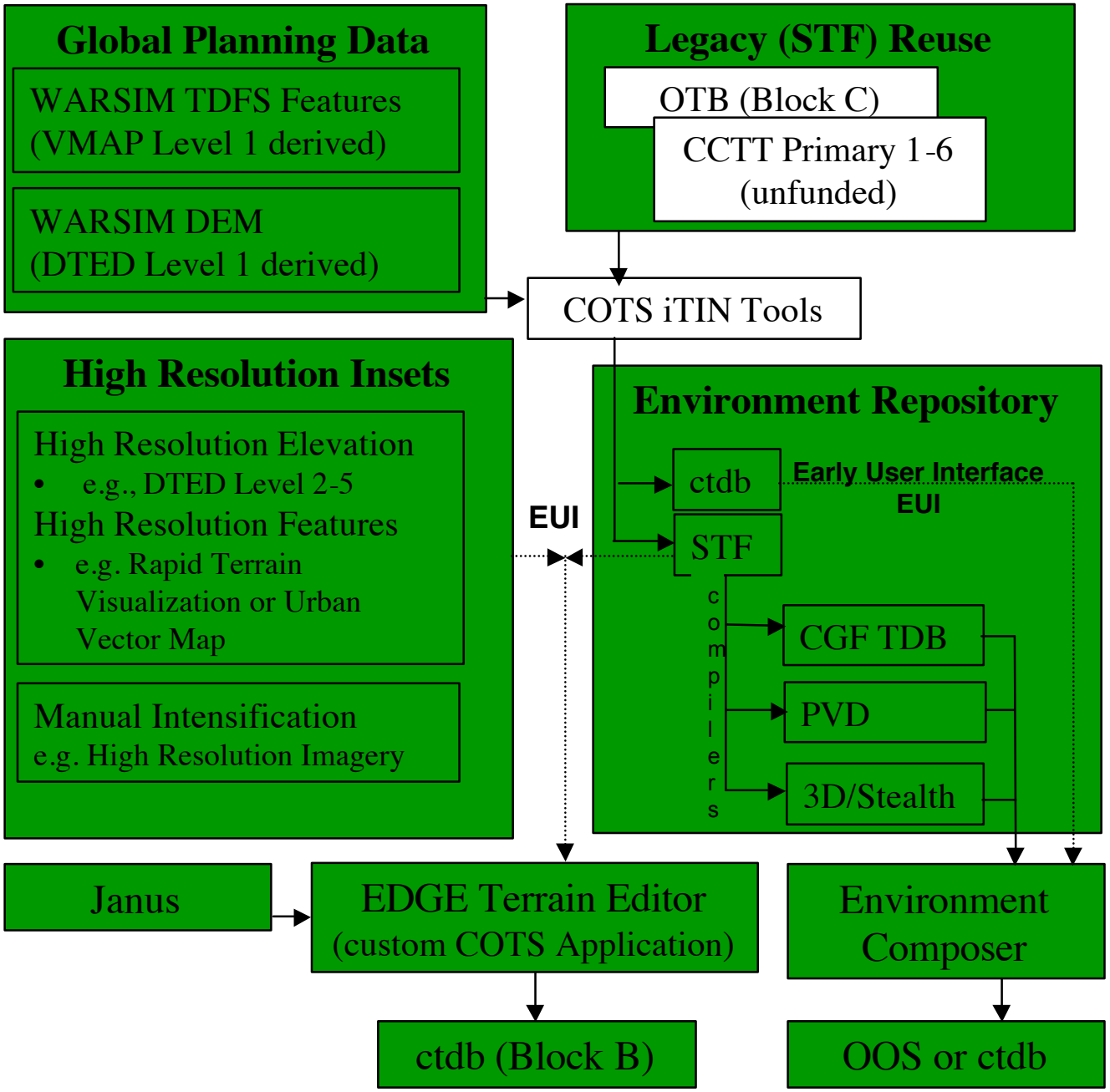
(from EDGE Summit 6/18-22/01)



