System Requirements

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kCura

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1 Overview

This document outlines the software and hardware requirements for hosting Relativity in your environment. It also provides various recommendations for setting up your environment.

2 System Software Requirements

Relativity uses Microsoft Windows Server and Microsoft .NET technologies. Information about the Relativity roles and their specific software requirements are listed below.

Role	Software Requirements
Web (Application)	▪ Windows Server 2008 (64-bit) ▪ IIS 7.0 or higher ▪ .NET Version 3.5 w/Service Pack 1 ▪ .NET Version 4.0 (Full Framework)
Background Processing (Agent)	▪ Windows Server 2008 (64-bit) ▪ .NET Version 3.5 w/Service Pack 1 ▪ .NET Version 4.0 (Full Framework)
Database (SQL)	▪ Windows Server 2008 (64-bit) ▪ SQL Server 2008 (64-bit) ▪ .NET Version 3.5 w/Service Pack 1 ▪ .NET Version 4.0 (Full Framework)
Document (File)	▪ Windows Server 2008 (64-bit) ▪ File storage systems such as a NAS can be used to fulfill this requirement
Relativity Analytics (Search)	▪ Windows Server 2008 (64-bit)
Relativity Native Imaging (SQL)	▪ Windows Server 2008 (64-bit) ▪ SQL Server 2008 (64-bit) ▪ .NET Version 3.5 w/Service Pack 1 ▪ .NET Version 4.0 (Full Framework)

Role	Software Requirements
Relativity Native Imaging (Worker)	▪ Windows Server 2008 (64-bit) ▪ .NET Version 3.5 w/Service Pack 1 ▪ .NET Version 4.0 (Full Framework) ▪ Desktop Experience (available as a Windows Server feature) ▪ Microsoft Office 2010 (32-bit) ▪ Microsoft One Note 2010 ▪ Microsoft Visio 2010 ▪ Microsoft Project 2010 ▪ Microsoft Publisher 2010 ▪ Lotus Notes v8.0 or higher ▪ Adobe Reader 4.0 or higher ▪ SolidWorks eDrawings Viewer 2012 (32-bit) ▪ JungUm Global Viewer v9.0 or higher

2.1 Additional System Software Recommendations

The following list discusses recommended software versions and describes the advantages that they offer:

- **R2 Versions:** Windows Server 2008 R2 and SQL Server 2008 R2 are both recommended but they not required versions.
- **Windows Edition:** Enterprise Edition is frequently installed for the Relativity SQL and Search roles. This version allows for the use of more than 32GB of memory and SQL Server Failover Clustering capabilities.

  Physical Memory Limits:
  Windows Server 2008 R2 Standard: 32 GB
  Windows Server 2008 R2 Enterprise: 2 TB

  Note: If you are virtualizing the SQL Server, you may be required to use Windows Server Enterprise Edition to allow for 8 vCPUs. Contact kCura Client Services for information about configuring a virtual SQL Server.

  Windows 2008 HPC Edition (including R2) is recommended, but it is not required for Native Imaging Workers.
- **SQL Edition:** Installing SQL Enterprise Edition offers several advantages over the Standard Edition. The Enterprise Edition supports more than 64GB of memory, extended Failover Clustering capabilities, online index rebuilds, data compression, and other features.

  Physical Memory Limits:
  SQL Server 2008 R2 Standard: 64 GB
  SQL Server 2008 R2 Enterprise: 2 TB or OS max

The Enterprise or Datacenter license of SQL Server 2008 R2 has the drawback of costing significantly more than Standard Edition. In addition, many Enterprise features require that the database administrator actively maintain them.

- **SQL Server Licensing:** Most partners adopt the Per Processor licensing model.

2.2 SMTP (Notification)

Relativity requires an active SMTP server on your network. It will interface with this server to send notifications and monthly billing statistics. The hardware requirements for this role are minimal. You can leverage an existing SMTP server in the network or merge this with the agent server role.

3 System Hardware Requirements

Information about the Relativity roles and their specific hardware requirements are listed below. kCura supports virtualizing any of the components listed in this section. Please reference VMWare or Microsoft virtualization best practices.

The hardware specifications listed in this section are general recommendations. It is usually better to exceed the minimum requirements.

