# decimal eRT System Requirements

### Purpose

The purpose of this document is to provide an indication of the minimum and recommended system requirements to be able to run the decimal ElectronRT software (including both the decimal Launcher and the decimal eRT user client).

## **Minimum System Requirements**

Operating System	64-bit Windows 10
Processor	Minimum: Intel Core i7 2.5+ GHz 11th Gen (eight-core) Recommended: Xeon E5-26XX Series (eight-core)
Memory	Minimum: 16 GB RAM Recommended: 32 GB RAM
Video	NVIDIA Quadro, GTX, RTX, or equivalent dedicated graphics card
Display	Minimum: 1920 x 1080 native resolution Recommended: 2560 x 1440 native resolution
Client Hard Disk	SSD with 500 MB for application + 25 GB for cache space
Data Hard Disk	200 GB for patient/data storage space
Connectivity	High Speed internet connection >30Mbps
Permissions	Local user installation (non-admin)

#### **Graphics Requirements and OpenGL**

OpenGL 2.0 or later is required for the application to correctly function (3D views, BEV, block projections, etc). As such, the following scenarios can cause issues with the application:

- Virtual Machines: Many virtual machines (e.g.: Hyper-V, VMWare, EC2, etc) may not have a graphics card (GPU). As such the default OpenGL drivers loaded are normally version 1.1, which is not sufficient to run the application.
- **Remote Desktop**: Remote Desktop Protocol (RDP) connections may have trouble loading OpenGL drivers from the host PC, even if the host has a dedicated graphics card (GPU). This seems to be a graphics card/driver issue and is based on the configuration of your host computer. The following article(s) are a few common issues and potential solutions to common OpenGL and RDP problems:
  - GPU Support: NVIDIA's Quadro and GeForce (with Driver Pack 440 or later) are some of the few cards that support OpenGL RDP passthrough. (1),(2).
  - $^\circ\,$  Disabled Group Policy: RDP handles newer versions of OpenGL on Windows 10, but is disabled by default via Group Policy (3).
- **Integrated graphics**: May not have the required OpenGL drivers or dedicated graphical processing capabilities to efficiently use the application.

Please note, if you're using a laptop or computer with on-board (i.e. CPU) integrated graphics rendering

option, be sure your graphics cards settings are such that the appropriate dedicated graphics card is used for the application as using the CPU for both local calculations and graphics rendering will cause substantial usability reductions for the application.

#### **Network Requirements**

decimal eRT uses HTTPS communications to our decimal Direct API service to authenticate users, manage application permissions, and order patient hardware. This address and port must be open to passive communication with external addresses from the machine that is running decimal eRT. Note that all communication is initiated from decimal eRT (i.e., there should be no need to forward ports to the decimal eRT workstations), however, you must ensure that the following address be allowed to communicate with the decimal eRT workstation in order for the software to function properly:

Server URL	direct.dotdecimal.com (64.128.252.104)
Port	443 (HTTPS)

In addition, decimal eRT requires the decimal Launcher application for application access and release management. As such, satisfying the network requirements of the decimal Launcher application are also required for using the decimal eRT application.





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