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

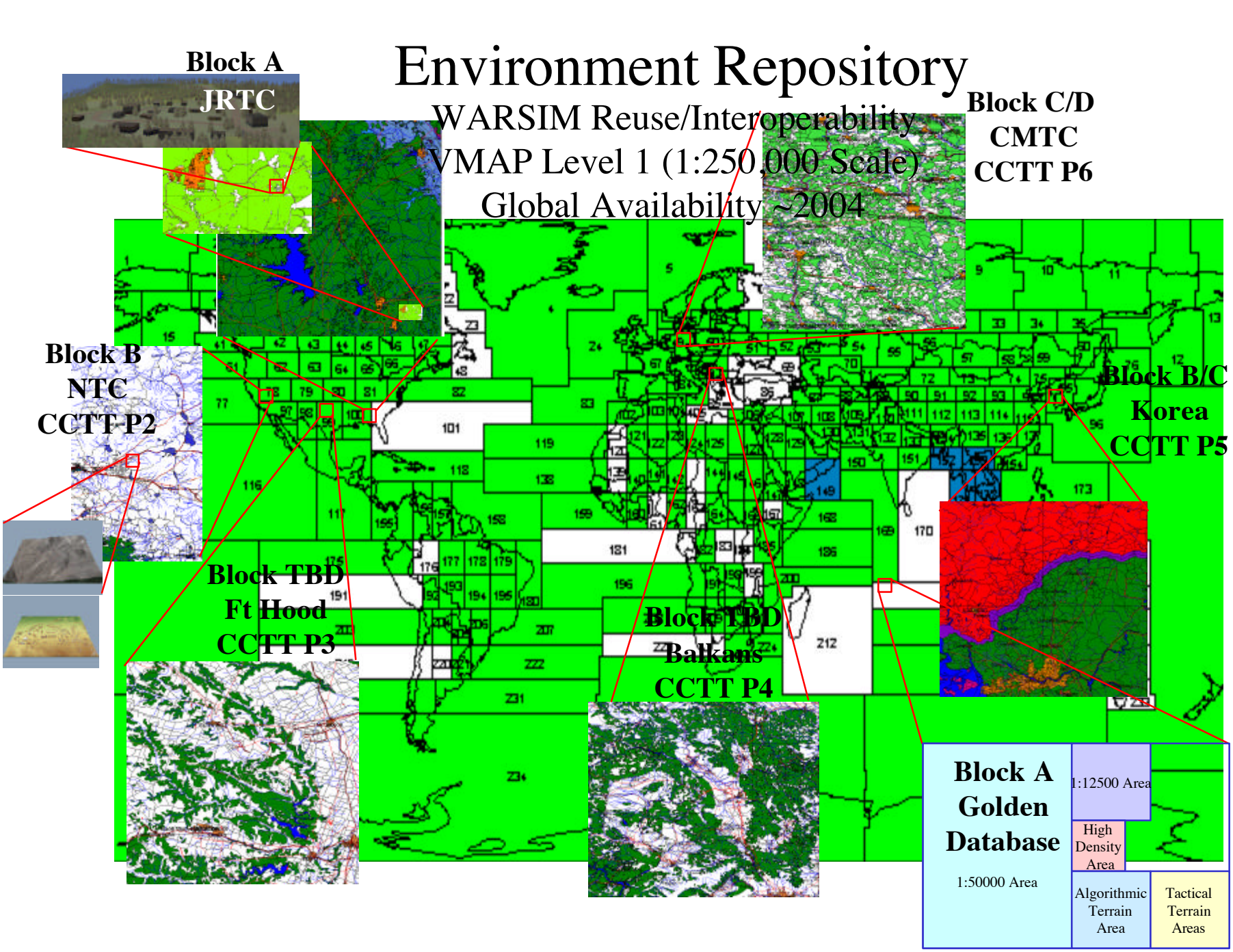


OneSAF Environmental Database Generation System (EDGe)

