Relativity

Agents Guide

September 17, 2019 | Version 10.1.290.1

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1 Agents

Agents are process managers and workers that run in the background of Relativity to complete jobs that you or another user scheduled in your environment. Different agents exist for each type of job. To run a job, you must have the agent for that job type installed in the resource pool to which your workspace is assigned. For example, you must have at least one Branding Manager agent and one Production Manager agent to run a production in Relativity.

Relativity agents are installed to your agent server during the Relativity installation process. You can have multiple agent servers in your Relativity environment, but one server generally functions as your primary agent server, which stores a full set of agents, and possibly an additional agents that support multiple installation. Depending on the agent type, you may add multiple instances of it to a secondary agent server.

In the Agents tab, you can manually add an agent type to a server to enable and/or improve the performance of a number of Relativity features.

Note: Relativity developers can also build custom agents to handle scheduled jobs. See the Relativity Developers site for more information.

- Installing agents to servers

1.1 Agent installation requirements

The installation requirements for Relativity agents include:

- **Installation drive** - Relativity installs agents in the following directory by default: [Installation drive]:\Program Files\kCura Corporation\Relativity\Agents\Processing.

- **Total agents per server** - a default Relativity installation includes a set of core feature agents. You can install additional agents on a Relativity server but the total number of additional agents shouldn't exceed the number of processor cores available on the server.

  Note: You need to ensure that each server has the required minimum number of processor cores. For minimum hardware requirements, see the System Requirements guide.

- **Agent instances** - the recommended number of instances of each Relativity agent vary per feature and per environment setup. You should run at least one agent of each type in your environment. For a description of each agent and the recommended number of instances, see List of agents below.

Note: If you're working in a large environment and need agent use recommendations to manage a large database, contact Relativity Client Services at support@relativity.com.

1.2 List of agents

Relativity supports multiple agents to execute a variety of different processes. These agents can be divided into different categories based on the number of an agent type allowed per environment, the

location where the agents run, and the number of type of resources that they require. The different categories of Relativity agents include:

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1.2.1 Single agent per environment

For specific Relativity agent types, you are required to add one agent per environment. These agents execute during the off-hours that you configure for them to run. In addition, they require minimal resources so you run these agents on a virtual server that has four CPUs and four GB of RAM. If you don't meet these minimal requirements, your Relativity environment may experience a performance impact. These agents aren't specific to a resource pool and are available across your Relativity environment.

Note: If you add more than one of the agents in the following list, your Relativity application may not work properly or key components may not function properly. If you delete any of these agents, Relativity displays warning messages.

For the following agent types, Relativity requires a single agent per environment:

ARM Metric Agent

Description	Responsible for sending daily ARM Adoption / Job Usage metrics to NewRelic.

Assisted Review Manager Agent

Description	Oversees the Assisted Review master job and project deletion. For more information, see the Assisted Review guide. **Note:** You must install the Assisted Review Manager on an agent server in your workspace's resource pool.

Cache Manager

Description	Marks files as Dirty and adds the entries to a deletion queue, regardless of the cache clean up logic used. Deleted files include outdated temporary native, image, and production files used by the viewer from the ConvertedCacheFile table. The Dirty flag indicates that a cache entry isn't valid.
	
	The Cache Manager uses this workflow to clear the cache:
	
	1. Starts running on all cache locations in your environment during off hours, and continues until complete.
	
	   Note: Off hours refers to time not during the standard working day. We recommend setting certain agents to run during off hours due to performance considerations. See the AgentOffHourStartTime and AgentOffHourEndTime in the Agents guide.
	
	2. Deletes the files with the oldest last used date from the cache if the disk space usage on the cache location exceeds the Cache LocationUpperThreshold instance setting. See Instance setting descriptions in the Relativity 10.1 Documentation site.
	
	3. Deletes as many files as required to reduce the disk space usage on cache location to less than or equal to the lower limit defined in the CacheLocationLowerThreshold instance setting. (Additional instance settings that influence agent behavior include FileDeletionManagerBatchAmount and CacheManagerFileDeletionRetry.) See Instance setting descriptions in the Relativity 10.1 Documentation site.
	
	4. When files can't be deleted from the cache reducing the disk space usage to the lower threshold, the agent logs an error and triggers the display of an alert in the Relativity UI.
	
	5. Sends an email notification to a specified recipient for each cache location that it failed to delete.
	
	Beginning in Relativity 9.4.254.2, you can also choose to have the Cache Manager clear based on time rather than using drive usage threshold using the following workflow:
	
	Note: The Cache Manager agent logic looks at the document's last accessed date time rather than the creation date time.
	
	1. Starts running on all cache locations in your environment during off hours, and continues until complete.
	
	   Note: Off hours refers to time not during the standard working day. We recommend setting certain agents to run during off hours due to performance considerations. See the AgentOffHourStartTime and AgentOffHourEndTime in the Agents guide.
	
	2. Deletes all files older than the hours set to retain converted documents, in batches, according to the file deletion batch amount. See Instance setting descriptions in the Relativity 10.1 Documentation site.

	3. Sends an email notification to a specified recipient for each cache location that it failed to delete.

CaseManager

Description	Responsible for cleaning up all files in the repository, as well as the actual workspace database, when you delete an entire workspace. Also deletes AuthenticationToken entries older than three (3) days. This agent runs during off-hours and doesn't use the DeleteFile queue.

Case Statistics Manager

Description	Collects usage metrics, as well as creates and send reports. The CaseStatisticsManager requires that the Case Manager has successfully completed processing.
	Note: If the Case Statistics Manager is disabled for seven consecutive days, Relativity access becomes restricted.
	For more information, see the Case Statistics Manager in the Relativity 10.1 Documentation Site.

