Upgrade Guide

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1 Relativity upgrade

Use the following workflows to upgrade your current Relativity installation to Relativity 9.4. To begin your upgrade process, address custom solutions and scripts before downloading the Relativity installer. Once you complete the workflow specific to your upgrade path, we recommend completing the post-installation verification tests post-upgrade to confirm that your environment has been upgraded properly.

As a best practice, we recommend preparing for your upgrade process by using the Pre-Upgrade Checklist. You can use this document to discuss an upgrade strategy for your current installation of Relativity with the Client Services team (support@relativity.com).

If you are installing Relativity for the first time, contact the Client Services team (support@relativity.com) for additional information. You may also want to review the information on the Relativity installation page on the Relativity 9.4 Documentation site.

1.1 Addressing custom solutions pre-upgrade

The Solution Snapshot application helps you identify compatibility issues with custom applications in your environment so you can resolve them prior to upgrade. Using the Solution Snapshot application, you can view a list of the applications currently installed in your Application Library and review the application owner's recommendation for upgrade. For more information, see Solution Snapshot on the Relativity documentation site.

1.2 Addressing custom scripts that trigger imaging jobs

If you plan on upgrading Relativity and you use custom scripts that programmatically trigger imaging jobs in your current Relativity environment, those scripts will no longer work after you upgrade.

This is because the components that those custom scripts rely upon no longer exist due to the changes made to the imaging framework, which are listed below. The imaging operations performed by these custom scripts aren't accounted for in the KCD Snapshot Solution script.

- The Imaging Set Manager and Worker agents have been deprecated.
- The Imaging Set Queue table has been deprecated.
- The Imaging API now submits an imaging job directly to Invariant (worker manager server).

Before you upgrade to Relativity 9.4, contact Client Services at support@relativity.com for instructions on how to adjust your custom scripts.

1.3 Required pre-upgrade steps for all Relativity versions

Before you begin your upgrade, you must complete the following pre-upgrade steps.

Required pre-upgrade steps for all Relativity versions
Complete the following steps and verify you have the necessary information required for all upgrades of Relativity. Depending on your upgrade path, you may have additional configuration or other tasks to perform specific to the version of Relativity you're installing.

Make sure you have the appropriate system admin permissions in Relativity before beginning the upgrade. For more information, see Managing security on the Relativity 9 Documentation site.
Confirms that jobs aren’t running in any of the queues. If the agents are running, they may attempt to run a job against a database that doesn’t have an upgraded schema and cause serious errors in your Relativity environment.

1.3.1 Obtain credentials for service and database accounts

To upgrade Relativity, you need credentials for the following accounts:

- **Relativity Service account** (Windows Workgroup/Domain account) - Run the Relativity upgrade logged in as the Relativity Service account. This account must have local Administrator permissions on the target server, and SQL sysadmin role privileges on the SQL Server.

- **EDDSDBO account** (SQL account)

**Note:** Do not begin the upgrade process until you obtain the credentials for these accounts. They are required when you run the installer.

1.3.2 Review system and other requirements

Confirm that your environment is configured with the prerequisites before you begin upgrading Relativity. See the following documents for more information:

- Relativity System Requirements - Includes software and hardware requirements for servers, databases, and other components of a Relativity installation.

- Relativity Workstation Configuration guide - Includes information about setting up workstations for users and viewer installation instructions.

- Relativity Environment optimization guide - Includes best practices for maintaining and optimizing a Relativity environment.

- Upgrade path instructions - Contain detailed information about requirements for your specific upgrade path.

1.3.3 Apply a trusted certificate for the Analytics server

As of Relativity 9.4, a trusted certificate is required for all HTTPS traffic, including the internal traffic for the Analytics server. We recommend placing the certificate and testing it prior to the day of the upgrade to Relativity 9.4.

See [Pre-upgrade: Update the default SSL/TLS certificate for CAAT®](#) for more information.

1.3.4 Back up your Relativity environment

Back up your SQL databases and your Relativity IIS websites before you begin the upgrade process. You should also back up both the structured analytics sets and analytics indexes before your upgrade to ensure that there is no data loss. This may take a while so it’s recommended to run analytics backups either during the week of or the week prior to your upgrade. Usually this data does not change daily, so this helps to mitigate any data loss.
1.3.5 Reboot machines with Windows updates
After installing Windows updates, reboot your machines before attempting to install Relativity. Complete this step to ensure that all Relativity components are properly installed. Incomplete Windows updates lock system files, which may cause silent failures and prevent the proper installation of Relativity components.

1.3.6 Download the Relativity installer
To receive the correct Relativity installer package for your upgrade workflow contact the Client Services team (support@relativity.com).

1.4 8.1, 8.2, or 9.x to 9.4 upgrade workflow
Use the following workflow when upgrading from Relativity 8.1 or 8.2 to Relativity 9.4.

**Note:** Never upgrade your Relativity version while there are jobs of any type currently in progress in your environment. Doing this leads to inaccurate results when you attempt to finish those jobs after your upgrade is complete. This is especially important for imaging and processing jobs.

**Note:** Beginning in Relativity 9.4.254.2, processing to Data Grid no longer requires the RabbitMQ server. You must remove the RabbitMQ from your Relativity environment before installing Relativity Service Bus server. For more information, see [Removing RabbitMQ on page 70](https://msdn.microsoft.com/en-us/library/dn441402.aspx).

1. Install Service Bus for Windows Server on each machine that you want to include in the service bus farm. For information about installing and configuring the service bus, see the Pre-Installation guide.

   **Note:** For a typical installation, install Service Bus for Windows Server on a server or VM that is accessible throughout your Relativity instance. If you are upgrading from Relativity 9.3 or below and you have a worker server that you are converting into a conversion agent server, you may want to install it on that machine. As another alternative, install the service bus on a machine that meets these minimum requirements: CPU clock speed of 1.6GHz, a CPU core count of 2 or more, and physical memory of 3.5 GB, although 6 GB is recommended. These same guidelines also apply when installing the service bus on multiple hosts. See Best Practices Analyzer (https://msdn.microsoft.com/en-us/library/dn441402.aspx). For more information, see [Configuring your conversion agents on page 61](https://msdn.microsoft.com/en-us/library/dn441402.aspx).

2. Set up a new service bus farm on the machine where you installed Service Bus for Windows Server. Relativity currently supports only a single node in a farm.

3. Stop all agent services.

4. Stop the IIS.

5. Run the Relativity installer on your Primary SQL Server to upgrade the EDDS database and install the required library applications. You can’t access your Relativity environment until you complete this step. Depending on what version you’re upgrading from, this process may start automatically after the installer is finished running. See [Upgrading your primary SQL Server on page 64](https://msdn.microsoft.com/en-us/library/dn441402.aspx).

Note: You can find additional information in Troubleshooting the service bus installation on page 75. For general troubleshooting information, see the Relativity Service Bus guide.

7. Run the Relativity installer on the Agent server. See Upgrading your agent server on page 76.
8. Run the Relativity installer on the Web server. See Upgrading your web server on page 79.
9. Restart the IIS.
10. (Optional) Log in to Relativity and click the Workspace Upgrade queue. Set the priority or order on the workspaces as necessary. You can monitor your workspaces in the Workspace Upgrade queue. See Upgrading workspaces on page 88.

Note: After you run the installer on at least one agent server, the system begins upgrading individual workspaces. You can now log in to Relativity to monitor workspace upgrades via the Workspace Upgrade queue.

11. Upgrade your worker manager server. For more information, see the Worker Manager Server Installation guide.
12. Upgrade Relativity Analytics. See Upgrading or installing your Analytics server on page 96.

1.5 8.0 to 9.4 upgrade workflow

Please contact the Client Services team (support@relativity.com) for more information on upgrading your 8.0 Relativity environment to Relativity 9.4.

1.6 7.x to 9.4 upgrade workflow

Please contact the Client Services team (support@relativity.com) for more information on upgrading your 7.x Relativity environment to Relativity 9.4.

1.7 6.x to 9.4 upgrade workflow

Please contact the Client Services team (support@relativity.com) for more information on upgrading your 6.x Relativity environment to Relativity 9.4.
2 Upgrade considerations for Relativity 9.4

This page explains some of the key changes in Relativity 9.4 that you should be aware of before upgrading.