Legacy Reuse

Environment Repository

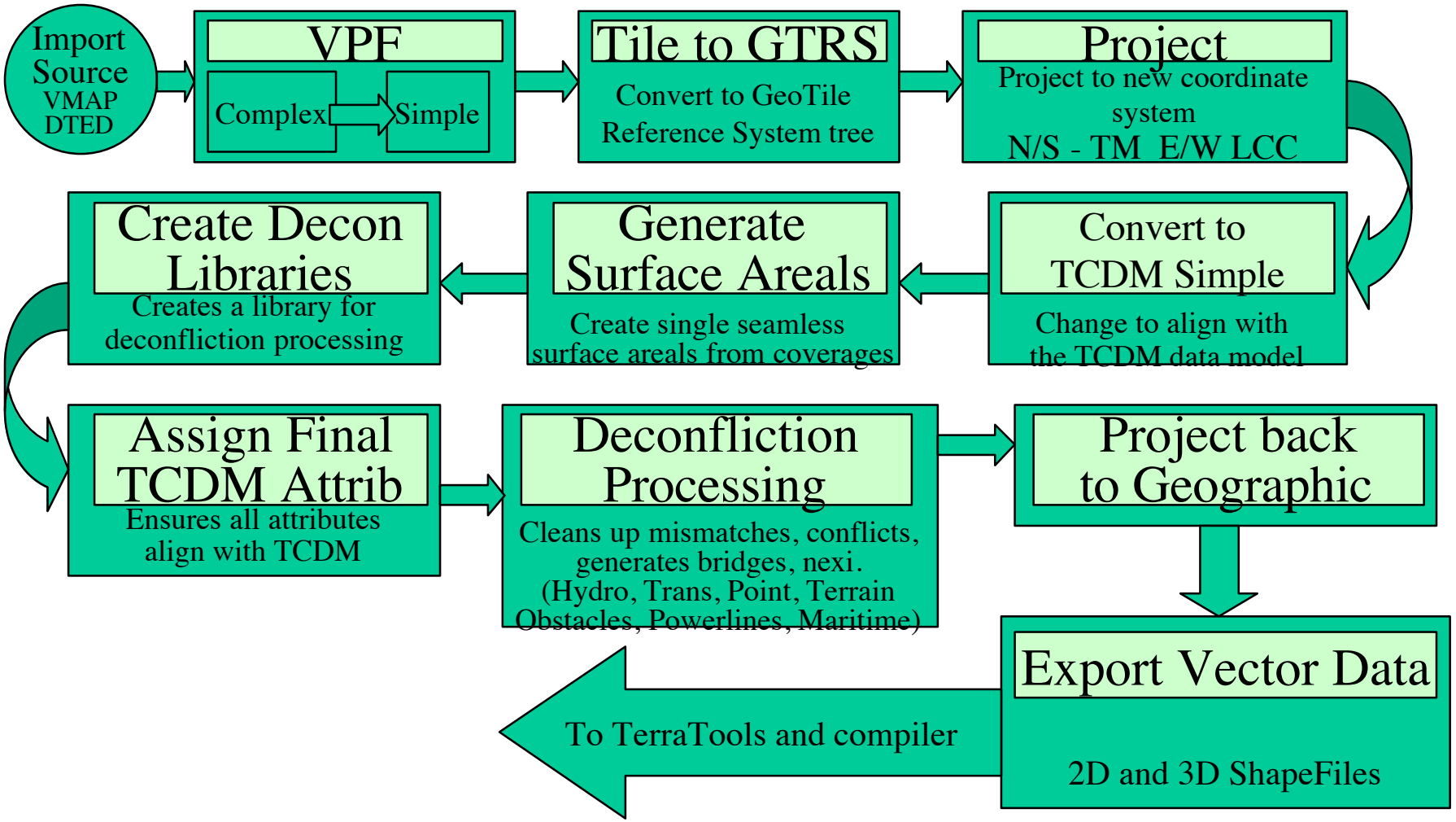
WARSIM Reuse/Interoperability
VMAP Level 1 (1:250,000 Scale)
Global Availability ~2004