Cluster Upgrade Worker

Description	Used to submit the clusters in multiple workspaces for upgrade. This reduces time that you must spend on the Cluster browser when visualizing a cluster created prior to Relativity 9.2. For more information, see the Upgrade Guide.

Data Grid Audit Manager Agent

Description	Populates filters in the Data Grid for Audit application.

Data Grid Manager

Description	A Data Grid Manager agent is an off-hours agent responsible for Data Grid enabled workspace management, including delete outdated search results cache tables and monitoring Data Grid index conditions.

Data Grid Worker

Description	Handles ingesting text and verifying the text has populated the workspace's Lucene index. You only need one Data Grid Worker Agent per instance.

Distributed Job Manager

Description	Creates and coordinates tasks for jobs that act across multiple databases. This agent is currently used only for adding and removing users from groups.

ECA and Investigation Agent

Description	Updates the document volume count in the ECA Dashboard.

File Deletion Manager

Description	Deletes files from Relativity repositories once they're deleted from a workspace, using the DeleteFile queue on the EDDS database. This agent runs during off-hours.

Imaging Manager Agent

Minimum number	Requires 1 per environment.
Maximum number	Do not install more than 1 agent.
Description	The agent ensures that Imaging is functioning properly. This includes tasks such as cleaning up stuck imaging jobs and deleting Imaging Warnings that are no longer linked to Documents.
	The default interval is 3600 seconds. Do not modify the interval.
	This agent was added in Relativity 9.7.229.5.

Performance Dashboard - Trust Agent

Description	This agent is responsible for sending Trust data to the Trust site for Best in Service clients.

Performance Dashboard - Trust Worker

Description	Runs in the background during off hours. Only required for Best in Service partners. Requires a Trust ID fromRelativity to be configured in the Performance Dashboard application. Will send Quality of Service scores to Relativity for automated quarterly audits. If the client is participating in the Trust website, it will send Quality of Service scores to be displayed on https://trust.relativity.com.
	Note: Off hours refers to time not during the standard working day. We recommend setting certain agents to run during off hours due to performance considerations. See the AgentOffHourStartTime and AgentOffHourEndTime in the Agents guide.

Review Manager - AuditParserAgent

Description	Collects data for the Reviewers Overturn and Document Overturn reports.

Review Manager - RefreshDataAgent

Description	Pulls data for the Review Manager reports.

Secret Agent

Description	Reserved for future use.

Server Manager

Description	Updates Relativity with version and job status information from Analytics servers and worker manager servers.

Staging Enumeration Agent

Description	Handles file enumeration operations on the server side, which are required by the batched downloads. There can be multiple instances of this agent, each capable of handling 5 parallel operations. An agent is active at all times, however it does not trigger anything on its own, but waits for instructions from a client system (RelativityOne Staging Explorer).

Staging Management Agent

Description	Handles file operations (Copy, Move and Delete) on the server side. There can be multiple instances of this agent, each capable of handling in parallel 5 file management operations. This agent is active all the time, however, it is not triggering anything on its own - it waits for instructions from a client system (RelativityOne Staging Explorer).

Staging Management Cleanup Agent

Description	Cleans stale data from the database and Azure storage. It can only run during 'off hours' as defined in Relativity's Instance Settings (AgentOffHourStartTime and AgentOffHourEndTime). By default it will trigger execution every 5 minutes and there can only be one instance of this agent.

Telemetry APM Transmission Agent

Description	If you have configured an APM environment, for example, StatsD with Graphite/Grafana, the agent is used to transmit Relativity performance metrics to an APM server.

Telemetry Host Agent

Description	Receives metric data from Relativity and Relativity applications. It logs the data to the EDDSMetrics.Metrics table. **Note:** The Telemetry Host Agent is removed in Relativity 9.5.196.102.

Telemetry Metrics Transmission Agent

Description	Transmits metric data from the EDDSMetrics.Metrics table to Relativity. Maintains the Metrics table after transmitting the data.

Workspace Upgrade Manager

Description	Looks for workspaces that are pending application upgrade and delegates work to the application installation manager agent, if necessary.

1.2.2 Definitive number of agents per resource pool

For specific Relativity agent types, you are required to add one agent per resource pool. These agent types are grouped into the following categories:

- **Job coordinators** - these agent coordinate work that other processes perform. You can add multiple worker agents to a resource pool but usually only one job coordinator agent.

- **Worker-managers** - these agents manage the worker agents. You only add one manager agent to each resource pool on a server. Your server doesn't require any dedicated resources for them, since manager and worker agents don't run in performance-intensive operations at the same time.

Note: You must include one of agents in the following table per resource pool. If a resource pool doesn't include one of these agents, key Relativity components may not function properly. You may not receive an error message if the resource pool doesn't include each of these agents.

For the following agent types, Relativity requires one of these agents per resource pool:

Active Learning Manager

Maximum number	One per resource pool.
Agent type	Worker-manager
Description	Responsible for performing Active Learning tasks such as managing the Classification Index population and Index builds, Review Queues and updating the Review Statistics in the Active Learning Project.

Relativity Analytics Categorization Manager

Maximum number	Add up to two agents per resource pool.
Agent type	Job coordinator
Description	Clears any previous job results from the population table, and then it categorizes the specific group of documents in the categorization set. There should be no more than two Analytics Categorization Manager agents per resource pool.

Analytics Index Progress Manager

Maximum number	One agent per Analytics server per resource pool.
Agent type	Job coordinator
Description	Enables and facilitates automation of the Analytics index building process from population to activation.

AutoBatchManager

Maximum number	One agent per resource pool.
Agent type	Job coordinator
Description	Runs existing batch jobs marked as auto-batch in pre-configured intervals.