In order to upgrade to or install Relativity 9.4, you MUST complete new pre-installation steps. You now need to install Service Bus for Windows Service 1.1 BEFORE installing or upgrading to Relativity 9.4. For more information, see the Pre-Installation guide. Refer to this page to learn more about changes in your environment from a previous version of Relativity to Relativity 9.4.

2.1 9.x to 9.4 Relativity updates

Learn more about the changes that occur to your Relativity 9.x environment after you upgrade to Relativity 9.4.

9.x to 9.4 Relativity updates
- Agent service
- Analytics on the next page
- Applications on page 15
- Authentication on page 15
- Conversion
- Data Grid on page 15
- Database schema
- ECA and Investigation
- Fields on page 17
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- Invariant
- New UI framework on page 21
- Processing on page 22
- Production on page 22
- Relativity service bus on page 24
- Required certificates for Relativity on page 24
- Scripts
2.1.1 Agent service

All Windows services now have Recovery Properties. If the Agent service should ever crash due to an unhandled exception, it recovers and immediately restarts.

Analytics

If you're upgrading to 9.4 from a version earlier than 9.2, note that the Textual Near Duplicate Identification algorithm is in place with the following benefits:

- The new algorithm greatly improved performance for both large and complex data sets.
- With the new algorithm you can scale your Analytics server by adding CPU cores and RAM in order to achieve faster performance.

Prior to Relativity 9.2, scaling environments did not impact performance. Without scaling past eight cores, you should experience performance comparable to pre-Relativity 9.2 on most data sets. The Textual Near Duplicate Identification algorithm in Relativity 9.2 uses different, more efficient methods to obtain similar results. However, results may differ slightly from pre-Relativity 9.2 results if a Full Analysis is run against a preexisting structured analytics set. If you need preexisting results use an Incremental Analysis instead. The incremental analysis keeps the pre-Relativity 9.2 results for all preexisting documents, but the newly added documents use the new algorithm to match with existing groups.

2.1.1.1 Updating RestUriForCAAT instance setting

As part of upgrading (post-upgrade), you must have a valid URL value entered for the RestUriForCAAT instance setting. This is the FQDN URL to the web server hosting your Kepler services (e.g., https://client.domain.name/Relativity.REST/API).

Updating the default SSL/TLS certificate for the Content Analyst

You must update the default SSL/TLS certificate on your Analytics server because Relativity requires a certificate signed by a trusted certificate authority (CA). By default, the CAAT service runs over an untrusted SSL/TLS certificate. For more information, see Post-upgrade: Updating the default SSL/TLS certificate for CAAT® on page 104.
2.1.2 Applications
The Solution Snapshot application helps you identify compatibility issues with custom applications in your environment so you can resolve them prior to upgrade. Using the Solution Snapshot application, you can view a list of the applications currently installed in your Application Library and review the application owner's recommendation for upgrade. For more information, see Solution Snapshot on the Relativity documentation site.

2.1.3 Authentication
Relativity 9.4 introduces significant user authentication changes. Consider the following for upgrading:

- You no longer see the Authentication Data field in the Users User Information section. You now enter the information you previously entered here in the individual authentication methods. This permits more versatile and detailed method implementations.

- Note that when you upgrade, Relativity creates a copy of the eddsdbo.User table before making any modifications. The table is for reference only, and the copy is named based on the Relativity version being upgraded from, such as 9_2_AuthenticationUserTableBackupRecord or 9_3_AuthenticationUserTableBackupRecord. If after upgrading and making sure all users converted successfully, you may delete the copy table.

- Use the Authentication Profile system to enable only the protocols you need in an environment. In some cases the upgrade process may enable more protocols than you want. This is due to the parsing rules for the AuthenticationData column. Specifically, if you are using Active Directory or Client Certificate authentications in your environment, the upgrade process may also enable Integrated Authentication. If you don't want the Integrated Authentication, you can remove that provider from the Authentication Profile after upgrade.

2.1.3.1 User and authentication object permissions
With authentication enhancement in Relativity 9.4, a number of new objects have been introduced, such as Authentication Provider Type, Authentication Provider, and Login Method. Upon upgrading to Relativity 9.4, permissions are as follows:

- A user, who has the permissions to view the user objects before an upgrade, post upgrade can view users, authentication provider types, authentication providers, and login methods.

- A user, who has the permissions to edit (or delete, a higher level of permission than edit) the user objects before an upgrade, post upgrade can edit users and login methods. They can also view authentication provider types, and authentication providers.

- After upgrade only users in the System Administrators group will have access to view and edit OAuth2Client objects.

2.1.4 Conversion
Beginning in Relativity 9.4, conversion occurs on dedicated conversion agents instead of Invariant workers. You must configure conversion agents to ensure document conversion works properly in Relativity 9.4. For more information, see Configuring your conversion agents.

Data Grid
The following infrastructure items are new to Data Grid™ beginning in Relativity 9.4:
The new Data Grid Kepler Host agent is responsible for running the Data Grid Kepler Server. This agent is part of the Data Grid Core application and as such is automatically installed when one upgrades to or installs Relativity 9.4. This agent is configured to be limited to only one agent per server.

For more information, see the Relativity Data Grid guide.

In Relativity 9.4, you no longer need to install the DataGridRESTService on the Analytics server to integrate Relativity Analytics with Relativity Data Grid. If you are upgrading to Relativity 9.4, uninstall the DataGridRESTService from your Analytics server(s). For more information, see Uninstalling the
kCura Data Grid service. We also recommend uninstalling the client node from the Analytics server if that server is only dedicated to Analytics in order to free up resources.

- The Instance Settings table and corresponding Relativity tab now includes the ServiceHTTPEndPoint and ServiceHTTPEndPointPort instance settings to accommodate the connection between the Kepler service and Data Grid services.
- The Instance Settings table and corresponding Relativity tab also includes the AuditDeleteBatch Size and AuditMigrateBatchSize instance settings to specify deletion and migration batch sizes for Data Grid for Audit.

For more information, see the Relativity Data Grid guide

2.1.5 Database schema updates
A number of EDDS and Workspace database tables have been changed, added, or removed to accommodate new functionality in Relativity. For more information, see Database schema updates for Relativity 9.4 in the Relativity Community.

ECA and Investigation
The ECA and Investigation and Field Catalog applications are now synchronized, which means that when you install the ECA and Investigation application, Relativity automatically maps all of the ECA fields to those 127 corresponding processing fields found in the Field Catalog. For a list of these fields, see the Processing User Guide.

Note the following details:

- Beginning in Relativity 9.4.284.1, a number of processing fields were renamed in the Field Catalog. If you upgrade to Relativity 9.4.284.1, those renamed fields will cause naming conflicts. You can address these conflicts through the standard application framework, which is to either rename the fields or modify their mapping. If you previously processed data into a field that was renamed, you will have the same data in two different fields. You can address this through a Mass Replace operation on the affected fields.

- Beginning in Relativity 9.4.284.1, the All Custodians field was renamed to All Custodians_Script in the ECA and Investigation application. The All Custodians_Script field is a long text field and acts as another piece of metadata for de-duplicated documents. You should select the new All Custodians_Script field when running the Update Duplicate Status script, as this will ensure that no de-duplicated documents make it into review.

Fields

2.1.5.1 Allow HTML fields
Starting in Relativity 9.4, for any existing fields with the Allow HTML value set to Yes, you must set the new instance setting SanitizeHTMLOutput to False in order to add HTML alerts and links when a user opens a document for review.

Foreign key removal
The following change was made in Relativity 9.4.284.1:
In order to improve the performance and usability of document deletion in Relativity, we've removed the foreign keys from the Document and non-system RDO database tables. This includes artifact, single object, and multi-object table relationships. Doing this resolves the previous issues involved with globally locking the Artifact and other tables for the entire duration of a deletion job, which could be lengthy and could subsequently delay document review. As a result of removing these foreign keys, the delete process will execute without applying a global lock, and thus no longer interrupts document review in Relativity.

There are three classifications of foreign keys, all of which are affected by this change:

- Keys from the object (Document or RDO) table to the Artifact table.
- Keys on the object table that go to a single object field.
- Keys on multi-object relational f-tables. An f-table stores the link between the objects that are connected by a multi-object field in Relativity. In this way, the only columns in an f-table are those that store the Artifact ID’s of the objects that are linked to each other by that field.

**Note:** System objects aren't subject to foreign key removal. If the Document object has a foreign key to the Folder object, that foreign key will remain because Folder is a system object.