OneSAF Environmental Database Generation System (EDGe)

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

TDB - TDFS Data Flow

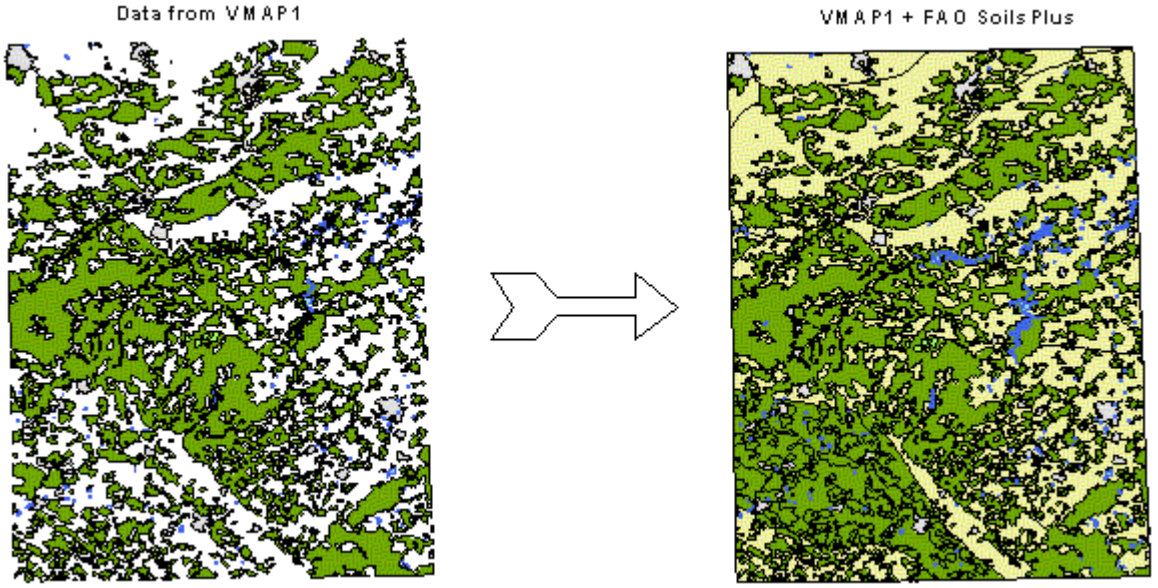


TDB - TDFS Processing
Generate Surface Areals

Goal: Produce a complete surface areal tesselation.

–No gaps, no overlaps.

–Surface Areals provide trafficability information to simulation entities.



Before

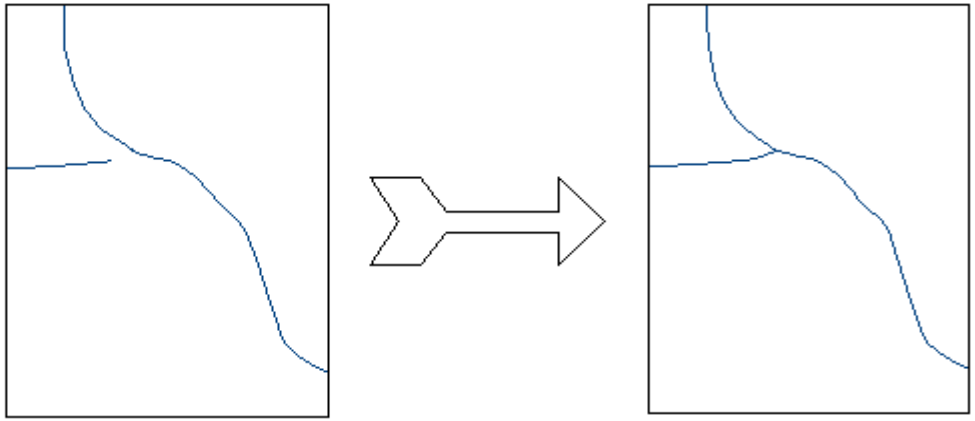
- *Overlaps (some areal coverages lie on top of others).*
- *Incomplete (all white areas are holes).*

