The primary objective of READY View is to streamline the processing and analysis of MR functional data by providing intuitive and guided workflows, intelligent display based on smart layout technology, and full flexibility to customize applications. “The MR industry had a serious need for a ‘go to’ visualization tool,” says Patrice Hervo, MR Visualization Development Manager with GE Healthcare. “READY View helps clinicians get the most from multi-parametric exams by enabling analysis of MR data sets with multiple images for each scan location. By
designing their own protocol, clinicians can now customize and personalize the way they interact with the output, which is a quantum leap toward image analysis standardization."

**The multi-parametric approach**

READY View provides a combination of protocols, applications, and advanced tools that enable a fast, easy, and quantified MR analysis. In addition to standard protocols, it offers fast and accurate multi-parametric protocols that boast an updated, simple, and intuitive workflow to display all derived functional outputs on a single screen.

Additionally, READY View allows the clinician to process dynamic or functional volumetric data and generate maps that display changes in image intensity over time, echo time, b-value (diffusion imaging), and frequency (spectroscopy). The combination of acquired images, reconstructed images, calculated parametric images, tissue segmentation, annotations, and measurement performed, enables a thorough multi-parametric analysis.

These specialized MR methods have evolved to the point where they are able to provide certain measurements of tissue properties. A multi-parametric MR approach generates images showing zones within a lesion that reflect heterogeneity and often display characteristic patterns. These attributes have proven to be useful in the detection of tumors, monitoring tumor growth, and guiding biopsies. Consequently, multi-parametric studies may provide clinically relevant information for the clinician in the diagnosis of neurological and oncological diseases.

Specialized MR acquisition methods such as diffusion weighted, dynamic contrast enhanced or dynamic susceptibility, spectroscopy, relaxometry, and other functional methods have evolved to enable quantification of tissue properties. Along with Brain View (brain-specific imaging data sets), Body View (time series data from body studies), and MR Touch (identifies variations in liver tissue stiffness), READY View offers a very unique combination of advanced processing tools to analyze functional MR images.

**Customize and synchronize**

READY View goes well beyond the traditional concept of user preferences by offering customization, personalization, and substantial flexibility. Any layout, functional protocol, or multi-series protocol can be edited, modified, and saved with a new name to fit personal or institution requirements for the review of a previously acquired data set or any new one.

Additionally, because MR is prone to patient motion during and between data acquisition, image interpretation can become quickly problematic if series alignment is suboptimal. To address this issue, clinicians can select READY View’s Integrated Registration option to retrospectively register a series to another one defined as a reference—either automatically at image loading or manually by the user during the review session. Also, to improve Dynamic Susceptibility Contrast Weighted outputs, intra series rigid-body motion correction can be applied from the BrainStat AIF protocol to realign the brain anatomy.

To help clinicians process and analyze MR images anytime and anywhere there is an Internet connection, READY View, thanks to thin client technology, is accessible from PCs and PACS—allowing clinicians access to process and analyze images in any office, meeting room, or even at home.

READY View also offers features that can greatly facilitate research activities. For example, the application simplifies workflow to define a Region of Interest (ROI) as reference and show

"READY View helps clinicians get the most from multi-parametric exams by enabling analysis of MR data sets with multiple images for each scan location."  

Patrice Hervo
Figure 1. Example of a multi-parametric layout for a patient with alcoholic cirrhosis. Top row viewports: T2 PROP/FSE, In-Phase, Out-of-Phase. Middle row: DWI, ADC map, stiffness map. Bottom row: Dynamic LAVA, R2* map, Fat Fraction. Notice the high stiffness value (9.6 kPa) related to the high fibrosis stage, the mild Fat Fraction increase (10.3%), the normal range ADC value (1508.10^-6 mm^2/s), and R2* value (64.8 Hz).

Figure 2A. BrainStat AIF factory protocol: factory icon and layout of BrainStat AIF. Hemodynamic maps (rCBV, MTT, TTP) are generated and displayed using the default color ramp and kernel size.

Figure 2B. BrainStat AIF custom protocol. Layout was modified to display a large graph view. Different hemodynamic maps (rCBF, rCBV, Tmap) are generated and displayed with another color ramp and a larger kernel value. Once saved, a new protocol icon is added in the protocol page.
percentage statistics in other ROIs; converts a segmented area into a ROI; offers auto contour segmentation based on functional threshold values; and allows exporting of ROI details and statistics from the summary table into a CSV file, as well as exporting graph data as CSV files. The READY View Brain Spectroscopy protocol is a perfect example, combining a simplified and intuitive workflow with advanced features.

"MR imaging continues to evolve rapidly, having grown from a variety of 2D acquisitions to a volumetric approach that requires high performance to manipulate large image volumes acquired as time-resolved series, or as functional acquisition like diffusion tensor imaging. Additionally, cross-modality efforts are made to provide common functionalities to review and process images across modalities in order to improve user experience. This is what drove the development of the new release of READY View," concludes Hervo.