

Environmental Database Generation Environment (EDGE)

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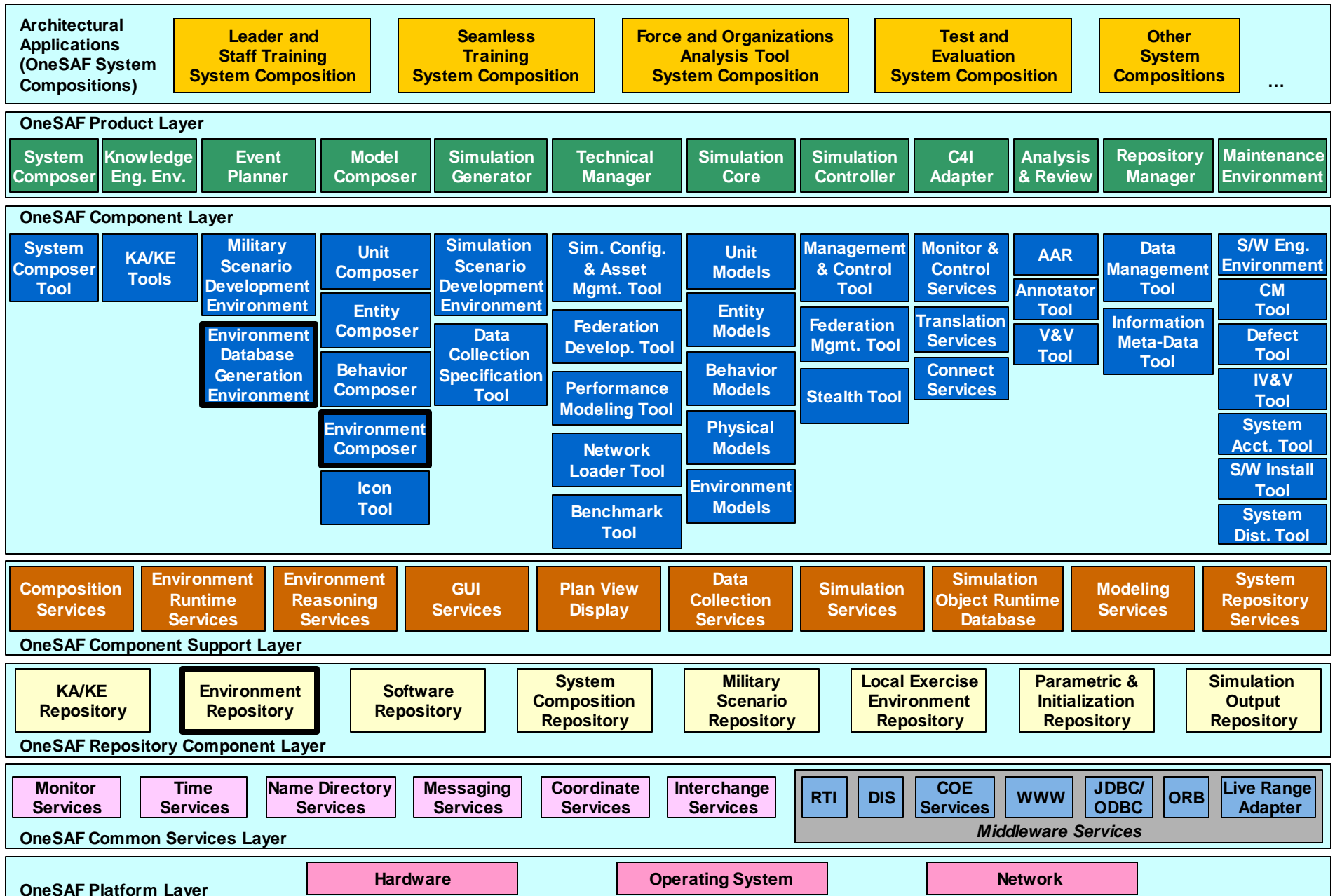
OneSAF/WARSIM Environment Lead

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EDGE – What Is It?

- The environment and tools that are used for developing OneSAF terrain databases.
- Consist of:
 - EDGE
 - Database Generation
 - Database Modification
 - Environment Composer
 - Environment Repository

OneSAF EDGE / Environment Composer / Environment Repository



EDGE PLRS (1)

PLRS126	3.2.2.4 Environment Database Generation Environment (27) The Environment Database Generation Environment (EDGE) provides the mechanisms to produce consistent integrated environment data needed to support the requirements of a given Military Sce
PLRS1078	The EDGE Component shall have the ability to use synthetic environment data from the following sources provided by the National Imaging and Mapping Agency: a. Digital Topographic Elevation Data (DTED). b. Interim Terrain Data (ITD). c. Rapid Terrain Visualization (RTV) Data. d. Urban Vector Map (UVMa). e. Vector Smart Map (VMap).
PLRS1430	The EDGE Component shall have the ability to use synthetic environment data from sources that are IAW the Synthetic Environment Data Representation and Interchange Specification (SEDRIS).
PLRS1431	The EDGE Component shall ensure that the definitions, <i>attributes</i> , relationships, and geometry of synthetic environment features and models conforms to the requirements of the OneSAF Environment Data Model.
PLRS1432	The EDGE Component shall export a transmittal in the following domains that conforms to a subset of the Synthetic Environment Data Representation and Interchange Specification (SEDRIS) as defined by the <i>OneSAF Transmittal Dataset Content and Representatio</i> a. Terrain b. AOS c. Ultra-High Resolution Buildings (UHRB)
PLRS1583	The EDGE Component shall import selected data sources as available to meet database content, <i>resolution</i> , and coverage objectives.
PLRS1435	The EDGE Component shall provide an environmental database area that is 50km x 50km at a minimum and capture the feature content of a 1:12.5K scale City Graphic or equivalent non-urban scale map with elevation data derived using Digital Terrain Elevation

