Eddyfi Magnifi® 5.1R6 Release Note

Release date: January 5th, 2023

Cloud-based licensing system

Magnifi 5.x is now activated through a cloud-based licensing system.

For clients under a valid maintenance plan, access to version 5.1 is included. Simply type your current Magnifi key code in the *Manage License-> License code* field.

If you are not under a valid maintenance plan, please contact your Eddyfi Technologies sales representative.

New Features and Improvements

Generic

- Compatible with Ectane® 3, Ectane® 2, and Ectane® first-generation models.
- A button to select the behavior of the Previous and Next indication is now available in Magnifi CPN.

Tubing Applications

- Remote-Field Array (RFA) technology and probe family support:
    - Dedicated RFA *Wizard* for setup creation
    - Option to link array signal with the same normalization and calibration as the conventional channels.
    - Conventional ABS channels can be displayed on a voltage plane or a Lissajous/impedance plane.
    - Option to activate the probe in Dual Driver or Single Driver (Lead or Trail) modes
    - New C-scan filter to reduce the periodic/pilgering noise.
- New AI-ECT module 2.0. See the dedicated section of the document for more information.

Surface Applications

- C-scans can be exported from Magnifi to .magcscandata format.

Resolved Issues

Generic

- Data list naming format automatically returns to "Free Format" when loading another Inspection sub-folder.

- Measurements at the bottom-left corner of the Lissajous are now updated in real-time while rotating the signal.
- Closing the Advanced C-scan menu no longer removes the C-scan rendering of the data.
- Fixed calculation issues with the subtraction cursor of the C-scan view.
- Signal artifacts near the ends of the C-scans when rotating the Lissajous are now fixed.
- Several information and configuration fields are now correctly using the unit of smpl (samples) instead of cnt (counts).
- In the report, the flaw recall function can be used even if the entry was made using the feature or NDD code and was then manually changed to a defect code.
- Large infofields for cursor position and size now update in real-time with cursor adjustments.
- Notification preferences and *Privacy Options* settings are now correctly considered.

Tubing Applications

- Accidental activation of the Artificial Intelligence (AI) tools when calibrating other points than the Hole/TWH is fixed.
- The calibration shortcuts now work even if AI is added to the setup.
- Specific to Remote-Field Technology (RFT) and Remote-Field Array (RFA):
  - Angle correction field displayed in the voltage plane view is now removed when the normalization is reset.
  - No error is generated when using the manual measurement vector if the measurements are not enabled in the voltage plane view.
  - Error message when changing the link between ABS and DIF channels is not displayed anymore.
  - In the *Current View* ribbon, the *Tolerance* field of the voltage plane view now retains the value set by the user.
  - Some irrelevant notifications that appeared after performing a normalization using the RFT shortcuts have been removed.

Known Issues, Limitations, and Restrictions

Generic

- Remote-Field Array acquisitions can be performed only with the Ectane3-E64RNM(I) or Ectane3-E128RNM(I) models.
- When updating the Magnifi version directly from the software, the Magnifi CPN shortcut is not installed.
- The saturation icon at the top-right corner of the front stage interface never gets activated during a scan.

Tubing Applications

- Intermittent connection with the Probot™ in some specific environments.
- RFA probes cannot be used with the Probot™.
- RFA *Periodic/Pilgering noise* filter processing times can be greater than 1 minute for scans longer than 25 m (82 ft).
- For some combinations of RFA array impedance plane signal rotation and process parameter values for the filter, or other processes that precede it, the C-scan *Periodic/Pilgering Noise* filter may suppress the C-scan signal.

Surface Applications

- Some fields of the Spyne™ *Wizard* still show the unit of counts (cnt) instead of samples (smpl).