Content Analyst Cluster Manager

Maximum number	One agent per resource pool.
Agent type	Job coordinator
Description	Clusters documents based on the Analytics index settings.

Content Analyst Index Manager

Maximum number	One agent per Analytics server per resource pool.
	Note: If your environment includes more than one Analytics server, then you would need additional Content Analyst Index Manager agents.
Agent type	Job coordinator
Description	Populates Analytics indexes and pushes them to the Analytics server.

Data Grid Audit Deleter

Maximum number	Any number of agents per resource pool.
Agent type	Worker-manager
Description	Off-hour agent that deletes all audits from SQL that have been successfully migrated to Data Grid. The agent will only delete audits in SQL older than the PostMigrationPersistencePeriod Instance setting value in days.

Data Grid Audit Migrator

Maximum number	Any number of agents per resource pool. However, an excessive number of these agents may cause functionality issues with Data Grid.
Agent type	Worker-manager
Description	Migrates audit data from SQL to Data Grid for any workspace that has Data Grid for Audit installed. The frequency with which this agent checks for migrations and runs the migrations is controlled with the agent run interval value. Do not run the Data Grid Audit Deleter agent at the same time as the Data Grid Audit Migrator agent, as migration and deletion can conflict.

Data Grid Audit Reporter

Maximum number	One agent per environment
Agent type	Reporter
Description	The Data Grid Audit Reporter agent reviews the audit queue for errors that occurred during migration from SQL to Data Grid. This agent triggers a Relativity error based on the agent's run interval. This agent is set to an hourly run interval by default.

Data Grid Migration Manager

Minimum number	Requires at least 1 agent.
Description	Identifies all documents with extracted text stored in SQL for any workspace with the Data Grid Text Migration application installed.

Data Grid Migration Worker

Minimum number	Requires at least 1 agent. We recommend adding one Data Grid Migration Worker agent per core on the agent server.
Description	Migrates extracted text from SQL to Data Grid for any workspace with the Data Grid Text Migration application installed..

dtSearch Index Job Manager

Maximum number	Only one agent per resource pool.
Agent type	Worker-manager
Description	Creates population tables and manages the indexing queue (i.e., it checks to see if workers have completed their work). During incremental build, it also does the work to balance the population tables and manages the status updates on sub-index tables.

Integration Points Manager

Minimum number	One agent per resource pool
Description	Responsible for monitoring Integration Points jobs to see if they are in good health, as well as performing maintenance tasks such as purging data from deleted jobs. This agent is optional, meaning you don't need it to execute an Integration Points job, but it is recommended.

This agent was added in Relativity 9.5.253.62. |

OCR Set Manager

Minimum number	At least one agent per resource pool. We recommend having one OCR Set Manager agent per agent server in the resource pool.

Agent type	Worker-manager
Description	Converts the options configured in an OCR set into individual jobs (by building tables, inserting records, and handling SQL queries), and then compiles output from the OCR Worker into a single result set for the user. It also recovers orphaned OCR jobs from dead agent servers.

Processing Migration Agent

Minimum number	One agent per resource pool.
Agent type	Job coordinator
Description	Manages the running of processing archive jobs in ARM.

Production Manager

Maximum number	We recommend at least one agent per resource pool.
Agent type	Worker-manager
Description	Creates production numbers and applies them to productions. This is also responsible for creating branding jobs and populating the branding queue. The Branding Manager agent is the corresponding worker.

Search Terms Report Manager

Maximum number	One agent per resource pool.
Agent type	Job coordinator
Description	Runs a search against an existing dtSearch index, and returns a count of matching terms found in this index.

Structured Analytics Manager

Maximum number	One agent per resource pool.
Agent type	Job coordinator
Description	Oversees the Structured Analytics Worker agents by keeping the structured data analytics master job up-to-date and creating worker jobs. For more information, see the Relativity Admin guide.

Text Extraction Manager

Maximum number	One agent per resource pool.

Description	Extracts the text from files associated with dynamic objects, and adds it to text fields on the file fields of the dynamic objects. When you create a File field for a custom object, an accompanying Long Text field is also created. When you upload a file to that file field, the Text Extraction Manager reads the text from that file's name and writes it into the long text field.

Transcript Manager

Maximum number	One agent per resource pool.
Description	Updates or adds headers and footers to a valid transcript.

Transform Set Manager

Maximum number	One agent per resource pool.
Description	Runs transform jobs for domain parsing and conversation indexes by parsing regular expressions, and outputs these results to a Dynamic Object that has a destination field with a relation on the document object type.

1.2.3 Scalable agents

Relativity includes agents that you can scale to the appropriate number for your environment needs. You can add any number of these agents, but you must include at least one per resource pool. Depending on your environment, you may need more than one agent. For example, you may need several worker agents to handle very large documents or Data Grid jobs. You can run these agents on a server with one CPU core per agent, and 1 GB of RAM. You may want to double these memory requirements to accommodate heavy workloads in your Relativity environment.

For the following agent types, Relativity requires at least one agent per resource, but you also have the option of adding multiple agents depending on your current needs:

Active Learning Worker

Minimum number	At least one agent per resource pool
Agent type	Job coordinator
Description	Responsible for managing the documents in the review queues in Active Learning projects.

Application Installation Manager

Minimum number	Requires at least 1 agent
Description	Detects applications that need to be installed or upgraded in a workspace. For more information, see Upgrading workspaces in the Relativity Upgrade Guide.

ARM agent

Minimum number	Requires at least 1 agent.
Description	Performs ARM backup, restore and move job functions.

Assisted Review Worker Agent

Minimum number	Requires at least 1 agent
Description	Facilitates Assisted Review project creation, sample set creation, document review, overturns, saving project results, report generation, and error recovery. For more information, see the Assisted Review guide.