### 2.1.6 IIS

#### 2.1.6.1 HTMLArea application

Beginning in Relativity 9.4.361.1, Relativity Web servers no longer require the HTMLArea Application/Virtual Directory. You can safely remove the HTMLArea application/virtual directory from IIS on all web servers after the upgrade is complete.
2.1.6.2 SignalR
When running Relativity on IIS 7.5 and older, the SignalR protocol may exhibit performance issues, including slow responses and connection failures as it falls back to other supported connection protocols. To resolve this issue, disable dynamic content compression for the Relativity.REST application in the Compression section in IIS:

![Image of IIS Compression settings]

You can also add the following property to the system.webServer section of the Relativity.REST web.config file:

```xml
<urlCompression doDynamicCompression="false" />
```

This change will improve SignalR performance on older versions of IIS.

**Imaging profiles**
Existing imaging profiles received the following updates based on their imaging method when upgrading to Relativity 9.4.

If your environment is set up for native imaging, the following changes occur upon upgrade:

- Relativity renames the default imaging profile to Native Default.
- The imaging method is set to Native for all current imaging profiles including Native Default.
- Relativity creates a new basic default imaging profile with the following settings:
  - **Imaging Method**: Basic
  - **Basic Image Output Quality (DPI)**: 300
  - **Basic Image Format**: TIFF
  - **Basic Image Height**: Original Setting
For any imaging set with an imaging method set to Basic, the following changes occur:

- The imaging profile previously linked to the imaging set is copied.
- Relativity sets the imaging method for the copied profile to Basic.
- The copied basic imaging profile is linked to the imaging set and Basic is prepended to the profile name.

If your environment is not set up for native imaging, the following changes occur upon upgrade:

- Relativity renames the default imaging profile to Basic Default.
- The imaging method is set to basic for all current imaging profiles including Basic Default.

### 2.1.7 Installation of a certificate on the database server

A certificate called RelativityIdentityCertificate is added to the EDDS database on your primary database during a first time installation or an upgrade. The authentication framework uses the thumbprint of the certificate to sign identity tokens, which are JSON web tokens (JWTs). The IdentityCertificateThumbprint instance setting stores the thumbprint associated with your certificate. For more information, see Instance setting values on the Relativity 9.4 Documentation site.

You also have the option to use your own authentication token-signing certificate. For more information, see Optionally configure an authentication token-signing certificate on the Pre-installation page in the Relativity 9.4 Documentation site.

For a clustered environment, you need to export a copy of your RelativityIdentityCertificate from the primary database server, and install the certificate to each database server hosting the EDDS. See the following instructions for more information:

- Optionally configure an authentication token-signing certificate on the Pre-installation page in the Relativity 9.4 Documentation site - These instructions describe the process for configuring your own custom token-signing certificate, but you can follow these basic steps to install RelativityIdentityCertificate to each database server in a distributed environment.

### 2.1.8 Instance settings

If upgrading to Relativity 9.4 from a version prior to 9.3, note that configuration table values are now referred to as instance settings. Upon upgrade, configuration table values convert to instance settings. Likewise, the eddsdbo.Configuration table becomes the eddsdbo.InstanceSetting table in SQL Server.

**Note:** If a new 9.4 install or upgrade fails, a back up table, edds.Configuration_backup, exists as a record of all the instance settings in SQL. Do not use this table for any purpose other than a record in the event of an install/upgrade failure.

### 2.1.8.1 Backwards compatibility

For any existing applications that reference the pre-9.4 EDDS.Configuration table, a SQL view, Configuration, exists to act as a layer on top of the Instance Setting table.

This view contains the same columns as the old Configuration table and you can use it to examine the information as it was pre-Relativity 9.4.
2.1.9 Invariant

Beginning in Relativity 9.4.378.21, you can configure the number of concurrent threads dedicated to OCR, which can mitigate CPU bottlenecks. This is possible through the following changes:

- The MaxConversionThreads column has been removed from the Invariant.dbo.Workstations table, as it was longer in use since conversion became a separate service.

- The Invariant.dbo.Workstations table now includes a MaxOcrThreads column, which stores the number of concurrent threads that are allowed to perform an OCR job at a single time. A value of “0” means unlimited, and any other value limits to that number. The default and recommended value is 0. You should only change this value if the Worker CPU is at 100%, and a performance degradation during text extraction.

Beginning in Relativity 9.4.398.62, the following changes were made to the Invariant installation process:

- The Invariant.DBUodater.exe upgrades both the main Invariant database and RPC stores. It also handles Relativity stores by setting the stores to Pending, which tells the Workspace Upgrade Worker agent to pick them up and execute scripts on them. It also produces a detailed XML log file, which gets created in the install directory and provides information on what happened during the database upgrade.

- The IDENTITYSERVERURL setting is new in the Invariant response file. This is where you enter the identity server of the environment used for RPC authentication.

Beginning in Relativity 9.4.284.1, you have the option of configuring Invariant to connect to a SQL server on a non-default port. You can do this by configuring the following new parameters on the Invariant response file:

- RELATIVITYSQLINSTANCEPORT - the SQL port number for the Relativity SQL server.
- SQLINSTANCEPORT - the SQL port number for the Invariant SQL server.

For more information, see the Processing installation guide.

2.1.10 New UI framework

Relativity 9.4 introduces a new UI framework, which is now turned on by default. If you need to disable the new UI framework for the Document list, click Switch to Classic UI from the user drop-down within a workspace. For help using the classic interface, refer to the 9.3 documentation which documents both interfaces side-by-side. For more information, see Navigation in the Admin guide.

When using the new UI framework, the following Relativity features have been enhanced:

- Cluster visualization
- Dashboards
- Document list and tabs throughout Relativity
- Pivot
- Sampling
- Search panel and search browser
2.1.11 Processing
Beginning in Relativity 9.4, the following processing changes may impact your upgrade experience:

- When you change the URL for the queue manager, you're required to perform an IIS reset on the Relativity server in order to clear the cache.

- You no longer map processing fields through the processing profile. You now map through a new Source field on the Field layout, which takes you to a catalog containing the most common fields that are discovered during processing. Note the following details regarding this change:
  - Relativity 9.4 provides 46 new processing fields, in addition to the 81 fields previously provided, bringing the total number of fields that are available to map to 127.
  - The processing profile no longer contains the Processing Fields associative object list view.
  - If you don't install the Processing application, Relativity still allows you to map fields as long as you've added the worker manager server to the resource pool.
  - When you upgrade to 9.4, Relativity transfers any fields mapped in the processing profile named "Default" to the field mapping table. If the name of the original Default profile has been changed, that profile is still used. If you haven't mapped any fields on the Default profile in 9.3, and one or more other profiles do have fields mapped, Relativity doesn't automatically transfer fields when you upgrade to 9.4.

- You can now install Microsoft Office 2013 on your worker servers; however, due to a performance degradation in text extraction when using Office 2013, we recommend that you continue to use Office 2010 with Relativity 9.4.

- When upgrading to Relativity 9.4, you need to manually install the 2013 Visual C++ Redistributable Package for Visual Studio x86 and x64 on all worker servers prior to running the Invariant installation file for the upgrade. These packages are automatically installed during a first time Invariant installation.

- The WebAPI setting in IIS is now set to Anonymous Authentication by default and is no longer set to Windows Authentication. You must keep this set to Anonymous Authentication in order to publish documents to a workspace using the worker manager server.

Beginning in Relativity 9.4.254.2, processing to Data Grid no longer requires the RabbitMQ server. To remove RabbitMQ from your Relativity environment, see [Removing RabbitMQ](#).

Production
The following section discusses the changes to the Production application on upgrade from Relativity 9.x to Relativity 9.3+. Certain upgrade changes only affect upgrades from Relativity 9.1 or 9.2 to Relativity 9.4, and the changes are clearly marked with the affected versions.

Beginning in Relativity 9.3+ you can choose to upgrade only your Production application using a RAP file.

**General Production upgrade considerations:**

- An upgrade from Relativity 9.x to 9.4 can fail if the workspace you're upgrading already contains a Relativity field with the name Production. You must rename this field.

- An upgrade can fail if the workspace you're upgrading already contains a Relativity dynamic object with the name Production Placeholder. You must rename this object.
An upgrade from Relativity 9.1 to 9.4 can fail if the workspace you’re upgrading already contains a Relativity dynamic object with the name Production Data Source.

An upgrade from Relativity 9.2 and below to 9.4 can fail if the workspace you’re upgrading already contains a Relativity dynamic object with the name Relativity Color Map. You must rename this object.

