

# ClearRead CT

## A Fundamentally Different Approach

Riverain's ClearRead CT is the solution radiologists have been waiting for. Comprised of two powerful tools, ClearRead CT | Vessel Suppress and ClearRead CT | Detect, ClearRead CT is a leap forward for reading efficiency. ClearRead CT provides the following capabilities:

- Enterprise wide capability powered by acquisition normalization technology that allows "plug in" capability across all CT manufacturers and diverse imaging protocols
- High throughput, scalable, computation on 'off the shelf' hardware and virtual machine deployments
- A vessel suppressed CT data series that aids both machine and humans in the detection and characterization of nodules
- Explicit targeting of all primary nodule types: solid, sub-solid and ground glass
- Precise characterization of detected nodules afforded by vessel suppression

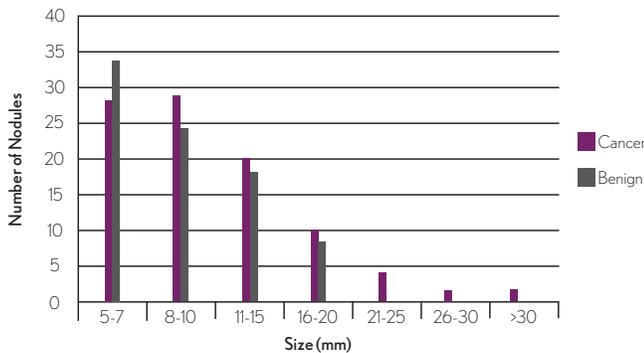
## ClearRead CT Performance

**26% Reduction in Reading Time<sup>1</sup>**  
**29% Reduction in Missed Actionable Nodules<sup>1,2</sup>**

## FDA Reader Study Data Description

Attribute	Range
Slice Thickness	2 - 3.0mm
Exposure	40-357 mA
Target Patient Population	Adult Lung Cancer Screening Population
Nodule Size	5 - 44mm (mean of 10)
Radiodensity	> -800 HU to $\leq$ 200 HU

### Actionable Nodule Distribution by Size



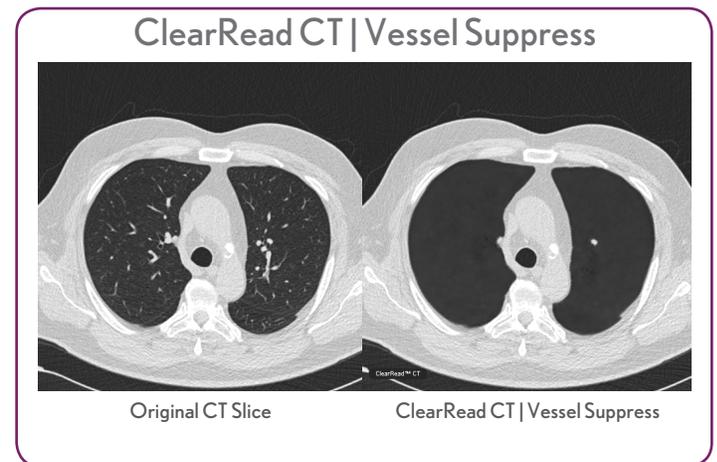
## Key Advantages of ClearRead CT

- Reduces the burden of visual search and assessment by suppressing vascular structure
- Processes scans from a wide range of manufacturers and acquisition protocols
- Provides unprecedented detection, segmentation and characterization accuracy of lung nodules

## ClearRead CT | Vessel Suppress

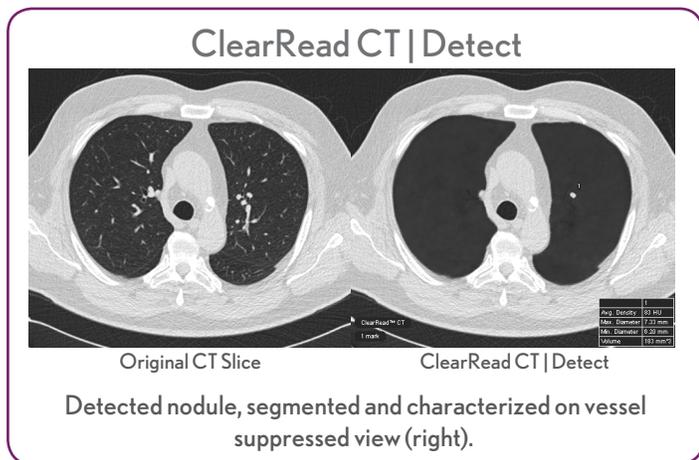
Powered by machine learning and advanced modeling, Riverain's vessel suppression provides a novel view for the radiologist. Through the suppression of vascular structures, the radiologist is able to focus on nodular structures rather than distracting vascular structures. The vessel suppression technology allows the radiologist to see how the application interprets the data at the finest level of detail, providing insight into the CAD's decision process.