Branding Manager

Minimum number	May require more than 1 agent
Description	Creates production images and applies endorsements.

Conversion Complete Agent

Minimum number	Requires at least one agent
Maximum number	Add up to two agents per instance
Description	Writes to cache documents converted by the Conversion Agent and notifies the Relativity front end when conversion jobs are ready. This agent is created after a new Relativity installation. Upon upgrade, you must created the agent manually. We do not recommend putting this agent on the Conversion Agent server, as that server should be dedicated to the Conversion Agent, not the Conversion Complete Agent.
	This agent was released in Relativity 9.5.370.136 and is required where DVS is installed.

Distributed Job Worker

Minimum number	Requires a minimum of 1 agent per environment.
Description	Execute tasks created for jobs that act across multiple databases. This agents is currently used only for adding and removing users from groups.

dtSearch Index Worker

Minimum number	May require more than 1 agent. You can add multiple agents as necessary. We recommend using 1 core and 2 GB of RAM for each additional agent.
Description	Performs the indexing operation for each sub-index. Additionally, workers are responsible for compression and copying steps at the end of the indexing. During incremental

build, the workers are responsible for removing documents that are no longer in the saved search.

Imaging Response Agent

Minimum number	1 agent thread per 8 Imaging Worker threads. You can add multiple agents as necessary. By default, the thread count for the agent is 2 threads per Processor Count of the server on which the agent is running. You can change the default agent thread count on the MaxImagingResponseThreads instance setting in Relativity.Imaging section. Since we support adding multiple instances of this agent, modifying that instance setting is not required.
Description	Picks up imaging set, mass imaging and image-on-the-fly messages from Service Bus (as published by Workers) and directs them to the proper finalization logic in Relativity. This agent was added in Relativity 9.5.370.136.

Imaging Request Agent

Minimum number	At least 1 per environment. You can add multiple agents as necessary.
Description	Handles all submissions of Imaging Set, Mass Imaging, and Image on the Fly requests. It picks up a message from Service Bus, and based on the type of Imaging Job will execute the appropriate logic and submit the Documents to Invariant. This agent was added in Relativity 9.5.342.116.

OCR Worker

Minimum number	May require more than 1 agent. The number of workers to one manager depends on how large the data set is, what any relevant batch sizes are, and whether a bottleneck occurs when you add more workers. We recommend managing any manager:worker relationship using these considerations.
Description	Takes an OCR job created by the OCR Set Manager, and translates the images into text.

Performance Dashboard - QoS Manager

Minimum number	Performance Dashboard requires only one QoS Manager agent in each environment.
Description	The QoS Manager agent executes the QoS_LookingGlass procedure in the background to coordinate the work performed by the QoS Worker agents. The QoS Manager also performs the score calculations and secures the data through Fraud Countermeasures (FCM).

Performance Dashboard - QoS Worker

Minimum number	Multiple agents per environment. We recommend starting with 4 QoS Workers and adding more agents as needed. A large environment with 500 or more databases benefits from having 6-12 QoS Worker agents.
Description	Runs in the background, executing the QoS_WorkspaceAnalysis procedure within each workspace, collecting and analyzing search and audit data. It saves the collected data to the EDDSPerformance Database.

Performance Dashboard - WMI Worker

Minimum number	Multiple agents per environment. We recommend starting with 2 WMI Workers and adding more agents as needed. A large environment with 20 or more Relativity servers benefits from having 4 or more WMI Worker agents.
	Note: If there are servers in the DMZ (perimeter network), you must place an additional Performance Dashboard agent on a server in the DMZ.
Description	Runs in the background, collecting WMI counters and SQL Server statistics for use in scoring. It saves the collected data to the EDDSPerformance Database.

Processing Set Manager

Minimum number	Multiple agents per environment. We recommend starting with 2 and adding more agents as needed.
Agent type	Job coordinator
Description	Manages the running of processing sets by handling the SQL queries involved in the job; retrieves errors encountered while sets are running; picks up processing set deletion jobs and submits them to the worker manager server. For more information, see the Processing user guide.

Relativity Integration Points Agent

Minimum number	Requires at least 1 agent. However, you can also scale this agent as necessary. The maximum number allowed per instance is 4.
	Relativity Integration Points agents operate on a single agent per job basis. If you have 4 agents enabled and only 1 job running in your workspace, only 1 agent will be performing work while the other 3 agents will be idle until additional jobs are started. Likewise, if you have 4 agents enabled and 3 jobs running, 3 agents will be doing work - 1 for each job - and 1 will be idle waiting for an additional job to start.
Description	Responsible for batching up data from the source provider and pulling it into Relativity fields. Also responsible for stopping an integration points job when the user clicks Stop on the console.

Relativity Legal Hold Agent

Minimum number	Requires at least 1 agent. However, you can also scale this agent as necessary.

Description	Sends emails (including reminder and escalation), pulls emails in from custodian responses, and purges custodians from a project.

Structured Analytics Worker

Minimum number	May require more than 1 agent
Description	Performs all structured data analytics tasks, including setting up staging, exporting document information from Relativity, monitoring Content Analyst, importing document information into Relativity, and creating reports. For more information, see the Relativity Admin guide.

Workspace Upgrade Worker

Minimum number	Requires at least 1 agent
Description	Runs the script required to update the workspace databases and Invariant stores. On an SQL Server profile, you can edit the **Workspace Upgrade Limit** field, which controls the number of agents accessing the server during an upgrade. The setting entered in this field can't exceed the setting in the **GlobalWorkspaceUpgradeLimit** instance setting value. If you enter a number that exceeds this instance setting value, an error occurs that cancels your update. For more information, see Instance setting values and Upgrading workspaces.