3.1 Web (Application)

Hardware	Specification Requirements
Processor	4 2.4 GHZ Xeon processor cores
Memory	4 GB of RAM
Network	Gigabit Ethernet Connection
Storage	▪ 1GB space required for Relativity ▪ OS – RAID1 ▪ Low Disk I/O

3.2 Background Processing (Agent)

Hardware	Specification Requirements
Processor	4 2.4 GHZ Xeon processor cores
Memory	4 GB of RAM
Network	Gigabit Ethernet Connection

Hardware	Specification Requirements
Storage	▪ 1GB space required for Relativity ▪ OS – RAID1 ▪ Low Disk I/O

3.3 Database (SQL)

Note: If you are considering virtualizing the SQL Server, contact kCura Client Services for configuration requirements.

Hardware	Specification Requirements
Processor	8 2.4 GHZ Xeon processor cores
Memory	32 GB of RAM
Network	Gigabit Ethernet Connection
Storage	General physical disk recommendations include: ▪ OS – RAID1 ▪ Page File – RAID1 ▪ Full Text Indices – RAID5 ▪ Tempdb - RAID 1+0 ▪ Databases – RAID5 ▪ Logs – RAID1 or RAID1+0

3.4 Document (File)

No Relativity software is installed for this role. It only requires a UNC path to the share(s) that will house native and TIFF files. Depending on your storage unit, you may not require a Windows installation for this role.

Hardware	Specification Requirements
Processor	4 2.4 GHZ Xeon processor cores
Memory	4 GB of RAM
Network	Gigabit Ethernet Connection
Storage	▪ OS – RAID1 ▪ Documents – RAID5 or similar for redundancy

3.5 Relativity Analytics (Search)

Hardware	Specification Requirements
Processor	4 2.4 GHZ Xeon processor cores
Memory	32 GB of RAM
Network	Gigabit Ethernet Connection

Hardware	Specification Requirements
Storage	▪ OS – RAID1 ▪ Indices – RAID5 or similar for redundancy

3.6 Relativity Native Imaging (SQL)

Contact kCura Client Services for configuration information if you are considering virtualizing the SQL Server.

Hardware	Specification Requirements
Processor	8 2.4 GHZ Xeon processor cores
Memory	32 GB of RAM
Network	Gigabit Ethernet Connection
Storage	General physical disk recommendations include: ▪ OS – RAID1 ▪ Page File – RAID1 ▪ Full Text Indices – RAID5 ▪ Tempdb - RAID 1+0 ▪ Databases – RAID5 ▪ Logs – RAID1 or RAID1+0

3.7 Relativity Native Imaging (Worker)

Hardware	Specification Requirements
Processor	4 2.4 GHZ Xeon processor cores
Memory	8 GB of RAM
Network	Gigabit Ethernet Connection
Storage	▪ 250GB space required for Relativity Native Imaging ▪ OS – RAID1 ▪ Moderate Disk I/O

4 Additional Information and Best Practices

This section provides general information and guidelines for system components used in a Relativity installation.

4.1 Web (Application)

This section includes guidelines and other information about your web application:

- **Roles:** These roles include Web Base Review, Distributed File Access, and Import/Export.

- **Minimum Requirements:** The minimum requirements support 100 concurrent users depending on the type of review and user load. Larger instances have several web servers for primary review to help distribute the user load and provide additional redundancy.
- **User Load Balancer:** Relativity includes a user load balancer to distribute user sessions evenly across all web servers designated to be included in the web farm. Please reference the Relativity Administrative Manual for further details.
- **Dedicated Loading Server:** Although it is not a requirement, many partners have a dedicated loading (import/export) server. This server meets the minimum web server requirements. Relativity administrators point the Relativity Desktop Client to this web server during their data imports and exports to lessen the load on their primary review web server(s).
- **Dedicated dtSearch WebAPI:** Although this is not a requirement, many partners have a dedicated web server for query requests against the dtSearch indices. This server meets the minimum web server requirements. Having a dedicated dtSearch WebAPI can help lessen the load on the primary review web server(s) and ensure dtSearch query performance is optimal.
- **Burstable Connection:** A 10-20MBit/s dedicated 100MBit/s burstable connection out of the data center(s) for every 100 concurrent Relativity users is usually sufficient. It is suggested to monitor this for the most accurate bandwidth metrics.
- **Terminal Server:** A Terminal Server is a recommended backup solution in the event that a review site has poor network connectivity or issues with installing the Relativity viewer.

