

**RETICMASTER Version 11 build 1412 Sign-off Document (Please complete the sign-off doc and send back)**

1. Data Library Log File	Name	Date	Accepted	Remarks
<p><b>Description:</b>            During the Data Library OLE function calls, "AddConductor" and "AddTransformer", a log file of all added and/or changed Conductors and Transformers is maintained. This log file is located in the same folder where ReticMaster.exe resides. This text file is named "<b>Data Library.log</b>" and each record contained therein will indicate whether the data was Created or Changed and Date\Time stamped with the User Name if it is a Server Licence. If the file is marked as Read-Only then ReticMaster will warn the user once only, or every time immediately after a File\New or File\Open instruction is given. The log file can be viewed and cleared via the Data Library interface, see:            1) File\Data – "Notes" Tab and "Data Library Log" Tab at bottom            2) File\Data and then File\Clear Data Library Log</p> <p><b>Test Procedure:</b>            Open Data Library OLE.xls (Located in the same folder where ReticMastser.exe resides), and enable macros</p> <ul style="list-style-type: none"> <li>• Delete the "Data Library.log" file via File\Data + File\Clear Data Library Log using the Data Library interface</li> <li>• Click on any Conductor list in the Dictionary Update Sheet.</li> <li>• Press the "ReticMaster Update" Button</li> <li>• For a Server license, please enter your UserName and Password if prompted.</li> <li>• View the log file to confirm its operation.</li> </ul>				

2. Conductor Data Update enabled for Temperature	Name	Date	Accepted	Remarks
<p><b>Description:</b>  When a user opens an existing ReticMaster Study File (*.rmd), with Conductor data details that differ from the Conductor data details as defined in the Data Library, ReticMaster has the ability to either use the Data Library Conductor information, or alternatively the ReticMaster study file Conductor information. The default behaviour is to use the ReticMaster study file Conductor information, and is controlled by the "Update Data Library" checkbox (See Tools\Options\General). In previous versions, the Data Library Conductor Impedances (R, X, B) and Ratings are updated but the temperature details remained unchanged, which is not correct.</p> <p><b>Test Procedure:</b>  1) Go to Tools\Options\General and ensure that the "Update Data Library" Checkbox is checked and press Save to make that the Default Option.  2) Add a new "Test" conductor in the Data Library (File\Data) and set its Temperature to 50 deg C. Press Save to make it part of the Default Data.</p> <ul style="list-style-type: none"> <li>• Add a Source node with a Load Node attached to it and select the Test conductor</li> <li>• Save this file (it now contains the 50 deg C Test conductor Data).</li> <li>• Go to File\Data and change the Temperature for Test to 20 deg C and Press Save to make that the default value for Test.</li> <li>• File\New will confirm that the Default temperature is 20 deg C for Test.</li> <li>• Open the saved file and confirm that the Temperature for Test in File\Data is temporarily updated to 50 deg C.</li> </ul>				

3. Data Library behaviour	Name	Date	Accepted	Remarks
<p><b><u>Description:</u></b>  The Data Library files (*.mdb or *.ii) can be changed and set to new database file names and/or locations via the File\Data and the Tools\Options\General interfaces. The behaviour of this functionality is improved in ReticMaster v11. For instance, any opened study file will be re-opened once the data library file has been updated. Study files that were changed in any way will be saved (prior to reloading the data library) via an appropriate prompt to allow the user to either:</p> <ol style="list-style-type: none"> <li>a) Overwrite the existing file,</li> <li>b) Discard changes, or</li> <li>c) Save the changed system into a new study file</li> </ol> <p><b><u>Test Procedure:</u></b>  Open any file in ReticMaster  Go to Tools\Options\General\</p> <ul style="list-style-type: none"> <li>• Select a new Library Path and press OK</li> <li>• When prompted to save the opened file select Yes.</li> <li>• Confirm that the file is re-opened with the new Data Library in place (See File\Data and look at the Caption Title to confirm)</li> </ul>				

4. Improved SQL Server User Option saving	Name	Date	Accepted	Remarks
<p><b>Description:</b>  For User Server licenses, the user Options (as in Tools\Options), and the Default Library path is saved in the PowerOffice database server instead of the Windows registry (as is the case with Dongle based licensing). Previous versions of ReticMaster using MSSQL servers did not handle the Data Library path adequately and this aspect is fixed in v11</p> <p><b>Test Procedure:</b>  Install the MSDE PowerOffice server on a Laptop for off-line usage.</p> <ul style="list-style-type: none"> <li>• Use the installation software from Inspired Interfaces</li> </ul> <p>Check the ReticMaster Oracle User Server Licence out to a MSDE User Server Licence:</p> <ul style="list-style-type: none"> <li>• Run ReticMaster using an Oracle Server User Licence.</li> <li>• Go to Help\Registration</li> <li>• Click on the “Check Out” button</li> <li>• Specify the correct Microsoft SQL server (MSDE Server)</li> <li>• Change any parameter in Tools\Options and press Save</li> <li>• Close ReticMaster and open it again using the Microsoft SQL server.</li> <li>• Confirm that the changed parameter in Tools\Options remains valid</li> </ul>				

