

Interactive Electronic Technical Manuals (IETM) Level 3 and 4

1) Introduction to IETM | History of IETM | what is IETM?

- Technical manuals (e.g. maintenance, user, training, operations, etc) published in electronic format are becoming more and more popular than paper based manuals for their interactivity, convenience and ease of use.
- For example, the maintenance and operation manuals of a warship, which used to occupy 300 -350 sq. feet of prime area with thousands of pages of technical literature
- It was very difficult to refer some operating process or trouble shooting from thousands of hardcopies. Each time, maintainers had to refer multiple books to get information related to issues.
- To address these issues, IETMs were introduced in ships initially. IETM is the replacement of paperwork / hard copies
- IETMs are now replaced by their electronic versions occupying very little space and can be viewed on tablets from any part of the ship. These electronic technical manuals are termed as Interactive Electronic Technical Manuals (IETM) or Interactive Electronic Technical Publications (IETP).
- Interactive Electronic Technical Manuals (IETMs) or Interactive Electronic Technical Publications (IETPs) are technical manuals (such as maintenance, training, user or operations manuals) usually authored in XML or HTML -5
- IETMs are a portable, electronic "library" which contain thousands of pages of documentation and images and allows end users to trace technical documentation in a more efficient manner, and the digital nature provides a more agile and accurate method of updating technical documentation.

2) The Classes of Electronic Technical Manuals

Level- 0

- As we all know that Level 0 gives us the full description of the spectrum by providing the digital page with images that can be mean to plan for electronic archival filing.
- These pages allow the users to view only on an electronic device but it does not have the detailed index for navigation with this document for the online purpose.

Level -1

- In this level systems with a digital page with images are provided with full page display and it allows the navigation by means of user-friendly which can be an automated index page.
- For e.g: Navy Advanced Technical Information System – ATIS).

- This type of systems which can be used in libraries and as well as used for reference setting for research and reading purpose

Level- 2

- Systems for Interactive Display of ASCII-Encoded Documents using an intelligent index and Hypertext tags inserted into an attached document file.
- In general, the document is the result of a simple conversion from a page-oriented document but with little or no alternative by a subject matter expert with the exception of adding hypertext tags.
- These allow a user to navigate through the document, but have very limited, if any, author inserted navigation aids or a content-driven "NEXT" function.

Level- 3

- Interactive Display of Technical Information which is SGML tagged using MIL-D-87269 tags to the maximum extent possible and using a Hypertext presentation system for display in accordance with MIL-M-87268.
- It is based on a sequential SGML document file and not a hierarchically based on Database.
- Navigation is based on author developed make employing features such as to bring dialog boxes and content-driven logical "NEXT" function.
- IETM Class-III is a linearly structured electronic document where the content is stored in smaller logical blocks of text with hyperlinked content to different logical pages and less use of scrolling compared to IETM Class-II. Class-III IETM is structured in freely flowing linear format following the logic of the content
- **Key Feature of our Class-III IETM are:**
 - Content derived from Logically Hyperlinked Static Pages and not related to database
 - Linear Structured Table of Contents with Hyperlinked data
 - Interaction through dialog boxes
 - Logical display of data in blocks related to content
 - Logical NEXT and BACK functions for User navigation through content
 - Page Search and Keyword search capabilities of content
 - Text and graphics support for the content display
 - Useful as interactive training, operation and maintenance aid
 - Content specific help available
 - Module wise deployment for Content, Manuals, Illustrations, Spares, Glossary, Help and E-Book View for manuals

3. Code and Pixels, IETM LEVL –IV expertise:

- We are proud to be in association with Indian Defense

- CODE AND PIXELS IETM Frame work has been successfully used by Army, Navy and Air force since 2013. We are empaneled vendors to supply software to DRDO, ASL, BDL, ECIL and many other OEMs who supplies systems and sub systems to various Indian Defense agencies.
- We have an exclusive R&D wing and it has been efficient since 2013 and we have studied various IETMS available across the globe and we have done enough R&D before releasing our IETM frame work in 2015
- Code and Pixels has developed Robust Frame work and authoring tools and we have successfully executed 25 + IETMs design and Development projects

1. Adherence to Standards

- MIL-M-87268, MIL-D-87269, and MIL-Q-87270
- JSG-0852:2001 Joint Service Guide Document

2. Graphic User Interface

- Graphic User Interface as suggested in JSG-0852:2001 Joint Service Guide Document
- Standard Navigation Tools
- Easy to navigate, Tree structured based content tree and user friendly Graphic user interface
- Frame oriented instead of being page oriented

3. Security

- Role based Login Control and Dynamic User access control (User, Admin)
- 256 Bit Encryption for data safety
- Database configured as per MIL -PRF 28001 Standards document
- Dynamic User Access control to reduce the risk of unauthorized access to content data
- Backup and Restore Module for protecting the loss of data

4. Cross Plat form Compatibility and Deployment

- Our IETM Frame work is cross platform compatible
- Code and Pixels Frame works is compatible for multiple devices i.e. Lap tops, PCs, Tablets etc
- IETM can be operated in Windows Operating systems and also LINUX OS
- IETM can be browser based or EXE based as per the clients requirements
- No 3rd party tools are required to install IETM in Clients Machine
- It can be played as EXE (Executable file) Or can be played in Browser
- It can be installed in Client server Environment and also in single System

