

Configuration Management using  
the MBASE Deliverables  
Manager (MDM)

# General CM Concepts

- Complex products have important information about how their subsystems are built and how they are related to each other.
  - Components: Vendors, Part Numbers, Specs
  - Baselines: Draft, Initial, Test, Released, Obsolete
  - Versions: Economy Model, European Model
- Useful for quality control, maintenance, recalls, institutional memory (documentation)

# Software CM Concepts

- Definition (one of many possible)
  - A disciplined approach to managing and tracking the development and maintenance of a software product.
- Same Issues
  - Components: Code, COTS products
  - Baselines: LCA, LCO, RLCA ...
  - Versions or Models: Target platform, Versioned Releases, Current Configuration (Microsoft: Nightly Build)

# Software CM Concepts

- Small projects with one developer
- Large scale software engineering projects with multiple developers working in parallel
- Basic ideas (today)
  - Checkin, Checkout, Compare, Add, History
- Advanced Ideas (later)
  - Merging, branching

## MDM Background (brief)

- Began as a CS577a project
- Client: Center for Software Engineering (CSE)
- CSE Goals:
  - Expose students to CM issues and gain practical experience with a CM tool.
  - Build searchable archive of student projects for CSE researchers and affiliates.

# MDM Background

- MDM was an existing web-interface tool to Rational's CM tool ClearCase.
- Fall 2000 project was to extend functionality.
- ClearCase introduced their own web-interface, project became an all COTS solution.
  - ClearCase for CM of student development and CSE researcher work
  - Hyperwave for searchable archive, public access.
- May be extended in the future.

# Using the MDM

- ClearCase Terminology
  - VOB (versioned object base)
    - Data repository on the server for elements (files, directories) and meta-data.
    - Versioning handled internally with Multi-Version File System (MVFS).
    - VOB's are not directly accessible.

# Using the MDM

- Views: A filter on the VOB.
  - What version are you currently working with?
  - Dynamic Views: Used when accessed in a local or shared directory with the native GUI application.
  - SnapShot Views: Used with Web-Interface. A static image of the VOB which needs to be refreshed after changes. SnapShot views require storage on the client hard disk.

# Using MDM (ClearCase Web-Interface)

- Use Internet Explorer (4.0 or greater) if possible. Netscape will carry out transaction, but may crash in some cases.
- Requires local hard disk space
- Snapshot view of directory structure and files are kept in local directory

# MDM Functions

- Help Screen
  - URL <CC\_server>:8000/ccase/bin/ccweb.exe
    - Login and click on the Help Button on top right.
  - The help screen is very good, for both concepts and usage instructions
- Hyperlinks
  - Follow links to change directories or to open a file in the browser or a helper application.

# MDM Functions

- Download
  - Check the box near the file or directory of interest and click Download button.
  - Note that the file is not Checked-Out
- Checkout
  - Check Box near file or directory of interest and click Checkout.
  - Give a meaningful comment documenting the reason for checking the file out, it will help you and CSE researchers
  - Locks file for exclusive writing

# MDM Functions

- Checkin
  - Select check box near file or directory of interest and click Checkin.
  - File must have been changed, if not, Undo-Checkout
  - Makes files available for checkout.
  - Increments the version count

# MDM Functions

- Undo-Checkout
  - Merely marks file as available for Checkout.
- My Checkouts
  - Return list of all files in local snapshot view that are in checkout state.

# MDM Functions

- Add
  - The file must first be placed in the correct path of the local snapshot, then click the add button.
  - Add retrieves a list of all files that are in the snapshot view, but not in the actual VOB.
  - There is no way (as far as I know) to delete files.

# MDM Functions

- Compare
  - Like Unix diff program. Works in browser for text-based files (\*.txt, \*.html ...)
  - Compares latest version with penultimate version (n against n-1)
  - Chokes on non-text based files (\*.doc ...)  
Word files can be compared in the native GUI application which we look at later

# MDM Functions

- Properties
  - Shows meta-data of current file (MVFS filename, comments, element type ...)
  - History
    - Shows version history of file and allows (hyperlink) download of any version

# MDM Functions