# ENVIRONMENTAL DATA CUBE SUPPORT SYSTEM

## DISTRIBUTION AND INTEGRATION

**July 2020** **EDCSS**

A key function/capability of the EDCSS is to provide an ability to distribute and integrate environment representation products to all participants of modeling and simulation events, including simulation applications, control/white cell, and participants/trainees. The EDCSS Distributor and Runtime Integration Module (RIM) provide this core functionality.

The EDCSS Distributor is a light-weight web application that hosts completed EDCSS Event Support Packages. It is intended for deployment on a simulation network and offers both web service and user interface mechanisms for dynamic access to products. In addition, the Distributor provides for centralized control over the scenario by allowing an authorized operator to select which portion of the pre-generated scenario to "play" and facilitating dynamic changes to the script. It can house multiple projects allowing for a library of scenarios to be maintained in a ready-to-play status, and supports publishing of any project to a static HTML form for maximum deployment flexibility on sensitive networks. The use of web services for product distribution allows simulation developers to code directly against the web service specification in any language supporting a Simple Object Access Protocol (SOAP) interface. Figure 1 illustrates the three means of access to hosted products: manual browse and download from the hosted event support web site, coding to the web service interface, and utilization of the EDCSS RIM

The EDCSS RIM provides for direct integration of EDCSS data and effects products into simulation applications via a well-defined Application Programmer Interface (API) implemented in Java, C, and C++ programming languages for Linux and Windows operating systems. The RIM maintains a local cache of products for runtime efficiency and has built in methods to update the cache with the latest products via automated calls to the EDCSS Distributor web services.

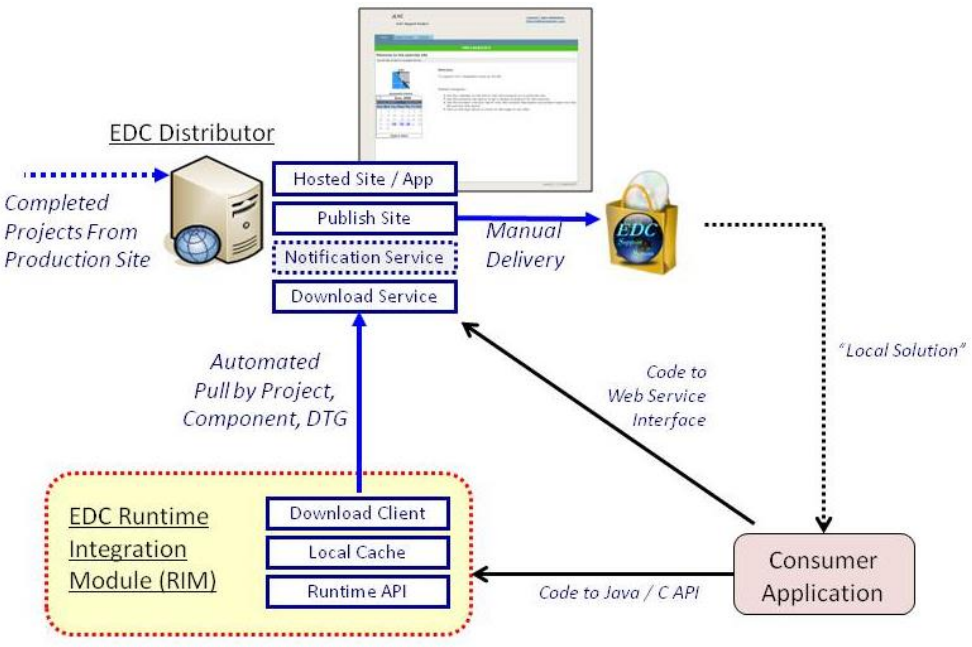


**Figure 1: EDCSS Distributor and Integration Options**

The EDCSS Distributor web application also offers a suite of capabilities to support review and analysis of Event Support products and data. For a selected Event Support Package, users can browse scenario overview graphic loops as well as any customized support products manually added to the site. Individual scenario days can be selected from the calendar and from the Daily pages products can be reviewed and/or downloaded for individual time steps to entire days. Advanced users may also utilize the new Data Analysis module to drill down into the scenario data with interactive time series plots and data tables.

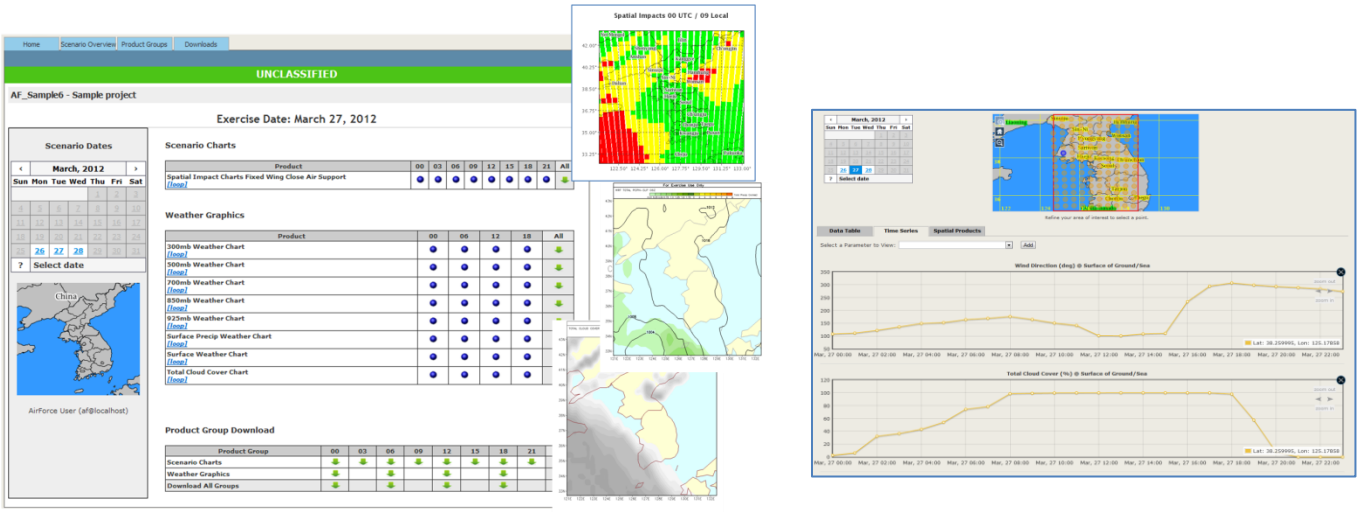


**Figure 2: EDCSS Distributor Sample Screen Shots. Daily Page with download links for all products (left). Time-Series Viewer in Data Analysis module (right).**

Select administrative users also have additional capabilities available to them on the Distributor. An entire Event Support Package can be published as an HTML site for burning to DVD, or saved as a complete Distributor pack for re-hosting on a downstream Distributor installation. The Distributor also provides a Scenario Control interface that allows select users to change the scenario by substituting or alternating the order of scenario days to be played for an event. For example, a day with benign weather may be substituted for one with severe impacts, or a selected day may be repeated. An interactive page illustrates the change before it is made.

Future enhancements to the EDCSS Distributor will include the ability to allow the administrator to ingest real-time data if required. Additionally the administrator can choose to switch back and forth real-time or historical scenario based Projects, improved logging capabilities to support Verification and Validation (V&V) processes, and direct scenario data editing functionality

A Verisk Business

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