4.2 Background Processing (Agent)

This section includes guidelines and other information about your agent server:

- **Minimum Requirements:** The minimum requirements for the agent server will support one instance of all Relativity agents. However, you can have multiple instances of several agents. Many partners will use additional agents to speed up large productions, OCR, and image jobs.
- **Scalable Agents:** Additional Branding Manager, dtSearch Indexer, Imaging Worker, and Imaging Worker agents are typically added to Relativity environments. In general, it is suggested that one processor core and 1GB of RAM is allocated for each additional agent in the environment.

- **Agent Performance:** Partners who use Relativity for productions and imaging often have many branding or imaging agents to speed up these jobs. It is usually advantageous to have several agent servers for larger Relativity instances.

4.3 Database (SQL)

This section includes guidelines and other information about working with your database server(s):

- **Workspace Architecture:** Each workspace has its own SQL database, which houses all metadata and extracted text.
- **Disk Space Usage Metrics:** On average, every 100,000 records will consume 10GB database space. On average database disk space usage is 1/3 the total file size (natives and images) for a workspace. These metrics have a high standard deviation and tend to scale up or down linearly. This information was obtained by analyzing over ten thousand Relativity workspaces.
- **Disk Configuration:** Store SQL data on the fastest disks you can afford. Many different types of SAN devices are available which offer several layers of redundancy and high disk I/O. The following table lists sample partition sizes.

Sample SQL Partition Sizes			
Partition	**Sample Size**	**Applies to Relativity Native Imaging**	**Comments**
OS	80GB	X	Only 1GB of space is required for Relativity. The remaining space is for the OS, SQL Server, and other installed applications.
Page File	50GB	X	A second page file should be created per Microsoft best practices.
Databases	500GB	X	This partition size is dependent on the number and size of the workspaces. The databases can be housed across multiple partitions or servers.
Full Text	250GB		These indices are stored outside of the primary data file in SQL 08. The size of these indices is dependent on the number of fields and records included.
Logs	250GB	X	Regular backups of transaction logs or using the simple recovery model will keep these files small.

Sample SQL Partition Sizes			
Partition	**Sample Size**	**Applies to Relativity Native Imaging**	**Comments**
TempDB	80GB	X	Eight TempDB data files that are each set to an initial size of 10GB is usually recommended.
Backups	250GB	X	While this partition is not required by the platform, it is suggested that you have a backup strategy in place. Many partners use third-party backup tools.

- **IOP and Latency Best Practices:** No IOP or latency requirements currently exist for a Relativity installation. It is recommended that you follow Microsoft best practices and work with your storage unit provider for optimal setup and configuration. There is a healthy mix of Dell, NetApp, EMC, Hitachi, BlueArc, and other devices in the Relativity universe.
- **SQL Standard Edition:** Microsoft SQL Server 2008 R2 Standard Edition supports up to 64GB of memory. If you are running the Standard Edition, it is suggested that you install the maximum amount of memory so that SQL can have faster access to commonly requested data. This practice will result in an overall performance gain.
- **High Availability:** SQL Server Failover Clustering and mirroring are fully supported by Relativity. Reference Microsoft best practices for these configurations.

4.4 Document (File)

- **Disk Drives:** Native and image files can live on slower and cheaper SATA drives.
- **Location:** There can be multiple file repositories across different locations. With this in mind, you can start with one designated file repository that is a few hundred GBs in size depending on anticipated load, and later add additional file repositories as the environment continues to grow.

4.5 Relativity Analytics (Search)

The default searching methods provided by Relativity include Keyword Search (SQL Full Text Searching), dtSearch, and Relativity Analytics. The size of the indices used by these searching methods depends on the number of columns, records, and data being indexed on the workspace level.

- **Scalability:** The use of multiple Relativity Analytics (Search) servers is an option.
- **Configuration:** Many installations house the dtSearch indices on the Relativity Analytics (Search) server. However, the dtSearch Index share(s) can live elsewhere.