5. Performance

- In Class-IV IETM the data to be stored in a relational database, obtaining benefits of data integrity and removal of data redundancy.
- As the content (Images, Text, tables, Hyperlinks, Hot spots) is saved in database, hence content will be loaded in fraction of seconds from server.
- Content completely hyperlinked are mapped directly to relations in the database schema.
- Content will be driven dynamically from Database based
- Dynamic data access from Relational database and reduced use of static pages
- Content data derived in textual, graphical, audio or video formats in a relational database which is composed of logically connected but randomly accessible IETM data elements
- High-end Server with good bandwidth LAN would make IETM more efficient.
- Our IETM frame work supports 1 lakhs plus pages and 500 concurrent users

6. Modern and Latest Technologies

- HTML 5 (responsive) based content integration and module based deployment
- Applications : Angular JS Frame work, Electron
- Database : My SQL
- Frontend : HTML5, Bootstrap
- Encryption : AES 256 bit

7. EED-P-23: NAVAL SPECIFICATIONS FOR IETMS

- JSG 0852:2001 JOINT SERVICE GUIDE
- MIL-M-87268: MIL STANDARDS: REQUIREMENTS FOR MANUALS, INTERACTIVE ELECTRONIC TECHNICAL MANUAL
- MIL-D-87269: MIL STANDARD FOR SUPPORT OF DATABASE

Features of IETM

- IETM is equipped with User management tools, content management tool, Authoring tools
- **User Dashboard:** User Dashboard consist of features like Manage Bookmarks, Manage Annotations , View Activity, Change Password, Enter IETM, Logout
- **Admin** can control the documents access based on user profile. I.e. For Operator user , only manuals related to operator can be given access and for maintainer user only Maintenance related documents can be give access.
- Admin can see user login history and user Annotations and feedback etc
- **View Activity:** View Activity Feature consist of Last login, Created Date and a Table with all the previous login and logout's gets displayed.

- **Change Password:** This Feature enables User to change his own password and to update his own security questions.
- **Enter IETM:** This Feature enables User to enter into IETM Core and access the IETM Data by selecting the desired module.
- **IETM Core:** IETM core consist of IETM Content section on the Right and Tree Menu on the Left for navigation of content, IETM Core consist of Global Search, Local Search, Print, Annotation, Bookmark, Help and Select Module, History Navigation and Home options.
- **Annotations:** Annotations are displayed by an icon at the Top Right beside the Global Search with Annotations Count of particular page. User can select the text with mouse and Add Annotation option appears to users to add new annotation in the content page.
- **Print IETM Core:** Print feature is provided in IETM Core to print the current page content
- **Bookmark:** A Bookmark Icon is provided at the top of content section to bookmark a particular page and can be added by clicking the Bookmark icon, A popup with Name Bookmark name field gets appeared.
- **Word Explainer:** Word explainer feature helps in providing a Description/Explanation to a word by clicking on the word and is highlighted with a color in IETM Content
- **Image Explainer:** Image Explainer feature helps in linking a related image to a word in the IETM content, the word with the image explainer is highlighted with a color in IETM content.
- **Video Explainer:** Video Explainer feature helps in linking a related Video to a word in the IETM content, the word with the video explainer is highlighted with a color in IETM content.
- **Hotspotting:** Hotspotting functionality is used to link a word to respective image/Drawing of the same page, works with mouse hovering or selecting text or part of a image by which respective drawing or image will highlighted.
- **Hyperlinking:** Hyperlinking feature enables user to navigate from one page to the other related hyperlinked page by mouse click, the hyperlinked data is highlighted with a color and underlined.
- **Image Viewer:** By clicking on image or enlarge icon of the image at the right bottom of image respective image is displayed in a popup of image viewer.
- **Page Navigation:** Page navigation feature enable the user to navigate to next and previous pages , by clicking on Prev Button at the left bottom of content area user gets navigate to the previous page of the content.
- **History Navigation:** This feature enables the user to navigate to his previous steps based on his navigation history of the current session, by clicking on the right arrow in the top header user gets navigated to the forward.
- **Global Search:** Global Search provides a functionality to search a keyword with matching page name and also content text form entire IETM Core and the results are

displayed in tabular format with Page Title and Module Name. by clicking page title user gets navigated to that page.

- **Local Search:** Local Search provides a functionality to search a keyword in the same page and the matching text is highlighted with a color in that single page.
- **Related Content:** Related Content features is located at the right bottom of IETM content section. We can link the Related Pages of IETM Core, Document and Drawings which are related to this page content in this feature.
- **Page Expand View:** IETM Page can be expanded upon clicking the arrow button provided at the bottom of the tree menu section
- **Manuals Tab:** Manuals tab is provided in the header above the tree menu. All the manuals related to can be placed in this tab and can be viewed with the help of pdf viewer provided in the IETM application.
- **Logs Tab:** Logs tab is provided in the header above the tree menu. This section enables User to add and store the logs of required data for the user
- **Glossary Tab:** Glossary tab consist of Add, Sort , Find options with a tabular display of the glossary Related to content in IETM Core
- **Select Modules:** User can be navigated to desired module form this Select Module Button, A list of all available modules will be displayed in dropdown.
- **Help for IETM:** This consist of two pages About IETM and How to use IETM with the information related to IETM and a video how to use IETM.
- **Logout:** Logout enables the User to close his session and logout form the IETM dashboard and redirects out of application from his access to login page of IETM.