1.2.4 Web agents

For specific Relativity agent types, you are required to add one agent per web server. If you add more than one of the agents in the following list, your Relativity application may not work properly.

If you experience the following issues, verify that these agents are running in your installation:

- **Custom pages aren't working properly** - verify that the Custom Page Deployment Manager is running.

- **Poor application performance** - verify that the AppPool Warmup and Platform Status agents are running.

For the following agent types, Relativity requires one agents per web server:

AppPool Warmup Agent

Description	Keeps the AppPool "warm" so that users don't see large pauses when custom pages are used in the application. The REST API can take a few seconds to start up after a reboot or Relativity upgrade, or after a period of inactivity. The agent checks the REST API once per minute so that the IIS App Pool stays alive. It is automatically installed with the Web Processing agent service.

Custom Page Deployment Manager

Description	Polls the LibraryApplication and ApplicationServer tables in the EDDS database according to a configurable time interval to check for new versions of any application installed in the ApplicationLibrary table.If a new version is discovered, the Custom Page Deployment Manager runs and installs the updated version of the application's custom pages on that web server. The Application Server table in the EDDS database is then updated to reflect the new version number. This agent is installed on the kCura Web Processing Windows Service, which runs on each web server in your Relativity installation.

Platform Status

Description	Enables the diagnostics of the Relativity Services API. The results of the diagnostic tests run by the agent are displayed on the Platform Status tab.

1.2.5 Isolated scalable agents

Relativity includes isolated scalable agents which you can customize for your environment needs. This type of agent needs to be on its own agent server with no other Relativity agents on the server. These agents are multi-threaded and will use all resources on the server when needed. Depending on your environment, you may wish to scale the server up for better performance. Monitor both CPU and RAM during normal usage as well as during jobs. If needed, add more CPU and RAM to the server. You may also add another server with another agent by itself. You can add any number of these agents, but you must include at least one per resource pool.

Conversion Agent

Description	Works with the service bus to complete document conversion for the document viewer. Deploy each Conversion agent on its own server. Don't use the server for any other purpose but running this agent.

dtSearch Search

Minimum number description	Requires at least 1 agent per resource pool. The agent must be on its own server with no other Relativity agents. The server should not be used for any other role (i.e. Web, Analytics, etc.). Hosts the search service and executes search requests that users submit. This agent is multi-threaded and will use all resources on the server when needed. Follow these guidelines for this agent:
	■ Monitor CPU, RAM, and disk I/O during normal usage and during Search Terms Report jobs.
	■ Disk I/O on the dtSearch Index Share may also become a bottleneck – monitor and configure as needed.
	■ If performance issues occur, add more server resources.
	■ You may also add another agent server with only the dtSearch Search agent. However, it is often preferred to scale up rather than out.

1.3 Agents change log

This change log summarizes changes made to agents.

Agent name	Change	Description of change	Version
Active Learning Synchronization Manager	Removed	This agent was removed in Relativity 10.0.318.5.	10.0.318.5
Imaging Manager	Added	The agent immediately restarts itself if something fails. Should have its interval set to 60 minutes.	9.7.229.5
Distributed Job Manager	Modified	This agent now creates and coordinates tasks for jobs that act across multiple databases. This agent is currently used only for adding and removing users from groups.	9.6.50.31
Distributed Job Worker	Modified	This agent now executes tasks created for jobs that act across multiple databases. This agents is currently used only for adding and removing users from groups.	9.6.50.31
Active Learning Manager	Added	Responsible for managing the documents in the review queues in Active Learning Projects.	9.6.50.31
Active Learning Synchronization Manager	Added	Manages the reporting statistics for Active Learning Projects.	9.6.50.31
Imaging Request Agent	Added	Responsible for performing background tasks when any imaging request is submitted via mass imaging, image on the fly, or imaging set.	9.5.342.116
Distributed Job Manager	Added	Reserved for future development purposes.	9.5.342.116
Distributed Job Worker	Added	Reserved for future development purposes.	9.5.342.116
Secret Agent	Added	The agent is reserved for future use.	9.5.342.116
Telemetry APM Transmission Agent	Added	The agent is now used to transmit performance metrics to the APM server.	9.5.133.118
Analytics Categorization Manager	Modified	Renamed to Relativity Analytics Categorization Manager.	9.5.69.85
Analytics Index Progress Manager	Modified	Renamed to Relativity Analytics Index Progress Manager.	9.5.69.85
Content Analyst Cluster Manager	Modified	Renamed to Relativity Analytics Cluster Manager.	9.5.69.85
Content Analyst Index Manager	Modified	Renamed to Relativity Analytics Index Manager.	9.5.69.85
Data Grid Worker	Modified	Lockout period duration is now 1 minute instead of 15 minutes.	9.5.69.85
Integration Points	Added	Monitors Integration Points jobs to see if they are	9.5.253.62

Agent name	Change	Description of change	Version
Agent name	Change	Description of change	Version
Manager		in good health, as well as perform some main-tenance tasks, such as purging data from deleted jobs.	

2 Installing to agent servers

Every agent server runs on the kCura.EDDS.AgentManager Windows Service. This service launches all Relativity agents and runs the agent framework.

During Relativity installation, you can select whether to install the Agent Service on your server. The server running the Agent Service functions as the primary agent server because it runs all of the single-installation agents. See Primary agent server below.

When you edit the RelativityResponse.txt file set the **DEFAULTAGENTS** setting in the Agent Properties section to 1 to install the full set of default Relativity agents to your server. See Secondary agent server below for more information.

> **Note:** The **DEFAULTAGENTS** setting only works during initial installation. This field is ignored on upgrade.

