Lua Scripting

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What is Lua?

- Embedded scripting language in WindMil and WindMilMap
- Created by a University team in Brazil
- Used by several software and gaming companies
What can Lua do?

- Make modifications to circuit models
- Create new element fields for custom reports and data boxes
- Perform tasks on a schedule
Types of Lua Scripts

- `.lua` – make model edits and perform calculations on model data when script is ran
- `.elu` – creates element field in the field list
- `.plum` – script that can be ran automatically based on certain actions
Model Editing with Lua

- Example scripts for model edits
  - Insert transformer fuses (Arc Flash)
  - Connect consumers to closest transformer
  - Rephase elements from file
  - Rename elements

- Calculations
  - Total length of selected lines
Element Field Creation

- Lua scripts can create new element fields
- Defined as .elua files and must reside in C:\Milsoft\Programs\Scripts\eLua
- Perform calculations on existing data
- Upline and downline tracing/searching
Example Element Fields

• Total kW Loss – summation of kW loss on all elements downline from selected
• Upline Device – search upline to find device and equipment of device
• Min Downline Voltage – Search downline and return lowest voltage downline
Running Scripts

• Utilities, Script manager
  – Select Script
  – Hit Run

• Scripts can be tagged as favorite and run from Utilities, Execute Script
Script Manager

Lua Script Manager

- Utility
  - Add Features
    - Add Points along Convex Hull.lua
    - Create Domain Model.lua
    - InsertDeviceBeliefAndUG.lua
    - InsertFaultsMPE.fsp.lua
    - InsertTransferForDirectConsumers.lua
    - SecondaryLineUtility.lua
  - Lua Templates
    - Total Downline Transformer KVA.lua
  - From File
    - Assign Equipment to Device Set.lua
    - Change Meter Numbers.lua
    - CreateUPSNode.lua
    - Populate Fail Rate and Repair Time.lua
    - Reconfigure Line Tags.lua
    - Replace Current Equipment with Other Equipment.lua
    - Set Map Name.lua
  - Modify Data
    - Asset Profile Fields and Domains.lua

Show Only Favorites

Run
Edit
Open
Close
**Script Manager Features**

- Create new scripts
- Run selected scripts
- Create scripts from templates
- Add eLua fields to Selected Elements tab
eLua Templates

• Allows user to easily create a new element field based on pre-defined template
• Milsoft provides templates
Assigning to Toolbar

- Frequently used script can be a toolbar button
- Right click on custom toolbar, assign Lua script
  - SumLength.lua
Plum Scripts

- Can perform task based on WindMil action
  - Rename elements immediately after added to model
  - OnGetGridName
  - OnAfterAddElement
Creating a Right Click Menu Option

- Right click menu can now have scripts added as options
- Use plum Lua scripts and specific header option
  - PopupMenuItem
Future Plans for Lua

• Replace Updatable Utilities with scripts
• Replace Global Editor Editing Utilities with scripts
• Enable scripting capabilities in other parts of WindMil (possibly Analysis)
• Provide more templates for easier script creation
Lua Resources

• Several web sites for reference
  – http://www.lua.org/
  – http://en.wikipedia.org/wiki/Lua_(programming_language)

• Milsoft Tutorial in Progress
Questions/Comments