An upgrade from Relativity 9.2 and below to 9.4 can fail if the workspace you’re upgrading already contains a Relativity dynamic object with the name Field Catalog. You must rename this object.

If you have a full-text index populating the production upgrade stops. Try upgrading again once the full-text index is finished populating.

Relativity deduces the First Bates Value and Last Bates Value for all imported and upgraded productions.

If you are updating your Production application to a version of Relativity 9.3 before Version, the upgrade can fail if you update the Binders application before it. Update the production application first or upgrade to Version.

If you upgrade from Relativity 9.2 to Relativity 9.4 and you were previously using the Production Tracker application, review the Production Tracker 9.4 considerations PDF in the Relativity Community.

Changes to agents and objects:

- On upgrade to Relativity 9.4 the Relativity.Core agents for production and branding are upgraded to ADS Deployed agents. The Relativity.Core agents for production and branding are not available in a 9.4 environment.
- The Markup Set table is converted to the Markup Set dynamic object.
- The Production Object table is converted to the Production dynamic object.

Changes to pre-existing Productions:

- Any staged or errored productions in an environment are set to a status of New and you must restage the production before running.
- Productions migrated from Relativity 9.1 and 9.2 receive a legacy placeholder stating, "No Tiff Included For This Record."
- Productions migrated from Relativity 9.1 to Relativity 9.4 have a data source created containing the production documents for each produced and errored production.
- If any produced productions contain native files with their Bates numbers previously stored in the Document table, the Bates numbers for the native files are moved to the Production object, and may not reflect actual Bates values if those values were overwritten.
- The Production Error field no longer exists on the Production object.
- If you upgrade from an earlier version of Relativity 9.3 and your custom placeholders contain square brackets, you may see an error the next time you run the production or re-save the custom placeholder. To correct the error, escape the square brackets using a blackslash and re-run the production.

Changes to Production fields and views:
On upgrade from 9.2 to 9.4 the Produced Documents field exists in the environment, but the field is not populated.

The production document view no longer exists.

The multi-object field Produced Documents is replaced with the Production Information RDO when upgrading from Relativity 9.2. The field is not deleted from the workspace, but is disassociated from the production application.

On upgrade from 9.x to 9.4 the Add Image Placeholder field changes to Use Image Placeholder. If the Add Image Placeholder field was set to No, it updates to Never Use Placeholders. If the Add Image Placeholder field was set to Yes, it updates to Always Use Image Placeholders.

Changes to Production permissions:

Users with full permissions to the Production object prior to upgrading to Relativity 9.3 do not automatically gain permissions to the new Production Data Source object, unless they also have the Manage Object Types permission under Admin Operations. Users need rights to the new Production Data Source object to add or edit production data sources after upgrading to Relativity 9.3+.

2.1.12 Relativity service bus

The Relativity 9.4 infrastructure now includes a new component called the Relativity service bus. This component uses Service Bus for Windows Service as its underlying framework. Before you upgrade Relativity, you must now install Service Bus for Windows Server on a server or VM that is accessible throughout your Relativity instance. You must then configure a Service Bus for Windows Server farm in your environment. For information about prerequisites, see Service Bus for Windows Server in the Pre-Installation guide.

After installing Service Bus for Windows Server, you can upgrade your primary SQL Server. You can then install the Relativity service bus by running the upgrade installer on the machine where you installed Service Bus for Windows Server. Finally, follow the standard instructions for upgrading other Relativity components. For more information, see the Relativity Service Bus guide.

2.1.13 Required certificates for Relativity

Relativity 9.4 now verifies that all HTTPS services running in your environment have a trusted certificate. You need to verify the certificates to components of your Relativity installation running HTTPS services to avoid error messages and insecure-connection icons. For more information, see Required certificates for Relativity in the Pre-installation guide.

We recommend placing the new Analytics server certificate and testing it prior to the day of the upgrade to Relativity 9.3. For more information, see Pre-upgrade: Update the default SSL/TLS certificate for CAAT® in the Upgrading or installing your Analytics server section.

2.1.14 Scripts

Beginning in 9.4.398.62, you must enable the AllowAddOrEditScripts instance setting in order for users to create or edit scripts. This setting enables or disables the ability to create and edit scripts for all users, including system admins. For more information, AllowAddOrEditScripts in the instance setting guide.
2.1.15 Service Host Manager HTTPS configuration

Service Host Manager runs Relativity services on all web and agent servers in your environment. The services are used by applications like Production and Processing on. If your web and agent servers must be set up for HTTPS access, special setup is required for Service Host Manager.

For more information, see Service Host Manager on the Relativity 9.4 Documentation site.

2.1.16 System requirements

- Upon upgrade to Relativity 9.4, Windows Server 2008 R2 (64-bit) is no longer compatible with 9.4. Relativity 9.4 is only compatible with Windows Server 2008 R2 (64-bit) w Service Pack 1.
- As of August 31, 2017, we no longer support Internet Explore (IE) 10. Please upgrade to a compatible version of IE 11.

2.1.17 Telemetry

After you install Relativity 9.4, complete the steps to enable telemetry in your environment. Telemetry is used to collect metrics for performance, usage, and billing. For more information, see Telemetry on the Relativity 9.4 Documentation site.

Beginning in version 9.4.398.62, failure to transmit telemetry billing data to kCura causes Relativity access to be disabled after seven (7) days. Telemetry lockout is similar to Case Statistics Manager lockout.

2.1.18 Viewer (ActiveX)

To use the ActiveX viewer in Relativity 9.4 you must have Microsoft .NET 4.5.1 runtime installed on the client machine.

Beginning in Relativity 9.4.254.2 you must download and install the latest version of the Viewer Installation Kit. For more information, see Legacy viewer installation in the workstation configuration guide.

2.1.19 Viewer (ActiveX and HTML)

For users who haven’t upgraded their Relativity version since the general release of Relativity 9.2, note that, beginning in the Relativity 9.2.337.3 - September 30, 2015 product update, the following is applicable.

When viewing documents with an .HTM, .HTML, or .XML extension in Native mode, the viewer displays the raw file markup instead of rendering the content.

You can control this option with the TreatHtmlAndXmlAsText instance setting, which is set to True by default. When set to True, this prevents JavaScript from executing when viewing these documents in the Native mode in the viewer.

You can control this option with the TreatHtmlAndXmlAsText instance setting, which is set to True by default. When set to True, this prevents JavaScript from executing when viewing these documents in the Native mode in the viewer. See the Instance Setting Guide to learn more about this new value.

Pre the Relativity 9.2.337.3 - September 30, 2015 product update:
As of the Relativity 9.2.337.3 - September 30, 2015 product update:

2.1.20 Windows or Integrated Windows authentication

If your Relativity installation currently uses Windows authentication or Integrated Windows authentication, you must set the UseWindowsAuthentication instance setting to True after upgrading your environment. For more information, see the Instance setting guide on the Relativity 9.4 Documentation site.
You may want to configure your environment so that some servers use Windows authentication, while others don't use it. In this case, you need to add another row for this instance setting to the Instance setting table, update the machine name in this new row, and then set the value to True or False based on the Windows authentication requirements for the server.

In addition, you can set the WindowsAuthIpRange instance setting, which specifies a group of IP addresses that Relativity uses to validate the address of the user during login. If a request originates from an IP address added to the WindowsAuthIpRange instance setting, the server uses Windows Authentication to log the user in to Relativity. Relativity uses forms authentication to log in the user, when the IP address is outside the specified range. For more information, see Instance settings on the Relativity 9.4 Documentation site.

2.1.21 Workers

The LongRunningJobTimeout setting is new to the AppSettings table in Relativity 9.4.321.2, and it enables Invariant to terminate some stuck jobs. Specifically, this value determines the amount of time (in milliseconds) that a worker will work on a job before Invariant terminates that job. The default value is 5400000, or 1.5 hours in milliseconds.

You may want to adjust this value if you have large documents that need additional time for processing, or if you need a shorter feedback loop. If you need to adjust this value, you can manually go into the AppSettings table and increase it accordingly. Previously, Invariant workers could get into a state in which they no longer reported progress and no longer completed work, which then required manual intervention to terminate those processes. When Invariant uses the LongRunningJobTimeout setting to stop a job, Relativity provides an error message to the processing user informing them that the timeout limit was reached.