The figure below shows a slice from a CT volume before and after vessel suppression. As can be seen in the vessel suppressed slice at right, competing vascular structures have been removed and the nodule is easily visible. The vessel suppression algorithm works with contrast and non-contrast scans, and operates on slices with section thicknesses up to 3mm.



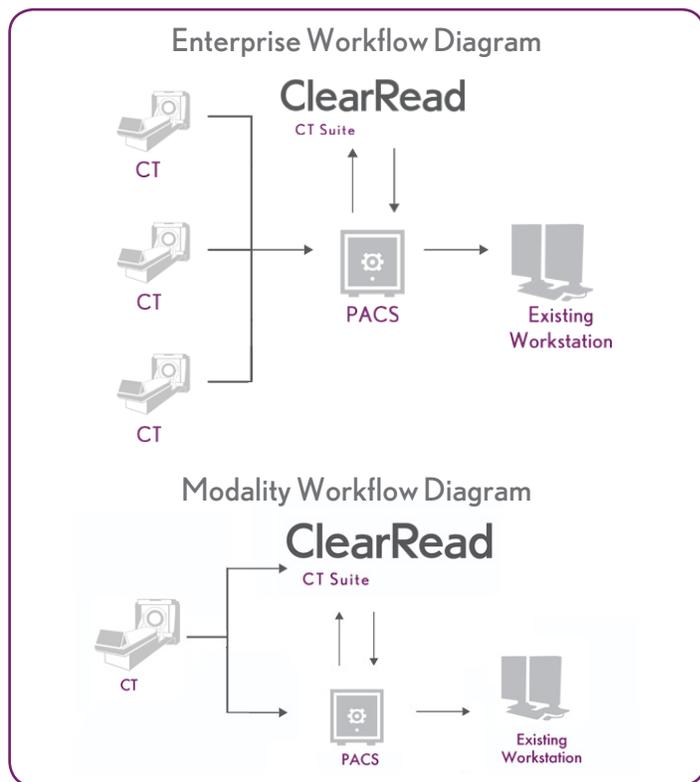
## ClearRead CT | Detect

Powered by Riverain's ClearRead CT | Vessel Suppress, ClearRead CT | Detect achieves what was previously unattainable in detection performance and measurement precision. The figure below shows a slice of the native CT series with a computer generated segmentation on the vessel suppressed slice on the right.



## ClearRead CT Host Machine Specifications

<p><b>Recommended Server Specifications:</b></p> <ul style="list-style-type: none"> <li>• Intel Xeon processor; 4 available physical cores, Ivy Bridge or later</li> <li>• 8 GB Random Access Memory (RAM)</li> <li>• 100 GB hard disk (dedicated storage)</li> <li>• 1 Gbit/sec Ethernet controller</li> <li>• USB 2.0 or greater</li> </ul>	<p><b>Operating System:</b></p> <ul style="list-style-type: none"> <li>• Windows 7 Professional/Enterprise/Ultimate 64-bit</li> <li>• Windows 8.1 Professional/Enterprise 64-bit</li> <li>• Windows 2008 R2 Server 64-bit</li> <li>• Windows 2012 R2 Server 64-bit</li> </ul>
<p><b>Web Browser:</b></p> <p>Microsoft Internet Explorer 10 or better, with cookies and Javascript enabled</p>	<p><b>Software Protection Key:</b></p> <ul style="list-style-type: none"> <li>• One USB Type A port available</li> <li>• Power consumption 50mA operating/ &lt;0.5mA standby</li> </ul>
<p><b>Third Party Software:</b></p> <p>Riverain recommends against installing Connect CT on a multi-use instance of a VM or having multiple roles for a physical server by adding additional third party software</p>	



## References

1. Riverain Technologies. ClearRead CT, FDA Reader Study Results, 2016
2. Actionable nodules are image locations in the CT series with suspicious nodular features, i.e., characteristics, for which radiologist(s) recommends further examination, typically through analysis of a prior exam and/or additional imaging such as follow up CT, diagnostic CT, PET-CT, etc.

## About Riverain

Riverain Technologies™ is a medical software innovator that develops solutions to aid radiologists in the early detection of disease. With the use of Riverain's ClearRead X-ray Suite and ClearRead CT, radiologists are able to optimize the use of existing equipment for enhanced image interpretation. This enables radiologists to better utilize their diagnostic expertise in image interpretation for identification of diseases, such as lung cancer.