RELEASE NOTES

Hybrid Recon

Version 5.0.0

Document Name: P21-050 Release Notes Hybrid Recon 5.0.0 Rev.2_EN
Document revision date: 02/22/2024

These Release Notes inform users of news and improvements in Hybrid Recon 5.0.0, as well as any known issues to be aware of.

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1 INTRODUCTION

This document contains the public Release Notes for Hybrid Recon 5.0.0. It provides a list of novel features, enhancements and bug fixes since last release.

The document also includes known issues. Every user must be familiar with these known issues. Contact the manufacturer for any questions about the content.

1.1 Associated documentation

- P21-027 Instructions For Use Hybrid Recon 5.0.0 Rev.2
- PC-007 System Environment Requirements, applicable revision can be found at www.hermesmedical.com/ifu.

The Instructions For Use contains the necessary basic information to configure the application at your own preferences.

A user guidance, intended to assist users in using the software, is available from the Help function in the software itself.

Warning messages are now listed in both the Instructions For Use and the user guidance. The warning messages clearly describe intended users, limitations in the software and the risks of making changes to the software.

1.2 Complaints and serious incidents

Report incidents and errors to our support, see *Contact Information*.

Any serious incident that has occurred in relation to the device must be reported to the manufacturer.

Depending on applicable regulations, incidents may also need to be reported to national authorities. For the European Union, serious incidents must be reported to the competent authority of the European Union Member State in which the user and/or patient is established.

Hermes Medical Solutions welcomes feedback from readers of this manual, please report any errors in content or typography and suggestions for improvements to our support, see *Contact Information*.

2 NEWS AND IMPROVEMENTS

2.1 Novel Features implemented in Hybrid Recon 5.0.0

- Improvements to the heart detection, heart outline and automatic re-orientation have been made, improving the workflow efficiency for myocardial SPECT reconstructions.
- Dextrocardia studies are now handled better. There is now an option to 'flip' the short axis images to allow the data to be analysed in 3rd party software, such as Cedars QPS/QGS and Invia 4DM.
- 24 frame gated cardiac acquisition studies are now supported.
- Enhancement to the transverse saving options for myocardial SPECT recon. In addition to the standard cardiac re-oriented short axis slices, the entire FOV can be saved in standard anatomical orientation (i.e. not aligned to the heart axes), in order to more easily assess extra-cardiac uptake.
- A new keyboard shortcut key (letter 'c') will re-centre the heart when doing re-orientation and masking.
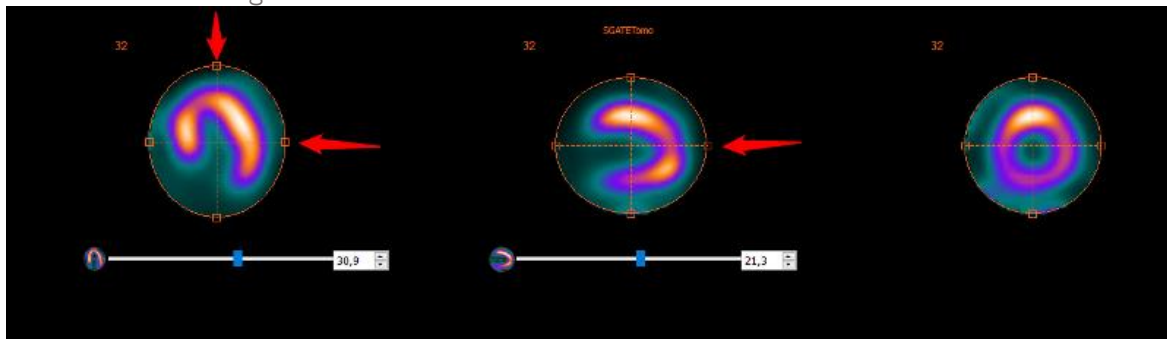
- Option to apply apply the same manual shift corrections to the opposing camera head for dual head studies.
- GPU operations now implemented in CUDA (Compute Unified Device Architecture) instead of OpenCL.
- Full Collimator Modelling (FCM) Resolution Recovery option is now available with GPU acceleration. This substantially reduces the reconstruction time for FCM reconstructions.
- A new anatomically guided SPECT reconstruction method, based on the KEM (Kernelized Expectation Maximization) algorithm, and intended for Bone SPECT/CT reconstructions, is now available. This new algorithm complements the already available Bayesian Anatomically Guided reconstructions that have been available since version 4.0. Full details of this algorithm can be found in: Vuohijoki HE, Constable CJ, Sohlberg AO. Anatomically guided reconstruction improves lesion quantitation and detectability in bone SPECT/CT. Nuclear Medicine Communications 2023; Apr 1;44(4):330-337.
- The user handbook has also been updated with detailed information about all reconstruction algorithms used in Hybrid Recon v5.0.
- Support has been added for the Mediso Anyscan model triple head gamma camera.
- A new option to save the attenuation map (μ-map) as a DICOM image is now available. When using a CT for attenuation correction, Hybrid Recon re-samples the CT image and converts the HU to linear attenuation co-efficient (μ) values. This can now be exported and may be used for checking for metal or other contrast artefacts.
- It is now possible to make 3 concurrent reconstructions in the Oncology module. This is intended to allow a standard OSEM reconstruction, a non-AC reconstruction and a third advanced (e.g. Bayesian anatomically guided) reconstruction to be performed concurrently.

- Enhancement to dual energy Kr-81m/Tc-99m lung studies: it is now possible to perform motion correction on either study and apply the correction to both studies simultaneously.
- The DICOM element for Slice Thickness (0018,0050) is now saved in the DICOM header of all reconstructed studies.
- Reprojected planar studies which are non-square are now saved as "Whole Body" type so that they can be displayed using whole body display protocols.
- The current date and time can optionally be appended to the series description of reconstructed studies.
- Patient name, study series description and study date are automatically embedded in the screen captures of fused studies.

2.2 Problems fixed and minor enhancements in version 5.0.0

- Additional camera and collimator models added to the parameter auto-override function.
- In batch file mode (noGUI), the same Frame of Reference UID is now saved for AC and NAC studies.
- A quantitative reconstruction bug for multi-bed SPECT/CT reconstruction has been fixed.
- Rotated cardiac and neurology studies are now saved so that the SPECT and CT are aligned when displayed fused.
- Improvements to some warnings and error messages.
- The third label fields in the Results page are now enabled for Neurology and Oncology.

3 KNOWN ISSUES

There are no known issues related to patient safety in this version of Hybrid Recon.

Other known issues:
- Scatter correction is not producing identical results when using GPU. Repeating reconstructions using GPU, including scatter correction, produces different total counts and different max count values (difference is less than 1%). The error goes away when switching off scatter correction or if using CPU reconstruction.
- The cardiology application crashes if the masking centre is dragged a long way from the centre of the heart.
- Minor issues related to specific camera models.

4 CONTACT INFORMATION

Contact any of the addresses below for service, support or if you have any other questions.

4.1 Manufacturer contact information

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