Using the Relativity user interface, you can add, modify, or delete Relativity agents from the server. See Managing agents in Relativity on page 27 for more information.

To run a job in a workspace, you must have that particular agent running on the agent server assigned to the resource pool where your workspace resides. For example, if the Transform Set Manager agent is not present on any of the agent servers in the resource pool that houses your workspace, you won't be able to run a Transform Set job.

> **Note:** This applies to all agents except the Case Manager, Case Statistics Manager, Distributed Job Manager, Distributed Job Worker, and File Deletion Manager. These agents run across the environment regardless of their assigned server and resource pool. For more information, see Agents on page 4 and Agents on page 4.

2.1 Primary agent server

The primary agent server in a Relativity environment is intended to run one full set of agents, including both single-installation and multiple-installation agents. In addition to hosting a full set of agents, you can optionally configure your primary agent server to host secondary instances of the multiple-installation agents.

We recommend installing only one additional instance of each Branding Manager or Production Manager agent on your primary agent server. See List of agents on page 4 for details.

2.2 Secondary agent server

If you select the **Include default agents** check box during installation, the Relativity installation package installs the full set of agents on a secondary agent server. You can then manually remove the single-installation agents and add additional multiple-installation agents. You can add the Workspace Upgrade Manager agent to a secondary server, but you should install only a single agent of this type per environment.

You can add several of the following multiple-installation agents to each secondary agent server:

- Application Installation Manager
- AssistedReviewWorkerAgent

- Branding Manager

- dtSearch Index Worker

- OCR Worker

- Production Manager

- Content Analyst Index Manager

- Workspace Upgrade Worker

- Distributed Job Manager

- Distributed Job Worker

Secondary agent servers are commonly configured to run 2x quad-core processors. This configuration supports any combination of eight agents, such as four Branding Manager agents and four Production Manager agents.

Note: In this example, the combined count of Branding and Production Managers can't exceed the total number of individual processor cores present on the server.

2.3 Installing agent servers in a workgroup

After installing the Relativity agent server on a machine that is a part of a workgroup, start the kCura.EDDS.AgentManager service under a Windows account that is a member of the Administrators group.

Note: If your environment contains workspaces with Data Grid enabled fields, agent servers must have access to the endpoint URL on the Elasticsearch client node for dtSearch functionality.

2.4 Adding an agent server to a resource pool

You need to add your agent server to a resource pool after you configure it. This step ensures that the agents on the server are available to run jobs.

1. From **Home**, select the **Resource Pools** tab.

2. Select the resource pool to which you want to add the workgroup server.

3. In the Resource Pool information screen, go to the Agent Servers section and click **Add**.

4. Select the *NewAgentServerMachineName* workgroup server, and then click **OK**.

3 Adding and editing agents

You can add new agents to accommodate a large number of jobs in the workspace. For instance, if you need to complete multiple large OCR jobs, you may need to add additional OCR worker agents to your environment.

3.1 Adding agents

Before adding agents, be sure to read the agent instances guidelines. See Agents on page 4.

To add an agent, perform the following steps:

1. From **Home**, select the **Agents** tab.

2. Click **New Agent**. The Agent Information screen displays.

3. Complete all of the fields in the Agent Information section. See Fields below for details.

4. From the **Enabled** field, select **Yes** to enable the agent or **No** to create the agent without enabling it on the server.

5. Click **Save**. If the agents were successfully added to the environment, you'll see a green check box and message at the top of the page.

Verify that the new agents appear on the Agents tab in Relativity. Each agent appears by agent type in the Name column, and the agent type is followed by the number of the agent type. For example, if you create two Analytics Categorization Manager agents, the first appears as Analytics Categorization Manager (1) and the second appears as Analytics Categorization Manager (2).

3.2 Fields

The agent object fields are as follows:

- **Agent Type** - displays the Select Agent Type dialog, allowing you to select the appropriate agent type. Once the agent type is saved, it can't be changed.

- **Number of Agents** - contains the number of instances of this agent type that will be created. If you enter a number that would cause the agent to exceed its maximum agents per server value, you receive an error message and the new agent(s) won't be created.

  Note: When you create multiple instances of an agent type, each instance is named with a number following in parentheses. For example, the first instance of an OCR Manager agent is named OCR Manager (1). The second instance is named OCR Manager (2), and so on. Not all types of agents can have multiple instances.

- **Agent Server** - displays the Select Resource Server dialog, allowing you to select the server on which the agent will reside and click **OK** to return to the Agent Information screen.

  Note: After you select the agent type, only servers with a processing type that is compatible with the agent type appear in the Resource Server dialog. If you select the server first and then select an agent type that is not compatible, you receive an error message.

- **Run Interval** - The interval, in seconds, at which the agent should check the database for available jobs. It populates with a default value based on the agent type.

- **Logging level of event details** - specifies the types of events logged for the agent. It populates with a default selection based on the agent type. You can modify this setting by choosing from the following options:

  ○ Log critical errors only - logs messages about critical system failures

  ○ Log warnings and errors - logs messages about critical and non-critical service errors and disruptions in activity

  ○ Log all messages - logs detailed messages about all errors and life cycle events

  Note: When the Log all messages option is selected, the Event Log is rapidly filled to capacity with detailed messages, which causes previous messages to be purged from the log. This option could result in error messages being purged before you have a chance to view the errors.

- **Enabled** - designates the agent instance as disabled or enabled.

3.3 Editing or disabling agents

You can disable agents that aren't being used and later restart them. For example, you can disable agents on a retired server or enable OCR worker agents for new OCR jobs.

Note: Disabled agents still exist on the server. They continue to use use disk and memory resources even though they don't execute jobs.