Beginning in Relativity 9.4.361.1, the Conversion Threads in Use column no longer appears on the Worker Status tab. Additionally, on the worker server page, you can no longer designate a worker for conversion work. To configure your environment for conversion, see Configuring your conversion agents.

2.1.22 Worker manager queue

Beginning in Relativity 9.2.337.3 (released on September 30, 2015), revisions in the queue manager code have led to the following enhancements:

- A reduction in the volume of connections to the SQL Server
- A reduction in lock waits and thread pool waits
- A general increase in queue parallelism
- A reduction in the number of queries per second hitting the SQL Server

There is no reduction or change in actual queue functionality as a result of these changes. Likewise, the user experience with the queue manager hasn't changed, with the exception of potential performance increases, depending on the size of your environment.

No additional server configurations, or other such action items, are required beyond upgrading to Relativity 9.2.337.3 in order to procure the improved queue manager.

2.1.23 Worker manager server

Beginning in Relativity 9.4 document conversion no longer occurs on the worker manager server. You cannot modify the priority of the following conversion jobs on the worker manager server: Pre-convert, Conversion on-the-fly, Mass conversion, and Conversion. Instead, you must install Service Bus for
Windows Server and configure conversion agents. For more information, see Configuring your conversion agents on page 61.

Beginning in Relativity 9.4.361.1 the Worker manager page no longer displays the following conversion fields: pre-convert, conversion on-the-fly, mass conversion, and conversion.

2.1.24 Workspace upgrade queue

Beginning in Relativity 9.4.398.62, the Workspace Upgrade Queue includes the following new columns:

- **Store Upgrade Status** - the status of the upgrade of the Invariant store, as completed by the Workspace Upgrade Worker agent. The possible values in this column are the same as for the workspace upgrade. This field is empty if you don't have Processing installed.
- **Current Store Version** - the version of Invariant you are upgrading to.

2.2 8.x to 9.4 Relativity updates

Learn more about the changes to your Relativity 8.x environment after you upgrade to Relativity 9.4.

8.x to 9.4 Relativity updates

- Agents on the next page
- Agent service
- Analytics 9.4 upgrade on the next page
- Applications on page 30
- Authentication on page 15
- Conversion
- Data Grid on page 30
- Database schema
- Document table trigger removal on page 32
- Foreign key removal on page 32
- IIS on page 32
- Imaging profiles on page 33
- Imaging sets on page 34
- Installation of a certificate on the database server on page 34
- Invariant
- New UI framework on page 35
- Performance baselines and recommendations on page 35
- Processing on page 35
- Production on page 37
- Relativity service bus on page 37
Agents
With the introduction of the new viewer, the following agents have been removed in Relativity 9.4:

- Imaging set manager
- Imaging worker

The work of processing, document conversion, imaging set, image-on-the-fly, and mass imaging jobs are performed by workers, which you can add in the Servers tab. For more information, see the Servers section of the Relativity Admin Guide.

2.2.1 Agent service
All Windows services now have Recovery Properties. If the Agent service should ever crash due to an unhandled exception, it recovers and immediately restarts.

Analytics 9.4 upgrade
When you run the Relativity Analytics Server Setup wizard, the wizard automatically:

- Installs the CAAT service
- Deploys the Relativity ODA LLC library files
- Configures the java heap size (set by default to half of RAM)
- Allows you to set an index path on new install, thus eliminating the need to manually set the location of indexes
- Sets the CAAT Windows service to log in as the Relativity Service Account
For more information, see Upgrade or installing your Analytics server on page 96.

Updating the default SSL/TLS certificate for the Content Analyst
You must update the default SSL/TLS certificate on your Analytics server because Relativity requires a certificate signed by a trusted certificate authority (CA). By default, the CAAT service runs over an untrusted SSL/TLS certificate. For more information, see Post-upgrade: Upgrading or installing your Analytics server on page 104.

2.2.1.1 Updating RestUriForCAAT instance setting
As part of upgrading (post-upgrade), you must have a valid URL value entered for the RestUriForCAAT instance setting. This is the FQDN URL to the web server hosting your Kepler services (e.g., https://client.domain.name/Relativity.REST/API).

2.2.2 Applications
The Solution Snapshot application helps you identify compatibility issues with custom applications in your environment so you can resolve them prior to upgrade. Using the Solution Snapshot application, you can view a list of the applications currently installed in your Application Library and review the application owner’s recommendation for upgrade. For more information, see Solution Snapshot on the Relativity documentation site.

2.2.3 Conversion
Beginning in Relativity 9.4, conversion occurs on dedicated conversion agents instead of Invariant workers. You must configure conversion agents to ensure document conversion works properly in Relativity 9.4. For more information, see Configuring your conversion agents.

Data Grid
The following infrastructure items are new to Data grid beginning in Relativity 9.3:

- The new Data Grid Kepler Host agent is responsible for running the Data Grid Kepler Server. This agent is part of the Data Grid Core application and as such is automatically installed when one upgrades to or installs Relativity 9.4. This agent is configured to be limited to only one agent per server.
For more information, see the Relativity Data Grid guide.

- In Relativity 9.4, you no longer need to install the DataGridRESTService on the Analytics server to integrate Relativity Analytics with Relativity Data Grid. If you are upgrading to Relativity 9.4, uninstall the DataGridRESTService from your Analytics server(s). For more information, see Uninstalling the kCura Data Grid service. We also recommend uninstalling the client node from the Analytics server if that server is only dedicated to Analytics in order to free up resources.
The Instance Settings table and corresponding Relativity tab now includes the ServiceHTTPEndPoint and ServiceHTTPEndPointPort instance settings to accommodate the connection between the Kepler service and Data Grid services.

The Instance Settings table and corresponding Relativity tab also includes the AuditDeleteBatchSize and AuditMigrateBatchSize instance settings to specify deletion and migration batch sizes for Data Grid for Audit.

For more information, see the Relativity Data Grid guide

### 2.2.4 Database schema

A number of EDDS and Workspace database tables have been changed, added, or removed to accommodate new functionality in Relativity. For more information, see Database schema updates for Relativity 9.4 in the [Relativity Community](https://community.r2e.com).

### Document table trigger removal

If you're upgrading from Relativity 8.1, note that 8.1 included enhancements that may affect certain areas of your existing environment when you upgrade. Improvements to the database schema make Relativity run faster in 9 than in previous versions. If your environment contains custom-developed functionality that involves the RelationalIndex_X tables or explicitly uses the RI_X columns in the Document tables, then you should refer to the Document table trigger removal documentation.

### Foreign key removal

The following change was made in Relativity 9.4.284.1:

In order to improve the performance and usability of document deletion in Relativity, we've removed the foreign keys from the Document and non-system RDO database tables. This includes artifact, single object, and multi-object table relationships. Doing this resolves the previous issues involved with globally locking the Artifact and other tables for the entire duration of a deletion job, which could be lengthy and could subsequently delay document review. As a result of removing these foreign keys, the delete process will execute without applying a global lock, and thus no longer interrupts document review in Relativity.

There are three classifications of foreign keys, all of which are affected by this change:

- Keys from the object (Document or RDO) table to the Artifact table.
- Keys on the object table that go to a single object field.
- Keys on multi-object relational f-tables. An f-table stores the link between the objects that are connected by a multi-object field in Relativity. In this way, the only columns in an f-table are those that store the Artifact ID's of the objects that are linked to each other by that field.

**Note:** System objects aren't subject to foreign key removal. If the Document object has a foreign key to the Folder object, that foreign key will remain because Folder is a system object.

### 2.2.5 IIS

Beginning in Relativity 9.4.361.1, Relativity Web servers no longer require the HTMLArea Application/Virtual Directory. You can safely remove the HTMLArea Application/Virtual Directory from IIS on all web servers after the upgrade is complete.
Imaging profiles

Existing imaging profiles received updates based on their imaging method when upgrading to Relativity 9.4. If your environment is set up for native imaging, the following changes occur upon upgrade:

- Relativity renames the default imaging profile to Native Default.
- The imaging method is set to Native for all current imaging profiles including Native Default.
- Relativity creates a new Basic Default imaging profile with the following settings:
  - Imaging Method: Basic
  - Basic Image Output Quality (DPI): 300
  - Basic Image Format: TIFF
  - Basic Image Height: Original Setting
- For any imaging set with it an imaging method set to Basic, the following changes occur:
  - The imaging profile the imaging set was linked to is copied.
  - Relativity sets the copied profile’s imaging method is set to Basic.
  - The copied profile is prepended with Basic to the profile name.