AI-ECT module 2.0

Data Requirements

Setup configuration and parameters

- Technique: ECT
- Probe model: bobbin
    - Eddyfi ECT-BBST probes
    - 3rd party manufacturer not validated
- Input channels: 2 maximum
    - Absolute and Differential channels must be setup
- Acquisitions shall be performed using four (4) frequencies, with the following specific ratios:
    - $F1 = F2 \times 2$
    - $F2 = F_{90}$, the frequency which provides 90° separation between near side and far side
    - $F3 = F2 / 2$
    - F4 between F2/4 and F2/8.
- Instrument channel names must be similar to the default configuration (ex: R_ABS-F1, …).
- Magnifi 3.X and 4.X data files are compatible if above requirements are fulfilled.

Current development database content

- Eddyfi ECT-BBST bobbin probes
- Type of heat exchanger inspected:
    - Straight through bundles with open end
    - Straight bundles with partial restriction on opposite tubesheet
    - U-bend bundles, *one-leg* (inspection with a rigid probe)
- Types of tubes:

- o Plain tubes
- Non-ferromagnetic tube materials: Admiralty Brass, Aluminum Brass, CuNi 70-30, CuNi 90-10, Inconel 825, SA-213-316L, SA-249-304L, SA-249-316L, SA-249-317L, SA-359-443, SS304, SS304L, SS309, SS316, SS321, SMO254, SB163, SB167, and Titanium
- Tube OD:
  - o Most common diameters: 19.05 mm (0.75 in); 25.4 mm (1.0 in)
  - o All: 9.53 mm (0.4 in) to 50.8 mm (2 in)
- Tube wall thickness:
  - o Most common: 1.25 mm (0.050 in) and 1.65 mm (0.065 in)
  - o All: 0.5 mm (0.020 in) to 3.22 mm (0.127 in)
- Tube lengths: 2 m (6.6 ft) to 18 m (59 ft)
- Sampling density: 2 samples/mm to 4 samples/mm
- Total number of individually tagged indications: 13,502
  - o Tagged indications are determined to be a relevant indication based on the ASME code definition, but are not significant enough to be reported.

Improvements

Indications

- Defects under support plates are now detected. Setting up a MIX channel is not required from the user.

Limitations and Restrictions

- ECT-BBFS saturation, ECT-BBST flexible, DefHi, and ECT-BBAC air conditioning probes are not supported.
- Tubes with external fins, ID and/ OD mechanically enhanced tubes.
- Indications with lengths greater than 1,000 pixels are not detected. For a typical sampling rate of 2 samples/mm, this represents a length of approximately 50 cm (19.7 in)

System Requirements for Magnifi 5.1R6 and AI-ECT 2.0

Minimum Requirements

- Processor: Core i5 (or equivalent).
- Operating systems:
  - o Edition: Windows® 8.1, Windows 10 version 1607 (Anniversary Update) or Windows 11

- o System type: 64-bit operating system
- o Note: The software is tested and optimized for most major language packs available on the Windows suite.
- Memory: 8 GB.
- Graphics card: GPU with DirectX 11 support.
- Disk space: 20 GB.
- Network: Built-in network card.
- Display:
  - o Screen size: 13 in
  - o Resolution: 1366 × 768 pixels
  - o Display scale: 100% (Windows preferences setting).
- Administrator rights: User must have local administrator permissions on the computer to install and use Magnifi.

Recommended Requirements

- Processor: Core i7 (or equivalent).
- Operating systems:
  - o Edition: Windows 10 (latest version)
  - o System type: 64-bit operating system
  - o Note: The software is tested and optimized for most major language packs available on the Windows suite.
- Memory: 16 GB.
- Graphics card: Dedicated GPU with DirectX 11 support.
- Disk space: 100 GB.
- Network: Built-in network card.
- Display:
  - o Screen size: 15 in
  - o Resolution: 1920 x 1080 pixels
  - o External monitor: 22 in or larger, with a minimum resolution of 1920 × 1080 pixels (for extensive analysis purposes)
  - o Display scale: 100% (Windows preferences setting).
- Administrator rights: User must have Administrator permissions on the computer to install and use Magnifi.

Firmware

Included in this release of Magnifi are the following packages:

Ectane 3

- Version: 1.0R2

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Beyond current

Ectane 2

- Version: 2.1R9

Ectane

- Version: 1.8R5.1 (same version as for Magnifi 3.5R15).