After

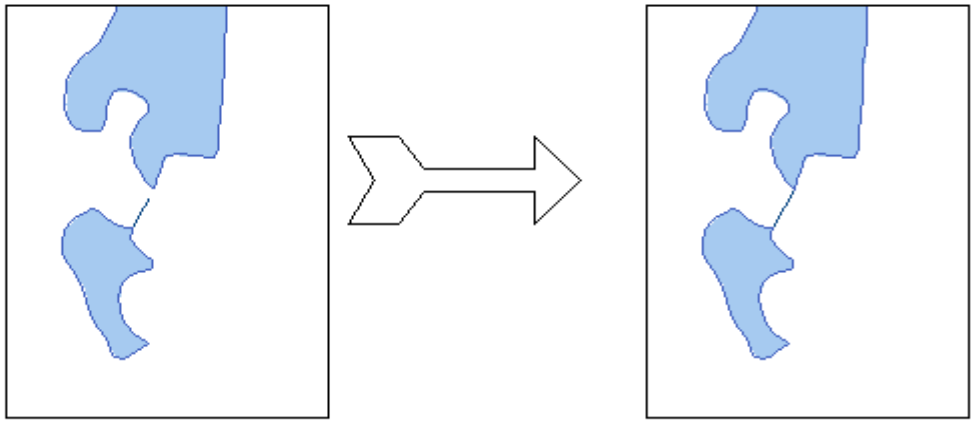
- *Overlaps have been erased (notice more water is visible).*
- *Holes have been filled in with backdrop of FAO Soils+ (yellow areas).*

TDB - TDFS Processing Deconflict (cont'd)

Connectivity
Improve linear connectivity for rivers



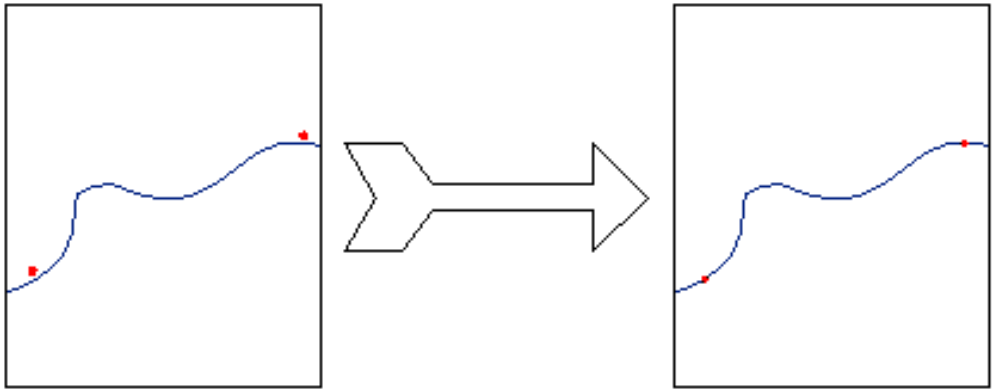
Snapping
Snap Rivers to Lakes and Oceans



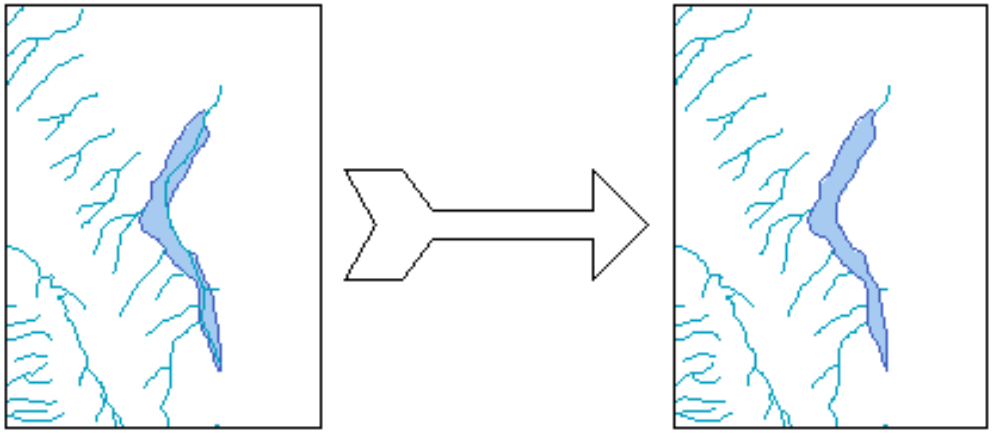
TDB - TDFS Processing

Deconflict (cont'd)

