

A wide range of analysis tools are provided as standard features with the BIR Image Display Terminal. While x-ray images provide a vast range of detailed visual data, locating specific anomalies and threats sometime requires additional analysis. To help with this process, BIR has added image filters and enhancement tools to assist users in making critical decisions.

Edge Detection filters are designed to locate edges of objects in either the horizontal or vertical direction. Edge Enhancement filters are used to make the outline of certain objects more visible in an image.

Smoothing filters are designed to reduce noise in the image by averaging pixels based on a specific algorithm. Uniform Smoothing, as the name implies, applies a uniform value to each pixel in the averaging process. Distance Smoothing or Gaussian Smoothing also reduces noise but uses a weighted average which helps reduce the blurring effect on edges often associated with Uniform Smoothing. While smoothing reduces spatial resolution it sometimes improves contrast resolution, which can be quite useful in detecting objects of similar density.

The Erosion filter erodes objects at their boundaries making them appear thinner. The Dilation filter makes an object thicker.

A normal x-ray image is based on x-ray attenuation. Dense objects appear darker than light objects or vice versa if viewing a negative image. Thus, if an object of lesser density is behind a dense object it can be obscured. The Log filter reduces the affects of x-ray attenuation and presents objects based on their density and size, it is quite useful in identifying objects hidden behind denser objects.

BIR also offers a Density Highlight function that allows the user to create color codes for densities within a certain range. This is useful for quickly identifying items of known density. Profiles can be created and saved as presets, which can be reloaded at any time.

On dual-view systems, the Region-of-Interest (ROI) tool locks in position with the click of the mouse. This unique feature assures that the user is focused on the ROI. As the user moves the ROI around in one view an identical-sized ROI is automatically created and synchronized in the other view. This simplifies the viewing of top and side views in relation to each other, giving the user a better sense of the actual position of an object within the target container or vehicle.

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