CDB 3.2: An enhanced data model for increased image quality

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ABSTRACT

In the context of distributed mission operations (DMO), correlation between synthetic environment representations across participants is a key requirement. However, the very nature of DMO means that participants will likely use a variety of systems, both in terms of platforms to display the synthetic environment through systems such as the visual image generator (IG), radar, and other sensors, as well as the generations of equipment. Platform independence of the synthetic environment databases then becomes key to keeping content creation and asset management costs to a minimum. The Common Database, or CDB, an open specification that defines a run-time capable representation of a synthetic environment, provides an approach to supporting correlation and platform independence.

CDB based systems have been delivered by multiple vendors using version 3.0 of the specification. The most recent version, CDB 3.2, was recently recognized as an "OGC Best Practice", and provides an enhanced data model that was designed to improve image quality and precision while maintaining performance and correlation among training devices. The improvements cover several fronts, from the baseline terrain elevation representation to improved integration of hydrography, road networks and 3D cultural features. Other elements of the changes in 3.2, such as localized precision enhancements, are aimed at addressing traditional limitations of raster content, both in term of geometry and imagery. Allowing this to be done at the same time as preserving a platform-agnostic representation further relieves systems from the need to convert assets to multiple platform-optimized formats. Prototypes of CDB 3.2 implementations confirm the expected precision and quality gains this new data model is offering.

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Patrick Piché earned a master's degree in computer science from Université de Montréal in 2000. During the last 16 years, he has been directly involved in the development of the CAE image generators product lines Tropos and Medallion. As the principal technical specialist of CAE visual systems, he now has the privilege to provide technical direction for CAE visual products.