EDGE PLRS (2)

PLRS2117	The EDGE Component shall provide a 300km x 300km terrain box database that must, at a minimum capture the feature content of a 1:50K scale Topographic Line Map (TLM) for the area of interest, with comparable spatial accuracy with the associated contour li
PLRS2256	The EDGE Component shall provide a 660 km by 660 km (435,600 sq. km) and a maximum of 3000 km by 3000 km (9,000,000 sq. km) terrain box.
PLRS987	<p>The EDGE Component shall provide the capability to convert synthetic environment data from the following systems into OneSAF Objective System compliant SEDRIS Transmittal Format (STF) environment databases, versions defined by <i>OneSAF Legacy Applications</i>:</p> <ul style="list-style-type: none"> a. OTB b. CCTT c. Janus d. WARSIM e. AVCATT f. Previous versions of OneSAF.
PLRS2140	The EDGE Component shall provide the user the capability to verify that the environment specified is an OneSAF Objective System compliant environment database.
PLRS2130	The EDGE Component shall use common repository services to act on SEDRIS Transmittal Format (STF) environment data stored in the OneSAF repositories.
PLRS2158	The EDGE Component shall have the ability to generate <i>correlated</i> databases in OneSAF Transmittal Format (OTF) and AccuScene Database (ASDB) formats.