Alignment
Align dams to rivers.

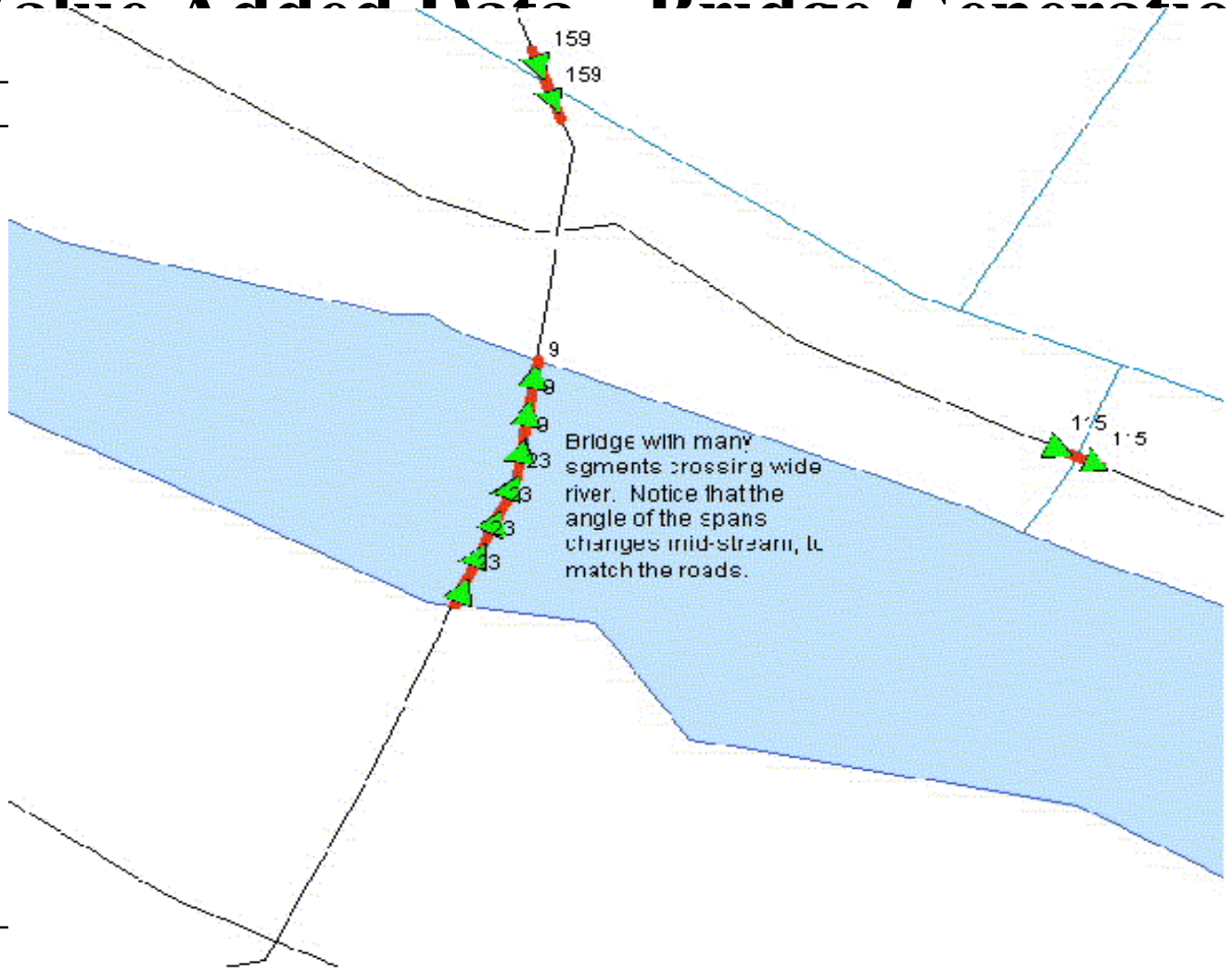


Intersection
Remove river segments which intersect lakes and oceans.