To edit or disable an existing agent, perform the following steps:

1. From the **Agents** tab at **Home**, click the name of the agent you want to modify.

2. From the Agent Information screen, click **Edit**. See Managing agents in Relativity on page 27 for details on how agent actions are handled by the Agent Manager service.

3. To edit an agent, change the information under Agent Information as necessary. See Fields on the previous page for details.

4. To disable an agent, go to the Status section and change the Enabled value to **No**.

5. Click **Save**.

Note: If you edit or disable an agent while another job is being processed, the change won't apply until after the that job completes.

3.4 Restarting disabled agents

If an agent has been disabled for any reason, you can restart it in the Agents tab.

1. From **Home**, select the **Agents** tab.

2. Select the check box for each disabled agent that you want to restart.

3. Click the **Restart Disabled Agents** button at the top of the Agents view.

This re-enables the agent and changes its value in the **Enabled** field to **Yes**.

4 Managing agents in Relativity

You may need to monitor, edit, or disable agents for troubleshooting or to meet your environment's changing needs. Use the following best practices when working with agents:

- Perform agent modifications while agents are idle to minimize any potential issues.

- Only one person should be building, modifying, or interacting with any particular agent at a time.

- Understand how agent actions are handled by the Agent Manager Windows Service. See Agent Manager service below.

Note: If you're working with agents in a very large Relativity workspace, contact Relativity Client Services at support@relativity.com.

4.1 Agent Manager service

When you add a new agent from the Relativity interface, the agent is immediately created on the server. Agent information is stored in the EDDS database, and the Agent Manager Windows Service manages the agents on your server.

When you modify agents from the Agents tab in the Relativity interface, values are updated in the database. The Agent Manager service reads this information from the database every five seconds. If agents have been created, updated, or deleted during the previous five seconds, the Agent Manager Windows Service retrieves this information from the database and makes the changes to the agents on your server.

The following sections describe how agent actions are handled by the Agent Manager Windows Service.

4.1.1 Agent edits

Agent edits are as follows:

- **Agent Server** - if an agent is moved to another server in the database, the agent will finish the job that it's currently working on before the change takes effect.
  - For example, if you move the agent from Server A to Server B, the Agent Manager service running on Server A checks to see whether the agent is executing any jobs. If the agent is currently executing a job, then it's not moved from Server A. The Agent Manager service will continue to check the agent at five-second intervals, and if the agent is finished executing its job, then it's removed from Server A and placed on Server B.

- **Run interval**- when you modify an agent's interval, the interval is updated immediately on the server. Any time elapsed from the previous interval is applied toward the new interval. For example, if four minutes have elapsed on a five-minute interval, and you increase the interval to 10 minutes, then the agent will run again in six minutes.

- **Logging level**-when you change an agent's logging level, it's updated immediately on the server.

- **Enabled status** -if an agent's Enabled status is changed to No, the agent will finish the job that it's currently working on before it is disabled.

4.1.2 Agent deletes

When the Agent Manager Windows Service runs, any agents marked for deletion are checked to see if they're executing a job. If an agent marked for deletion is executing a job, then it's not deleted. The Agent Manager service will continue to check the agent at five-second intervals, and when the agent is finished executing its job, it is deleted.

4.1.3 Pending updates

The Pending Action field on the agent item list indicates whether an agent is pending a change. The available statuses for this column include the following:

- **Deleting** - the agent will be deleted once the current job completes.

- **Disabling** - the agent will be disabled once the current job completes.

- **Moving** - the agent will be moved to the new server once the current job completes.

- **Updating** - the agent has been modified, but the change won't be made until the Agent Manager Windows Service runs again.

4.2 Mass agent operations

Using the mass operations menu, you can copy, edit, or delete multiple agents at once. See also Adding and editing agents on page 24.

4.2.1 Mass copy

To mass copy agents, complete the following steps:

1. From **Home**, select the **Agents** tab.

2. Select the agents you want to copy and select **Copy** from the drop-down menu.

3. Click **Go**. The new agent instances display in the Agents list, numbered incrementally.
   For example, if you copy the Branding Manager agent, **Branding Manager (1)** and **Branding Manager (2)** will display in your agents list.

Note: If completing the mass copy operation would cause one or more agents to exceed their maximum agents per server value, then none of the selected agents will be copied and you'll receive an error message.

4.2.2 Mass edit

Using the Edit mass operation, you can make the same change(s) to multiple agents at once. The following settings can be edited using this operation:

- Run interval

- Logging level of event details

- Status

To edit multiple agents at once using the mass operation menu, complete the following steps.

1. From **Home**, select the **Agents** tab.

2. Select the agents to edit and choose **Edit** from the drop-down menu.

3. Click **Go**. The Edit Agents dialog displays.

4. Select the check box to the left of the component to be edited, and enter or select the corresponding new value. See <u>Fields on page 24</u> for details.

5. Click **Save** to apply the change and return to the Agents list.

4.2.3 Mass delete

To delete one or more agents using the mass operation menu, complete the following steps.

1. From **Home**, select the **Agents** tab.

2. Select the agents you want to delete and select **Delete** from the drop-down menu.

3. Click **Go** to flag the agents for delete from your environment.

4.3 Uploading an assembly containing agent types

You can upload an assembly that contains agent types to Relativity. See the Admin Guide for steps to upload an assembly to Relativity.

When you upload an assembly that contains agent types, those agent types become available for

selection when you create a new agent. When you click from the Agent Type field, any agent types contained in an assembly uploaded to Relativity will be accessible from the Select Agent Type dialog.

Consider the following when working with assemblies that contains agent types:

- The details view for each assembly displays the agent types (if any) associated with that assembly.

- If an agent type is contained in an assembly, and you deploy agents using that agent type in your environment, you must delete all agents of that type before you can delete the assembly.