If your environment is not set up for native imaging, the following changes occur upon upgrade:

- Relativity renames the default imaging profile to Basic Default.
- The imaging method is set to Basic for all current imaging profiles including Basic Default.
### 2.2.6 Imaging sets

If you upgrade to Relativity 9.4 and your environment contains imaging sets with errors, the Retry errors button on the Imaging Set console is disabled, and you won’t be able to retry those errors in Relativity 9.4. You will, however, be able to re-run the imaging set that contains the errors after you upgrade to Relativity 9.4.

For more information, see the Imaging section of the Relativity Admin Guide.

### 2.2.7 Installation of a certificate on the database server

A certificate called RelativityIdentityCertificate is added to the EDDS database on your primary database during a first time installation or an upgrade. The authentication framework uses the thumbprint of the certificate to sign identity tokens, which are JSON web tokens (JWTs). The IdentityCertificateThumbprint instance setting stores the thumbprint associated with your certificate. For more information, see Instance setting values on the Relativity 9.4 Documentation site.

You also have the option to use your own authentication token-signing certificate. For more information, see Optionally configure an authentication token-signing certificate on the Pre-installation page in the Relativity 9.4 Documentation site.

For a clustered environment, you need to export a copy of your RelativityIdentityCertificate from the primary database server, and install the certificate to each database server hosting the EDDS. See the following instructions for more information:

- Optionally configure an authentication token-signing certificate on the Pre-installation page in the Relativity 9.4 Documentation site - These instructions describe the process for configuring your own custom token-signing certificate, but you can follow these basic steps to install RelativityIdentityCertificate to each database server in a distributed environment.

### 2.2.8 Invariant

Beginning in Relativity 9.4.378.21, you can configure the number of concurrent threads dedicated to OCR, which can mitigate CPU bottlenecks. This is possible through the following changes:

- The MaxConversionThreads column has been removed from the Invariant.dbo.Workstations table, as it was longer in use since conversion became a separate service.
- The Invariant.dbo.Workstations table now includes a MaxOcrThreads column, which stores the number of concurrent threads that are allowed to perform an OCR job at a single time. A value of “0” means unlimited, and any other value limits to that number. The default and recommended value is 0. You should only change this value if the Worker CPU is at 100%, and a performance degradation during text extraction.

Beginning in Relativity 9.4.398.62, the following changes were made to the Invariant installation process:

- The Invariant.DBUodater.exe upgrades both the main Invariant database and RPC stores. It also handles Relativity stores by setting the stores to Pending, which tells the Workspace Upgrade Worker agent to pick them up and execute scripts on them. It also produces a detailed XML log file, which gets created in the install directory and provides information on what happened during the database upgrade.
The IDENTITYSERVERURL setting is new in the Invariant response file. This is where you enter the identity server of the environment used for RPC authentication.

Beginning in Relativity 9.4.284.1, you have the option of configuring Invariant to connect to a SQL server on a non-default port. You can do this by configuring the following new parameters on the Invariant response file:

- RELATIVITYSQLINSTANCEPORT - the SQL port number for the Relativity SQL server.
- SQLINSTANCEPORT - the SQL port number for the Invariant SQL server.

For more information, see the Processing installation guide.

2.2.9 New UI framework

Relativity 9.4 introduces a new UI framework, which is now turned on by default. If you need to disable the new UI framework for the Document list, click Switch to Classic UI from the user drop-down within a workspace. For help using the classic interface, refer to the 9.3 documentation which documents both interfaces side-by-side. For more information, see Navigation in the Admin guide.

When using the new UI framework, the following Relativity features have been enhanced:

- Cluster visualization
- Dashboards
- Document list and tabs throughout Relativity
- Pivot
- Sampling
- Search panel and search browser

Performance baselines and recommendations

For Relativity 9.4 Pre-release, performance testing is not yet complete. All performance metrics will be available by full release on November 23, 2015.

2.2.10 Processing

Beginning in Relativity 9.4, the following processing changes may impact your upgrade experience:

- When you change the URL for the queue manager, you’re required to perform an IIS reset on the Relativity server in order to clear the cache.
- You no longer map processing fields through the processing profile. You now map through a new Source field on the Field layout, which takes you to a catalog containing the most common fields that are discovered during processing. Note the following details regarding this change:
  - Relativity 9.4 provides 46 new processing fields, in addition to the 81 fields previously provided, bringing the total number of fields that are available to map to 127.
  - The processing profile no longer contains the Processing Fields associative object list view.
  - If you don’t install the Processing application, Relativity still allows you to map fields as long as you’ve added the worker manager server to the resource pool.
When you upgrade to 9.4, Relativity transfers any fields mapped in the processing profile named "Default" to the field mapping table. If the name of the original Default profile has been changed, that profile is still used. If you haven't mapped any fields on the Default profile in 9.3, and one or more other profiles do have fields mapped, Relativity doesn't automatically transfer fields when you upgrade to 9.4.

- You can now install Microsoft Office 2013 on your worker servers; however, due to a performance degradation in text extraction when using Office 2013, we recommend that you continue to use Office 2010 with Relativity 9.4.

- When upgrading to Relativity 9.4, you need to manually install the 2013 Visual C++ Redistributable Package for Visual Studio x86 and x64 on all worker servers prior to running the Invariant installation file for the upgrade. These packages are automatically installed during a first time Invariant installation.

- The WebAPI setting in IIS is now set to Anonymous Authentication by default and is no longer set to Windows Authentication. You must keep this set to Anonymous Authentication in order to publish documents to a workspace using the worker manager server.

Beginning in Relativity 9.4.254.2, processing to Data Grid no longer requires the RabbitMQ server. To remove RabbitMQ from your Relativity environment, see Removing RabbitMQ.

The following infrastructure items are new to processing in Relativity 9.3:

- Processing now uses Invariant 4.3.

- The WebAPI setting in IIS is now set to Anonymous Authentication by default and is no longer set to Windows Authentication. You must keep this set to Anonymous Authentication in order to publish documents to a workspace using the worker manager server.

For users who haven't upgraded their Relativity version since the general release of Relativity 9.2, note that, beginning in Relativity 9.2.237.3 (the product update released on 6/24/2015), Invariant servers require .NET Framework 4.5.1.
You will now use an installation file to install the worker manager server instead of the install wizard you previously used. For more information, see the Worker Manager Server Installation Guide.

**Production**
The following changes occur to existing productions on upgrade:

- On upgrade to Relativity 9.4 the Relativity.Core agents for production and branding are upgraded to ADS Deployed agents. The Relativity.Core agents for production and branding are not available in a 9.3+ environment.

- Any staged or errored productions in an environment are set to a status of New and you must restage the production before running.

- If any produced productions contain native files with their Bates numbers previously stored in the Document table, the Bates numbers for the native files are moved to the Production object, and may not reflect actual Bates values if those values were overwritten.

- The Production Error field no longer exists on the Production object.

- Production sets you ran before upgrading to Relativity 9.4 aren't available to select for merging with new production sets when you select the new Existing production numbering choice. Any custom production work-arounds break upon upgrade. For more information on new productions functionality, see the Admin guide.

- Users with full permissions to the Production object prior to upgrading to Relativity 9.3 do not automatically gain permissions to the new Production Data Source object, unless they also have the Manage Object Types permission under Admin Operations. Users need rights to the new Production Data Source object to add or edit production data sources after upgrading to Relativity 9.3+.

- Any preexisting production fields are converted to a production data source upon upgrade.

- If you are updating your Production application to a version of Relativity 9.3 previous to Version, the upgrade can fail if you update the Binders application before it. Update the production application first or upgrade to Version.

- If you upgrade from Relativity 9.2 to Relativity 9.4 and you were previously using the Production Tracker application, review the Production Tracker 9.4 considerations PDF in the Relativity Community.

**2.2.11 Relativity service bus**
The Relativity 9.4 infrastructure now includes a new component called the Relativity service bus. This component uses Service Bus for Windows Service as its underlying framework. Before you upgrade Relativity, you must now install Service Bus for Windows Server on a server or VM that is accessible throughout your Relativity instance. You must then configure a Service Bus for Windows Server farm in your environment. For information about prerequisites, see Service Bus for Windows Server in the Pre-Installation guide.

