

All BIR High-Energy Inspection Systems are based on a modular software design. The software modules can reside on separate hardware or can be combined on shared hardware depending on the site requirements. In general, the system operates in a similar fashion regardless of the overall configuration.

*The basic modules that make up the system are:*

Image Display Terminal (IDT)  
Inspection Agent (IA)  
Radiography Control Unit (RCU)  
Database Server (DBS)  
Central Control Console (CCC)

The manifest associated with the shipment is scanned and the image is sent to the Database Server where it will later be matched to the x-ray image.

The Central Control Console (CCC) acts as the traffic manager for the system. An operator controls the scanning process from the CCC. The CCC opens and closes the scan bay doors, initiates a scan, monitors the safety interlocks, and tells the database server where to route the finished scan images. System calibrations are also performed from the CCC. The operator interacts with the CCC through a familiar Windows® user interface.

The Inspection Agent (IA) module routes messages through the system. Once the CCC initiates a scan, the scan agent tells the Radiography Control Unit (RCU) to begin data acquisition. The RCU is responsible for pulsing the linear accelerator, collecting the data from the detectors, and reconstructing a digital image.

When the image is complete, it is sent to the Database Server (DBS) where it will be linked to the manifest image. When the command from the CCC is given, the DBS sends the x-ray image and the manifest image to the appropriate Image Display Terminal (IDT). The IDT operator is responsible for viewing and analyzing the image to determine if the contents of the container match the manifest and if further manual inspection is required.

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