4.6 Relativity Native Imaging (Worker)

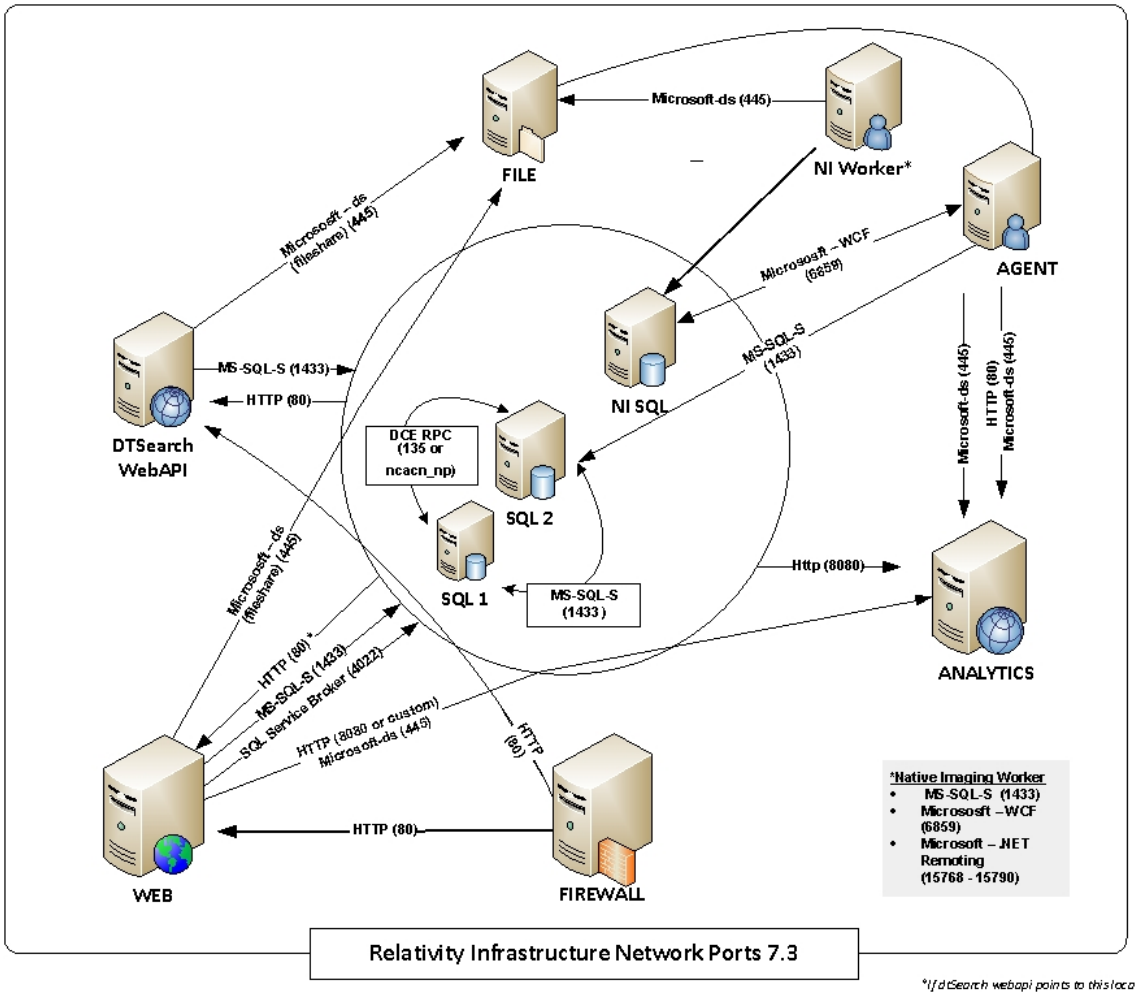
This section includes guidelines and other information about your worker server:

- **Multi-threading:** In Relativity, the native imaging workers are designed to run multi-threaded on one or more worker servers in parallel. Each worker server will create two threads per CPU core, or 1 thread for every 750mb of available memory, whichever is the smaller of the two computations. Many additional worker servers can be added to speed up large productions.
- **TEMP File Location:** During imaging, the TEMP files location on the machine is used, so it is recommended that it have sufficient storage.

5 Portal and VPN Usage

If you plan to use portal (hardware or software) or VPN (hardware or software), contact kCura Client Services to discuss preferred vendors.

6 Relativity Infrastructure Network Ports



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