After installing Service Bus for Windows Server, you can upgrade your primary SQL Server. You can then install the Relativity service bus by running the upgrade installer on the machine where you installed Service Bus for Windows Server. Finally, follow the standard instructions for upgrading other Relativity components. For more information, see the Relativity Service Bus guide.
2.2.12 Required certificates for Relativity

Relativity 9.4 now verifies that all HTTPS services running in your environment have a trusted certificate. You may need to install additional certificates to components of your Relativity installation running HTTPS services to avoid error messages and insecure-connection icons. For more information, see the Pre-installation Guide.

2.2.13 Scripts

Beginning in Relativity 9.4.398.62 creating or editing scripts is controlled by the AllowAddOrEditScripts instance setting. You must enable this instance setting to give users the ability to create or edit scripts within a workspace. For more information, see AllowAddOrEditScripts in the instance setting guide.

Servers

There are a number of new server types installed automatically with Relativity 9.4:

- **Worker manager server** - this uses workers to perform imaging, conversion, and all phases of processing, including inventory, discovery, and publish. This is a required component of Relativity 9.4. If you are not licensed for processing, then the worker manager server only handles document conversion and imaging. For more information, see Worker manager server installation documentation.

- **Worker** - this is the machine a worker manager server uses to complete imaging, document conversion, and processing jobs. Workers are designed to centralize and streamline some of the jobs that used to be performed exclusively by agents. When you add a worker manager server to your Relativity environment, you specify the workers that you want that worker manager server to govern. Thus, it’s impossible to add workers without adding a worker manager server. For more information, see the Servers section of the Relativity Admin Guide.

- **Cache location server** - this temporarily stores natives, images, productions, and other file types the viewer uses. Add cache location servers to the resource pools that are associated with workspaces. You must provide a valid UNC path for the location of your cache. For more information, see the Servers section of the Relativity Admin Guide.

2.2.14 Service Host Manager HTTPS configuration

Service Host Manager runs Relativity services on all web and agent servers in your environment. The services are used by applications like Production and Processing on. If your web and agent servers must be set up for HTTPS access, special setup is required for Service Host Manager.

For more information, see Service Host Manager on the Relativity 9.4 Documentation site.

Structured Analytics

If upgrading to Relativity 9.4 from a version prior to 8.2, Relativity automatically updates the Minimum similarity percentage value for Structured Analytics textual near duplicate identification to the new minimum value of 80 if it is currently set between 70-79. See Creating a structured analytics set in the Analytics Guide.
2.2.15 System requirements

- Upon upgrade to Relativity 9.4, Windows Server 2008 R2 (64-bit) is no longer compatible with 9.4. Relativity 9.4 is only compatible with Windows Server 2008 R2 (64-bit) w Service Pack 1.

- As of August 31, 2017, we no longer support Internet Explore (IE) 10. Please upgrade to a compatible version of IE 11.

2.2.16 Telemetry

After you install Relativity 9.4, complete the steps to enable telemetry in your environment. Telemetry is used to collect metrics for performance, usage, and billing. For more information, see Telemetry on the Relativity 9.4 Documentation site.

Beginning in version 9.4.398.62, failure to transmit telemetry billing data to kCura causes Relativity access to be disabled after seven (7) days. Telemetry lockout is similar to Case Statistics Manager lockout.

Viewer

The document viewer has been dramatically improved and you are no longer required to download or install any browser plug-ins in order to review documents in this new viewer. In addition, there are some functionality enhancements available in the new viewer. For more information, see the Viewer section of the Relativity Admin Guide.

You can still revert back to the Active X viewer that was available in versions prior to Relativity 9.4. You can enable this either per environment or per user. To use the ActiveX viewer in Relativity 9.3 you must have Microsoft .NET 4.5.1 runtime installed on the client machine.

Beginning in Relativity 9.4.254.2 you must download and install the latest version of the Viewer Installation Kit. For more information, see Legacy viewer installation in the workstation configuration guide.

2.2.17 Workers

Beginning in Relativity 9.4.361.1, the Conversion Threads in Use column no longer appears on the Worker Status tab. Additionally, on the worker server page, you can no longer designate a worker for conversion work. To configure your environment for conversion, see Configuring your conversion agents.

2.2.18 Worker manager server

Beginning in Relativity 9.4 document conversion no longer occurs on the worker manager server. You cannot modify the priority of the following conversion jobs on the worker manager server: Pre-convert, Conversion on-the-fly, Mass Conversion, and Conversion. Instead, you must install Service Bus for Windows Server and configure conversion agents. For more information, see Configuring your conversion agents on page 61.

Beginning in Relativity 9.4.361.1 the Worker manager page no longer displays the following conversion fields: pre-convert, conversion on-the-fly, mass conversion, and conversion.

Workspace Upgrade Queue

Beginning in Relativity 9.4.398.62, the Workspace Upgrade Queue includes the following new columns:

- **Store Upgrade Status** - the status of the upgrade of the Invariant store, as completed by the Workspace Upgrade Worker agent. The possible values in this column are the same as for the
workspace upgrade. This field is empty if you don't have Processing installed.

- **Current Store Version** - the version of Invariant you are upgrading to.

## Workspaces

In Relativity 9.4, workspaces include a new required field called Default Cache Location. The default cache location is a UNC path to the location on your network where the natives, images, productions, and other file types used by the viewer are temporarily stored. You can select any one of the cache locations included in the resource pool chosen for the workspace. For more information, see the Workspaces section of the Relativity Admin Guide.

### 2.2.19 Windows or Integrated Windows authentication

If your Relativity installation currently uses Windows authentication or Integrated Windows authentication, you must set the `UseWindowsAuthentication` instance setting to True after upgrading your environment. For more information, see the Instance setting guide on the Relativity 9.4 Documentation site.

You may want to configure your environment so that some servers use Windows authentication, while others don't use it. In this case, you need to add another row for this instance setting to the Instance setting table, update the machine name in this new row, and then set the value to True or False based on the Windows authentication requirements for the server.

In addition, you can set the `WindowsAuthIpRange` instance setting, which specifies a group of IP addresses that Relativity uses to validate the address of the user during login. If a request originates from an IP address added to the `WindowsAuthIpRange` instance setting, the server uses Windows Authentication to log the user in to Relativity. Relativity uses forms authentication to log in the user, when the IP address is outside the specified range. For more information, see Instance settings on the Relativity 9.4 Documentation site.

## 2.3 7.x to 9.4 Relativity updates

Learn more about the changes to your Relativity 7.x environment after you upgrade to Relativity 9.4. This section also includes post-upgrade processes you'll need to follow.

7.x to 9.4 Relativity updates

- **Agent service**
- **Analytics on the next page**
- **Applications on page 42**
- **Authentication on page 15**
- **Conversion**
- **Database schema**
- **dtSearch index considerations on page 43**
- **Foreign key removal on page 44**
- **IIS on page 45**
- **Imaging profiles on page 44**
- **Installation of a certificate on the database server on page 45**
2.3.1 Agent service
All Windows services now have Recovery Properties. If the Agent service should ever crash due to an unhandled exception, it recovers and immediately restarts.

Analytics
Relativity 9.3 includes a Textual Near Duplicate Identification algorithm with the following benefits:

- The new algorithm can greatly improve performance for both large and complex data sets.
- With the new algorithm you can scale your Analytics server by adding CPU cores and RAM in order to achieve faster performance.

Prior to Relativity 9.3, scaling environments did not impact performance. Without scaling past 8 cores, you should experience performance comparable to pre-9.3 on most data sets. The Textual Near Duplicate Identification algorithm in Relativity 9.3 uses different, more efficient methods to obtain similar results. However, results may differ slightly from pre-9.3 results if a Full Analysis is run against a preexisting structured analytics set. If you need preexisting results use an Incremental Analysis instead. The incremental analysis keeps the pre-9.3 results for all preexisting documents, but the newly added documents use the new algorithm to match with existing groups.

Note the following when upgrading to Relativity 9.4:
In the Relativity Applications Library, the Analytics application contains the structured data analytics functionality, and the **Analytics Core** application contains Analytics profiles, repeated content filters, and Analytics categorization sets.

**Note:** On upgrade to Relativity 9.4, you can choose whether or not to include the Analytics application (structured data analytics). The Analytics Core application deploys automatically.

- Beginning in Relativity 8, Primary Language Identification (PLI) is no longer supported. As a result, you don’t have to import PLI data into Relativity or set up a search index or categorization set to use PLI anymore. Instead, you can use the language identification operation when creating a Structured Data Analytics set.