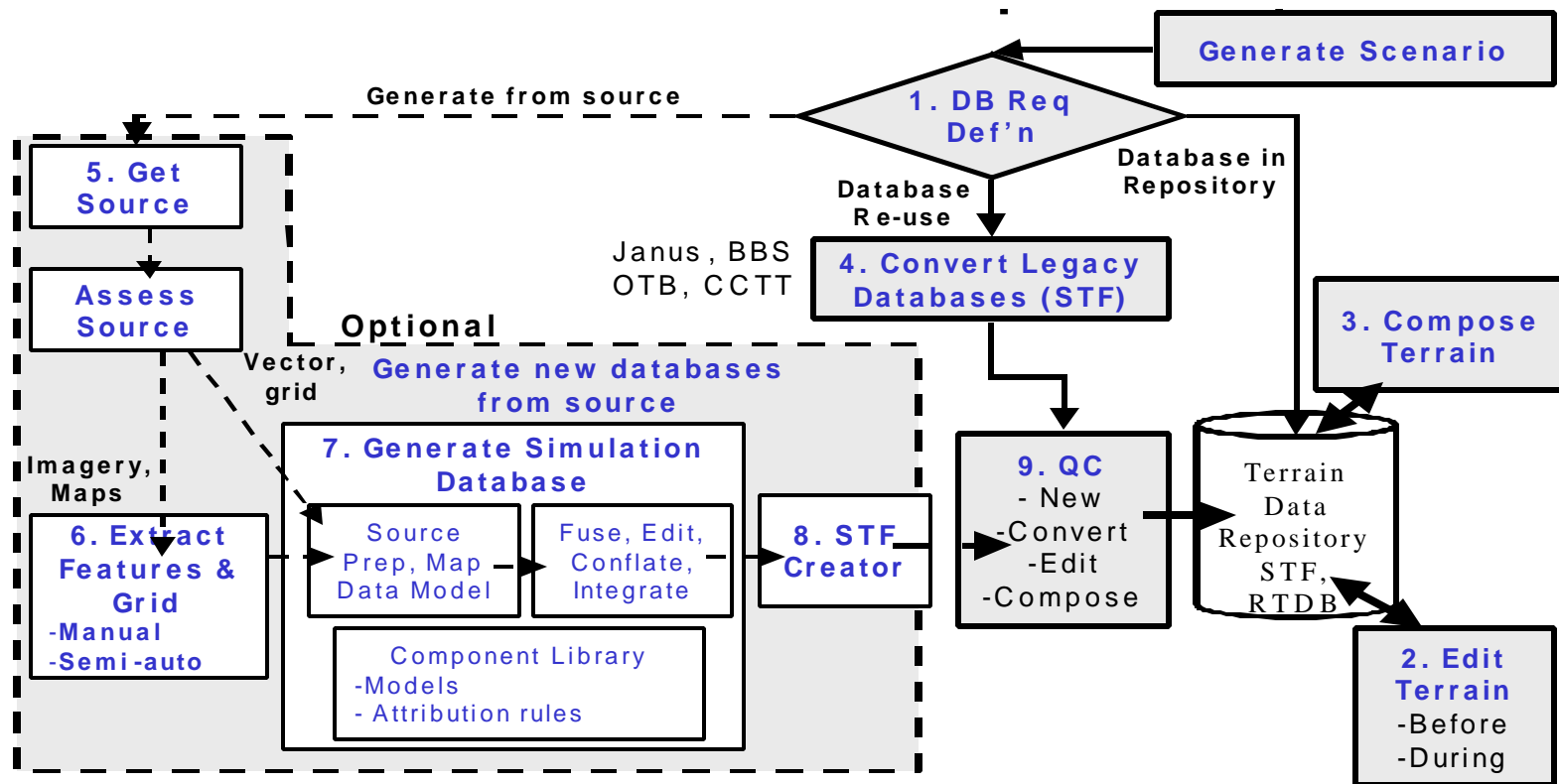
Environment Composer PLRS

PLRS124	3.2.2.8 Environment Composer (24) The Environment Composer provides the capability to compose the synthetic environment including geographic location, representation and resolution of terrain, features, atmosphere, and bathymetry.
PLRS1041	The Environment Composer Component shall provide GUI based mechanisms to compose the runtime environment database.
PLRS1042	The Environment Composer Component GUI shall adhere to the OneSAF User Interface Style Guide.
PLRS2408	The Environment Composer Component shall provide <i>help</i> entries.
PLRS1043	The Environment Composer Component shall have the capability to act on data stored in the Environment Repository.
PLRS2911	The Environment Composer Component shall use services provided by the System Repository Services component to act on data stored in the Local Exercise Environment Repository.
PLRS1045	The Environment Composer Component data shall include: <ul style="list-style-type: none"> a. geographic location b. terrain representation and <i>resolution</i> c. feature representation and <i>resolution</i> d. atmospheric effects representation and <i>resolution</i> e. bathymetric representation and <i>resolution</i>.
PLRS1798	The Environment Composer Component shall allow <i>multiple resolution</i> terrain within a single environment database.
PLRS1801	The Environment Composer Component shall provide the ability to display the representation of multiple, non-contiguous geographic areas.
PLRS1802	The Environment Composer Component shall provide the ability to display representations of areas of operations comprised of irregular, non-contiguous, and littoral geometric shapes.

Environment Repository PLRS

PLRS201	3.2.4.4 Environment Repository (50)	The Environment Repository holds all OneSAF data and meta-data associated with the synthetic natural environment.
PLRS2343	The Environment Repository shall include environment databases as supplied by EDGE.	

EDGE – Notional Operational Concept



6/18 - 6/22/01

OneSAF EDGe Summit

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EDGE – Database Generation

- Database Generation
 - Transforms terrain source data into SEDRIS Transmittal Format (.stf)
 - Global Planning Data – WARSIM resolution (1:250k scale)
 - VMAP1, DTED1
 - Provides quick start support for contingency planning
 - Backdrop to provide context to manual editing and integration of high resolution data-sets
 - Legacy STF reuse
 - High Resolution inserts
 - UVMAP
 - RTV
 - DTED5
 - Compliant with OOS Compilers and EDM

EDGE – Database Modification

- AKA Terrain Editor
- Permit field users to download source STFs
- Modify by manual editing against high-resolution data-sets into the source STF
- Export to STF and OneSAF's Objective Terrain Format (.otf)
- QA/CM to put back into repository
- Working with COTS vendors to provide multiple solutions for end users

EDGE – Environment Composer

- End user's public interface to the environment repository
- Provides OOS user access to archived source database (SEDRIS Transmittal) for editing or the runtime databases for Environment Runtime Component (ERC) and 3-D visualization (stealth)
- Permits the user to browse available data for a given geographic region at the requested resolution and format
- The prototype composer that has been integrated by SVDR provides these capabilities

EDGE Repository (SVDR)

- Synthetic Natural Environment (SNE) Virtual Data Repository (SVDR)
- Development funded by RDECOM
- Currently installed, operational, and populated with terrain data in STF form
- Support a variety of resolutions
 - Medium – 1:250k (VMAP1, DTED1)
 - High – 1:50k (TLM50, DTED2)
 - Very High – 1:12.5k (City Graphic, DTED3)
 - Ultra High – MOUT (UHRB's, DTED5)
- Harden and support Early User Interface
 - Populate with OneSAF runtime data (.otf) of varying resolutions
 - Provide access to others for testing

OneSAF Terrain Challenges

- Correlation between SAF and Visual
 - Utilize SEDRIS STFs
 - ERC Compilers to runtime
 - Served through the repository to end users
 - Modified via Terrain Editor
- Data model compliancy
 - Compliancy checker created to analyze and correct IAW EDM allowable values and attributes

OneSAF Terrain Challenges

- iTIN irregularities
 - T-vertices, sliver polygons, holes
 - Use SEE-IT to validate the database (ala WARSIM)
- Repository
 - Single representation for storing databases
 - STF and OTF

Comments/Questions