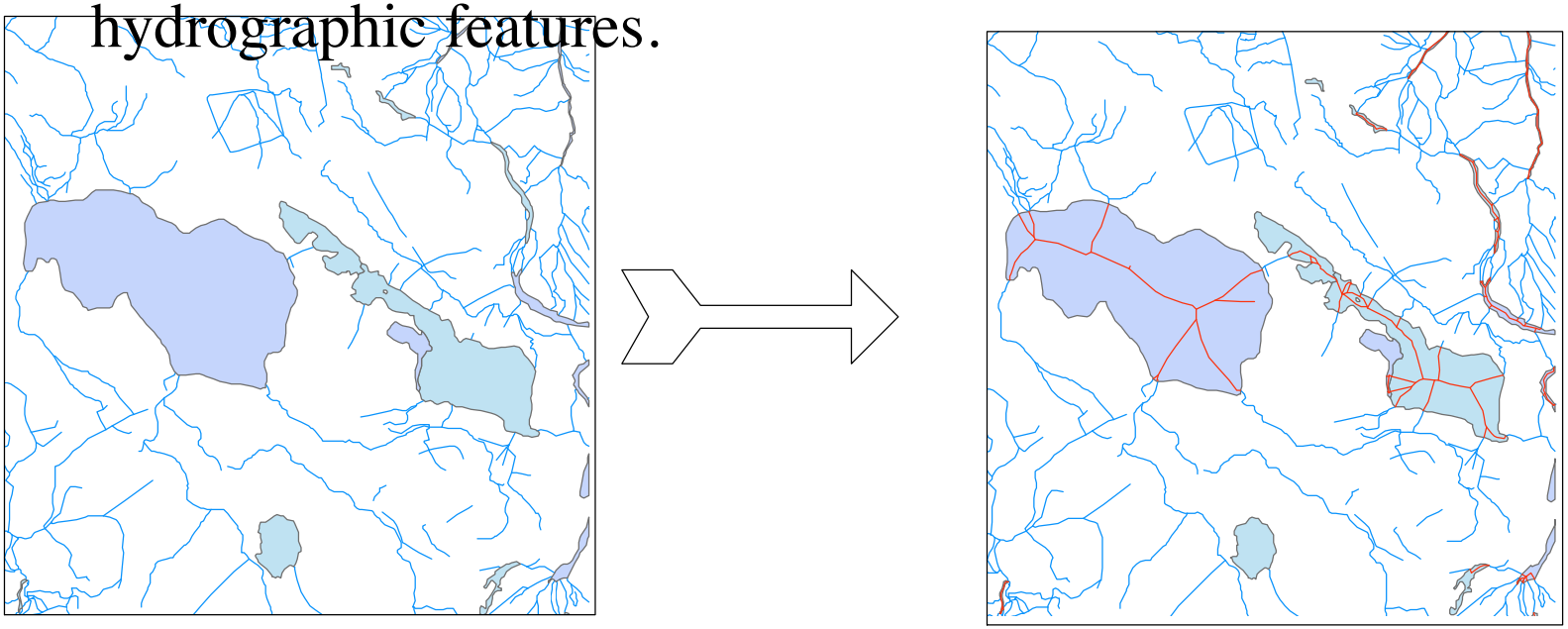
TDB - TDFS Processing

Value Added Data – Bridge Generation



TDB - TDFS Processing
Value Added Data - Centerline/Nexi