5. Conductor User Code Modification	Name	Date	Accepted	Remarks
<p><b><u>Description:</u></b>  The Conductor User Code is used for the purpose of displaying a short user definable Conductor Description. This will be the default behaviour and the user must de-select that option in “Tools\Options\Display - Branch Text” to display the full Conductor Description. If the User Code is empty, then the Description will be used instead.</p> <p><b><u>Test Procedure:</u></b>  In ReticMaster, go to File\Data, Conductor Tab</p> <ul style="list-style-type: none"> <li>• Click on any Conductor e.g. Fox</li> <li>• Change the User Code to a single character e.g. “F”</li> <li>• Press the “Change” button to accept</li> <li>• Press the “Close” button</li> </ul> <p>Place a line in ReticMaster and select “F” as the conductor.</p> <ul style="list-style-type: none"> <li>• Confirm that the single line diagram displays “F” instead of “Fox”</li> </ul> <p>Go to Tools\Options\Display and select the radio button, “Display Full Conductor Description”. Press OK.</p> <ul style="list-style-type: none"> <li>• Confirm that the Single line diagram displays “Fox” instead of “F”</li> </ul>				

6. Transformer impedance base modification	Name	Date	Accepted	Remarks
<p><b>Description:</b> ReticMaster 11 uses the transformer secondary design voltage as the default reference for calculating the ohmic impedance of a transformer. Previous versions used the system nominal voltage instead.</p> <p><b>Tools\Options\Calculation</b></p> <p>A new checkbox named "<b>Impedance based upon Nominal Sec Voltage</b>", which is unchecked by default is now available. If this checkbox is checked, then ReticMaster will use the system nominal voltage as per previous versions.</p> <p><b>Internal Operation</b></p> <p>The impedance specification (Z% and Z0%) would thus result in a slightly higher or lower ohmic impedance if the design voltage is used instead of the nominal voltage. Even though this impact is minimal, we do believe that it is a slight improvement.</p> <p><b>Example:</b></p> <p>100kVA, 5% impedance transformer:</p> <p><u>Using Sytem Nominal Voltage = 400V</u>  Vb = 400  Sb = 100000  Zb = Vb<sup>2</sup>/Sb = 1.6ohm  Zohm = Zpu x Zb = 0.08 ohm</p> <p><u>Using Transformer Secondary Design Voltage = 415V</u>  Vb = 415</p>				

$S_b = 100000$   
 $Z_b = V_b^2/S_b = 1.722\text{ohm}$   
 $Z_{ohm} = Z_{pu} \times Z_b = 0.086\text{ohm}$

The impedance is therefore adjusted by the square of the internal boost ratio  $(415/400)^2 = 1.0375^2 = 1.0764$

**Test Procedure:**

Place an 11kV source with 3ph fault level = 100kA  
Place a 100kVA 11kV/400V Star Dyn1[3.75%][30] Transformer below the source.

Edit the transformer with  $Z\% = 5\%$  and  $X/R = 0$   
Right click on the transformer and display results and select the Faults radio button.

- Confirm that the Positive sequence ( $Z_+$ ) value is 0.086ohm

Go to Tools\Options\Calculation and Check the "Impedance based upon Nominal Sec Voltage"

Right click on the transformer and display results and select the Faults radio button.

- Confirm that the Positive sequence ( $Z_+$ ) value is 0.080ohm

7. Force Phase connection change	Name	Date	Accepted	Remarks
<p><b>Description:</b>            In Tool\Options\General, two new checkboxes have been added:            A) Force Phase Connection Change            B) Show “Force Phase Connection Change”</p> <p><b>A) Force Phase Connection Change</b>            This checkbox will be checked by default and it will allow ReticMaster to force the phase connection of Nodes if a conflict between From Node and To Node phasing exists. A log file named “Force_Phase_Connection.log” will be created in the same folder where ReticMaster.exe resides. Whenever File\New is called (or when a new file is opened) the log file will be cleared automatically to limit the logging to the current study file only. When a forced phase connection takes place, the New Phasing, Old Phasing, Node Name and Date + Time will be logged in the log file. For Server based licensing the User Name will be logged as well. This enables the user to inspect such changes afterwards. The log file can be viewed and cleared via the Data Library interface, see:            1) File\Data – “Notes” Tab and “Force Phase Connection Log” Tab at bottom            2) File\Data and then File\Clear Face Connection Log</p> <p><b>B) Show “Force Phase Connection Change”</b>            This checkbox will be checked by default and it will allow ReticMaster to notify the user if a forced phase connection change occurred. This message will appear once only and then again after every call to File\New if required.</p>				

**Test Procedure:**

In ReticMaster, execute File\New

- Confirm that an empty log file named "Force\_Phase\_Connection.log" was created in the ReticMaster.exe folder



Place a Source node and 2 Single Phase load nodes with Phasing set to AN. Disconnect the 2<sup>nd</sup> load node and then change its phasing to BN. Connect the 2<sup>nd</sup> load node to the first load node.