- If you remove an agent type from an assembly and then re-upload that assembly to Relativity, the agent type will be deleted from your environment.

4.4 Viewing logged agent events

You can view logging information about Relativity agents in the Event Viewer on your primary or secondary agent server.

1. To open the Event Viewer in Windows, click the **Start > Programs > Administrative Tools > Event Viewer.**

2. In the Event Viewer, open **Windows Logs > Application**.

5 Managing and setting Relativity agent quantity limitations

The purpose of the following information is to enable you to successfully make changes to the Agent table using SQL. This will allow you to enforce restrictions of many types of agents so that you don't find yourself in a situation where too many agents have been created.

In the EDDS database of Relativity, there is a table called AgentType. In each line listed in SQL, the table has a number of columns and a row for each agent. The following image shows only a few columns.

	ArtifactID	Name	Fullnamespace	DefaultInterval	DefaultLogging
1	1015240	Content Analyst Index Manager	kCura.EDDS.Agents.ContentAnalystIndexManager	5	1
2	1015241	Branding Manager	kCura.EDDS.Agents.BrandingManager	20	1
3	1015242	Case Manager	kCura.EDDS.Agents.CaseManager	3600	1
4	1015243	File Deletion Manager	kCura.EDDS.Agents.FileDeletionManager	3600	1
5	1015244	Case Statistics Manager	kCura.EDDS.Agents.CaseStatisticsManager	3600	1
6	1015245	Content Analyst Cluster Manager	kCura.EDDS.Agents.ContentAnalystClusterManager	5	1
7	1015246	dtSearch Index Worker	kCura.EDDS.Agents.dtSearchIndexWorker	5	1
8	1015247	Text Extraction Manager	kCura.EDDS.Agents.TextExtractionManager	5	1
9	1015248	Production Manager	kCura.EDDS.Agents.ProductionManager	20	1
10	1015249	Transcript Manager	kCura.EDDS.Agents.TranscriptManager	5	1

Each column gives you some additional control over the number of agents that can be deployed in an environment. Columns are described in AgentType table column definitions below. For columns that describe a quantity limitation, a value of **0** means that the agent will be untracked/unenforced. Min x columns that are not mentioned in AgentType table column definitions below are not mentioned because they are not enforced.

Note: The only time that this check is made is when the agent is first deployed. Anything that happens afterward, such as a server moving to a different resource pool, or a change to these rules, will not affect existing agent counts. Changes are not applied retroactively.

5.1 Analytics considerations

Analytics server agents, while present in this table, follow some slightly different rules for scaling that you should consider when deploying them. The Relativity Analytics Cluster Manager and Content Analyst Index Manager agents are scalable at 1 agent each per Analytics server in the environment. The Relativity Analytics Categorization Manager is scalable at 2 agents per Analytics server in the environment.

5.2 AgentType table column definitions

- **ArtifactID** - The agent's unique ArtifactID

- **Name** - The name of the agent, which reflects its type

- **Full namespace** - The full name of the agent, such as kCura.EDDS.Agents.FileDeletionManager. This should never be changed.

- **MaxInstancePerServer** - Set a limit on a per server basis. By default, all 0s except for dtSearchSearch.

- **MaxInstancePerResourcePool** - Set the maximum number of agents per resource pool to prevent users from deploying multiple instances of agents when there should be only one. Be aware, however, that if a server is moved from one resource pool to another, there will be no correction or warning that you have violated the resource pool limit. Only the Server Manager agent has a default limit here.

- **MinInstanceEnvironment** - Every agent has a default MinInstanceEnvironment requirement of **1**. However, you're not required to have all of the agents, and this value is used only once during initial installation, so it can be changed. Relativity gives warnings when minimum recommendations are not met, but minimums are not enforced.

- **DefaultInterval** - How often the agent checks in, in seconds. The default interval on agents "checking in" to their queues for more work is **5** seconds. In an environment with many agents, this may be too often and may result in thousands of queries per minute when much longer intervals would suffice. For example, using a 30 second interval, it would take you at least that long to navigate to the Agents tab to see if the agent is running. If you apply this across the board, it would reduce agent queries to the database by a considerable amount.

- **Description** - The description of the agent

- **Guid** - The agent's unique identifier

- **LoggingLevel** - There are three levels of logging: 1 is for **Errors only**, 5 is for **Warnings and errors**, and 10 is for **Log all messages**.

5.3 Editing the AgentType table

Following these guidelines, you can set the default settings for each agent. You can only set the defaults by running SQL queries against the table itself.

For example, the following query changes the maximum number of OCR workers in an environment to 10.

```
UPDATE [EDDS].[eddsdbo].[AgentType] SET  [MaxInstanceResourcePool]= 10
WHERE [Name] = 'OCR Worker'
```

Note: If you have 12 agents already in any resource pool, this will do nothing to remove them or even warn you. If you move a server to a different resource pool, there will be no check to prevent it from moving if the move causes it to exceed the predefined limit.

5.4 Editing the Agent table

The Agent table inherits several of the columns in the AgentType table when the agent is deployed. The logging level and interval are all written to this table. The Name column gets appended with some number (n). If you want to change the values for existing agents for either of these values, you can change them through the UI. If you have many changes to make, it will be faster to change them in the Agent table.

The following sample SQL statement updates the run interval to 10, and sets the logging level to *Log warnings and errors* for all dtSearch Index Workers.

```
UPDATE [EDDS].[eddsdbo].[Agent] SET [Interval] = 10, [LoggingLevel] = 5
WHERE [Name] LIKE 'dtSearch Index Worker%'
```

Executing this SQL in Sql Server Management Studio updates the dtSearch index worker default maximum of agents to 10.

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