EDX – Status and New Companion Tools

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Outline:

- EDX Basics
- EDX Status
- Companion tools demo
- Future

What is the EDX? (for newcomers)

– The EDX is an (informal) standard for the exchange of electromagnetic data

– Significant joint effort by the ACE ASI (ACE Network - EU-FP6) and the EAML team (ESA-ESTEC) made EDX possible

– The standard is now in the hands of the EuRAAP Software Workgroup

– It covers a part of the type of data which are exchanged among antenna and EM simulation tools

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What is the EDX?

EDX = EDI + EML + EDDs + ECTs

EM Data Interface

IO Library for EML
FORTAN and C++
Matlab
Data manipulations
Extremely flexible

EM Mark-up Language

Plane text
Tagged (XML)
Extensible
Unknown data can be ignored
Private data can be handled

EM Data Dictionaries

Fields (near, far, SWE)
Induced currents
Green's function
Circuit parameters
Expansions (modes)
Application DD's

EDX Companion tools

Visualizer
Browser
Viewer
EDX DD Language
Validator

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EDX Status

– The work is ongoing and continues…

– The core EDX elements have been further consolidated (e.g. EDI Library).

– Currently 8 members/partners are using the EDX including Universities, SME's and Industry.

– Increasing interest from other members and industry

– The EDX is safely in the hands of EurAAP Software WG

– New companion tools and interfaces have been developed during the last 2 years

New EDX Tools

- Companion tools (in beta version)
  - EDX Visualizer (ITLink)
  - Browser (ITLink + TICRA)
  - EDX Viewer + (TICRA)

- Tools under development
  - EDX Validator
    (ITLink, ESTEC and TICRA)

- New interfaces
  - EDI interface for MATLAB (Ericsson)

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EDX Visualizer
(M.Ghilardi, beta version available)

– The EDX Visualiser complements the former tool by providing 2D and 3D plotting feature

– Can be used as a separate scriptable program or it can be activated from the EDX Data Browser

– Supports vector and scalar fields, as well as complex and real ones, and any combination of them.

– 3 plotting modes are offered:

- 2D fields plots (Cartesian, Cartesian with Z-mapping, polar),
- 3D fields plots (Cartesian with perspective) and
- Polyhedral surface mode (for meshed geometrical data and for fields defined on such surfaces)

EDX Browser
(T.Sejerøe & M.Ghilardi, Linux beta available)

- EDX Data Browser is a general tool to interactively inspect the contents of an EDX file
- all the definitions, structure and data contained in an EDX file can be inspected
- EDX Data Browser is an extension of the EDI Viewer.
- A simple yet powerful interface to dig into electromagnetic data

EDI Viewer (T.Sejerøe, beta version available)

- The EDI Viewer is a stand-alone program for rapid inspection of the data in an EDI file
- The EDI Viewer implements interactive features for 2D and contour plots of any dependent numeric EDI variable
- Easy selection of which dependent EDI variable in the file that shall be plotted against which of its domain EDI Variables.
- The EDI Viewer includes modern interactive plot management:
  - colour selection, grid lines, axis and plot text,
  - import and export of curves
  - output of the plots in various formats

MATLAB Interface
(beta version available)

- Complete new MATLAB interface has been implemented (by Ericsson).

- The interface has MATLAB functions similar to the the functions in the FORTRAN interface.

- Some easy to use high-level functions e.g. far field i/o with a single function call.

- Standard MATLAB HELP has been prepared for all functions.

EDX
Electromagnetic Data Exchange Language

A common language to exchange data among electromagnetic modelling tools

Highly-structured XML-based file format: easy to read and understand

Data file content defined by Data Dictionaries

Easy to maintain and extend to cover future demands

Adopted by several professional software developers

Your software should also speak EDX!

Too difficult?

We will help you !!!

The EDX team is proud to announce the first

Developer's Short Course

Understand the structure and details of EDX

Learn how to use it within your own electromagnetic modelling tools

hosted by ESA at the

32nd ESA Antenna Workshop
4 October 2010
ESTEC, Noordwijk, The Netherlands