- Confirm that a messagebox was displayed
- Confirm that the phasing of both nodes is now AN
- Confirm that the Log file was updated to reflect the change in phasing of the 2<sup>nd</sup> load node

Test the above for transformers and regulators

- Confirm that the phasing changes correctly and that the log file is updated and that the warning message occurs once only

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8. Feeder Phase Balancing Tool	Name	Date	Accepted	Remarks
<p><b>Description:</b>  The existing phase balancing routine, found under the “Multiple Change Down Tool” has moved into the “Network Change Toolbar”, see </p> <p>It allows for feeder level phase balancing of SINGLE, DUAL, SWER and PH_PH technologies. This is either limited to nodes with UNK phasing, or alternatively assigned to any node phasing (not limited to UNK)</p> <p><b>Test Procedure:</b>  Open Demo25 (UNK Phasing)</p> <ul style="list-style-type: none"> <li>Note that the currents in node M2 are 73.4A, 40.7A and 0.2A</li> </ul> <p>Click on the Phase Balancing Toolbar  and Un-Check Quick Balance</p> <p>Click on Node M2</p> <ul style="list-style-type: none"> <li>Confirm that currents in node M2 are 34.7A, 33.6A and 35.4A</li> </ul> <p>Further tests can be conducted by opening Demo 24, 25 or 26 and to test various balancing options</p>				

9. Protection Device Improvements	Name	Date	Accepted	Remarks
<p><b><u>Description:</u></b>  The protection device data saving and reading is enhanced in v11. The user may place any number of protection devices of the same or of different types, based upon the types defined in the Data Library. The settings of the placed devices can then be altered as required without affecting the default data definition as defined in the Data Library. In previous versions, the Data Library's protection devices were temporarily altered when opening study files, which is not ideal, and it is now operating in a more intuitive fashion.</p> <p><b><u>Test Procedure:</u></b>  In ReticMaster, go to File\Data, Protection Device Tab</p> <ul style="list-style-type: none"> <li>• Click on the New button</li> <li>• Type Test into the Description field</li> <li>• Click on the Add button</li> <li>• Press the "Save" button to make it part of the default Data Library</li> <li>• Press the "Close" button</li> </ul> <p>Open Demo17 (Protection co-ordination).rmd  Place a new Protection device unto Node LV1 and select it as Test.  Save the study file and re-open it again</p> <ul style="list-style-type: none"> <li>• Confirm that the Test relay is used and is available in the Data Library</li> </ul>				

10. Voltage Regulator tap controller fix	Name	Date	Accepted	Remarks
<p><b>Description:</b> The voltage regulator tap change controller did not work satisfactorily when in “Boost” or “Buck” mode and has been improved / fixed in v11.</p> <p><b>Test Procedure:</b> In ReticMaster, go to File\Data, Regulator Tab</p> <ul style="list-style-type: none"> <li>• Click on the New button</li> <li>• Voltage = 230V, Current = 25A, Steps = 20, Voltage range = 20%, VSet =108, VBand = 2</li> <li>• Click on the Add button</li> <li>• Press the “Save” button to make it part of the default Data Library</li> </ul> <p>Create a network as follows:</p> <ul style="list-style-type: none"> <li>• Place a Source Node</li> <li>• Place a Load Node below the Source with: Technology = Single Voltage = 230V Conductor = 35 ABC Length = 200m Bulk Load = 5kVA</li> <li>• Place the Single Phase regulator and use: Phase Connection = AN Control Direction = Boost Vset = 108 Vband =2</li> <li>• Confirm that the resultant Regulator voltage is between 106% and 110%</li> </ul>				

11. Bulk Load Rounding	Name	Date	Accepted	Remarks
<p><b>Description:</b>  ReticMaster stores all loads in a per phase manner, and balanced Bulk loads in the "Load Node" editor interfaces are therefore the summation of the per phase loads. For instance a 400kVA balanced three phase load is <math>400/3 = 133.33\text{kVA}</math> per phase and <math>133.33 \times 3 = 399.99\text{kVA}</math> and not 400kVA. ReticMaster version 11 employs intelligence to overcome these problems.</p> <p><b>Test Procedure:</b></p> <ul style="list-style-type: none"> <li>• Place a 400kVA balanced bulk load.</li> <li>• Edit the load again</li> <li>• Confirm that the load displays 400kVA and not 399.99kVA.</li> </ul>				

12. New Show Node Name Display Option	Name	Date	Accepted	Remarks
<p><b>Description:</b>  A request to hide Node Names from the network schematic was lodged. A new Checkbox named "Show Node Name" has been added to: "Tools\Options\Display – Node Text". It is checked by default.</p> <p><b>Test Procedure:</b></p> <ul style="list-style-type: none"> <li>• Open any Demo File.</li> <li>• Uncheck the "Show Node Name" Checkbox under "Tools\Options\Display – Node Text"</li> <li>• Confirm that Node Name is not displayed</li> </ul>				

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