- 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

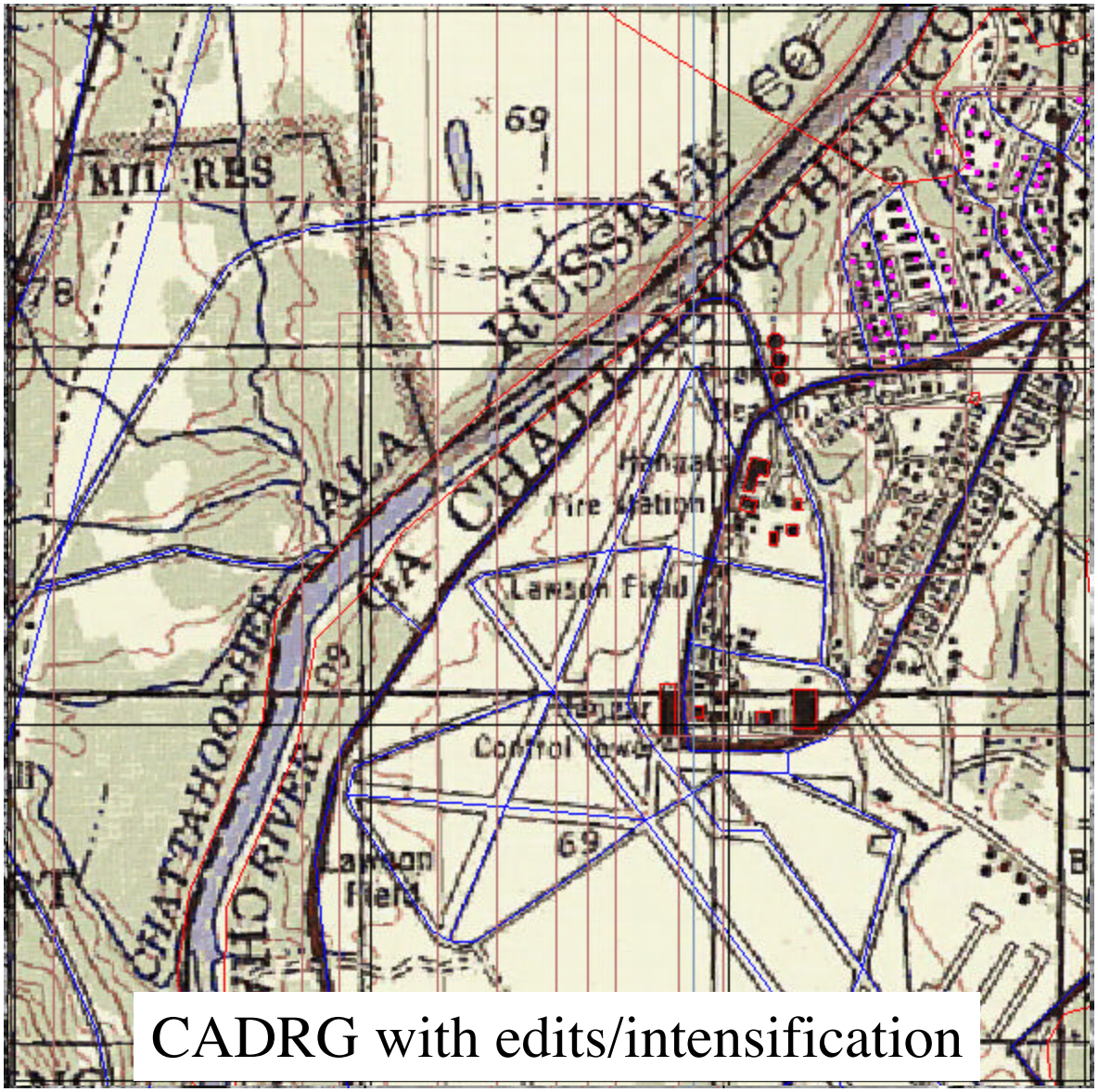
http://www.modsaf.org/sne/worldmapnew/world_init.html

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!