- Content Analyst 3.14 is required to use Analytics in Relativity 9.4.

See the Analytics Guide for more information on Language Identification.

### Upgrading/installing Relativity Analytics 9.4

An Analytics server install or upgrade is required for Relativity 9.4. To install Relativity Analytics 9.4, you must run the Relativity Analytics Server Setup wizard after installing or upgrading your Relativity instance. When you run the Relativity Analytics Server Setup wizard, the wizard automatically:

- Installs the CAAT service
- Deploys the Relativity ODA LLC library files
- Configures the java heap size (set by default to half of RAM)
- Allows you to set an index path on new install, thus eliminating the need to manually set the location of indexes
- Sets the CAAT Windows service to log in as the Relativity Service Account

### Updating the default SSL/TLS certificate for the Content Analyst

You must update the default SSL/TLS certificate on your Analytics server because Relativity requires a certificate signed by a trusted certificate authority (CA). By default, the CAAT service runs over an untrusted SSL/TLS certificate. For more information, see [Post-upgrade: Updating the default SSL/TLS certificate for CAAT® on page 104](#).

#### 2.3.1.1 Updating RestUriForCAAT instance setting

As part of upgrading (post-upgrade), you must have a valid URL value entered for the RestUriForCAAT instance setting. This is the FQDN URL to the web server hosting your Kepler services (e.g., [https://client.domain.name/Relativity.REST/API](https://client.domain.name/Relativity.REST/API)).

### 2.3.2 Applications

The Solution Snapshot application helps you identify compatibility issues with custom applications in your environment so you can resolve them prior to upgrade. Using the Solution Snapshot application, you can view a list of the applications currently installed in your Application Library and review the application owner’s recommendation for upgrade. For more information, see Solution Snapshot on the Relativity documentation site.
2.3.3 Conversion
Beginning in Relativity 9.4, conversion occurs on dedicated conversion agents instead of Invariant workers. You must configure conversion agents to ensure document conversion works properly in Relativity 9.4. For more information, see Configuring your conversion agents.

2.3.4 Database schema
A number of EDDS and Workspace database tables have been changed, added, or removed to accommodate new functionality in Relativity. For more information, see Database schema updates for Relativity 9.4 in the Relativity Community.

dtSearch index considerations
There is a new paradigm to configuring and building dtSearch indexes. Keep these items in mind about your indexes after you upgrade:

- For indexes built in Relativity 5.9 or below, you must perform a Full Build for them to work normally.
- Any active indexes built in Relativity 6.2 or above continue work normally.
- After upgrading, you must initially perform a full build of a dtSearch index before you are able to run incremental builds. You can then perform incremental builds, which follow the new paradigm.
- For indexes that are in progress or in an error state when you upgrade, you must perform a Full Build.
- Indexes with document level errors continue to work normally.

Adding dtSearches as choices to resource pools
When upgrading from Relativity 7.x, you need to create a choices with paths to your dtSearch repositories, and then add these choices to the appropriate resource pools.

Use the following procedure to add dtSearches to resource pools:

1. Log in to Relativity.
2. From Home, click the Choices tab.
3. Click New Choice.
4. In the Field option, select dtSearch Index Share Location.
5. In the Name option, enter the UNC path to the dtSearch repository that is shared with the Relativity Services Account. The share must give this account read and write permissions.
6. Click Save.
7. Click the Resource Pools tab.
8. Click on the name of the resource pool where you want to add the dtSearch choice.
9. On the details view, locate the dtSearch Index Share Locations section.
10. Click Add to display the Select dtSearch Index Share Locations dialog.
11. Select the checkbox for your dtSearch Index Share Location and click OK. The details view now displays this share location in the dtSearch Index Share Locations section.

Foreign key removal

The following change was made in Relativity 9.4.284.1:

In order to improve the performance and usability of document deletion in Relativity, we’ve removed the foreign keys from the Document and non-system RDO database tables. This includes artifact, single object, and multi-object table relationships. Doing this resolves the previous issues involved with globally locking the Artifact and other tables for the entire duration of a deletion job, which could be lengthy and could subsequently delay document review. As a result of removing these foreign keys, the delete process will execute without applying a global lock, and thus no longer interrupts document review in Relativity.

There are three classifications of foreign keys, all of which are affected by this change:

- Keys from the object (Document or RDO) table to the Artifact table.
- Keys on the object table that go to a single object field.
- Keys on multi-object relational f-tables. An f-table stores the link between the objects that are connected by a multi-object field in Relativity. In this way, the only columns in an f-table are those that store the Artifact ID’s of the objects that are linked to each other by that field.

**Note:** System objects aren't subject to foreign key removal. If the Document object has a foreign key to the Folder object, that foreign key will remain because Folder is a system object.

Imaging profiles

Existing imaging profiles received updates based on their imaging method when upgrading to Relativity 9.4.

If your environment is set up for native imaging, the following changes occur upon upgrade:

- Relativity renames the default imaging profile to Native Default.
- The imaging method is set to Native for all current imaging profiles including Native Default.
- Relativity creates a new Basic Default imaging profile with the following settings:
  - **Imaging Method:** Basic
  - **Basic Image Output Quality (DPI):** 300
  - **Basic Image Format:** TIFF
  - **Basic Image Height:** Original Setting
- For any imaging set with it an imaging method set to Basic, the following changes occur:
  - The imaging profile the imaging set was linked to is copied.
  - Relativity sets the copied profile’s imaging method is set to Basic.
  - The copied profile is prepended with Basic to the profile name.

If your environment is not set up for native imaging, the following changes occur upon upgrade:
- Relativity renames the default imaging profile to Basic Default.
- The imaging method is set to Basic for all current imaging profiles including Basic Default.

### 2.3.5 Installation of a certificate on the database server

A certificate called RelativityIdentityCertificate is added to the EDDS database on your primary database during a first time installation or an upgrade. The authentication framework uses the thumbprint of the certificate to sign identity tokens, which are JSON web tokens (JWTs). The IdentityCertificateThumbprint instance setting stores the thumbprint associated with your certificate. For more information, see Instance setting values on the Relativity 9.4 Documentation site.

You also have the option to use your own authentication token-signing certificate. For more information, see Optionally configure an authentication token-signing certificate on the Pre-installation page in the Relativity 9.4 Documentation site.

For a clustered environment, you need to export a copy of your RelativityIdentityCertificate from the primary database server, and install the certificate to each database server hosting the EDDS. See the following instructions for more information:

- Optionally configure an authentication token-signing certificate on the Pre-installation page in the Relativity 9.4 Documentation site - These instructions describe the process for configuring your own custom token-signing certificate, but you can follow these basic steps to install RelativityIdentityCertificate to each database server in a distributed environment.

### 2.3.6 IIS

Beginning in Relativity 9.4.361.1, Relativity Web servers no longer require the HTMLArea Application/Virtual Directory. You can safely remove the HTMLArea Application/Virtual Directory from IIS on all web servers after the upgrade is complete.
Invariant
Beginning in Relativity 9.4.378.21, you can configure the number of concurrent threads dedicated to OCR, which can mitigate CPU bottlenecks. This is possible through the following changes:

- The MaxConversionThreads column has been removed from the Invariant.dbo.Workstations table, as it was longer in use since conversion became a separate service.
- The Invariant.dbo.Workstations table now includes a MaxOcrThreads column, which stores the number of concurrent threads that are allowed to perform an OCR job at a single time. A value of “0” means unlimited, and any other value limits to that number. The default and recommended value is 0. You should only change this value if the Worker CPU is at 100%, and a performance degradation during text extraction.

License Relativity and Processing
As part of the upgrade to Relativity 9.4, you need to apply a new Relativity and optional Processing license to your installation.

Relativity installations only
If you aren’t using Processing in your Relativity installation, run the Relativity Database Upgrader on all databases, then request a new Relativity license key from Relativity Client Services, and apply the activation key. For more information, see the Relativity Licensing guide.
Relativity installations with Processing
If you are running Processing as part of your Relativity installation, complete the following steps to upgrade your licenses:

1. Run the Relativity installer on the Primary SQL Server as described in Upgrade your primary SQL Server on page 64.
2. Run the Relativity Database Upgrader only on the master (EDDS) database. See .
3. Request a new Relativity license key from Relativity Client Services, and apply the activation key. For more information, see the Relativity Licensing guide.
4. Request a new Processing license key from Relativity Client Services, and apply the activation key.

Note: You must apply the new Processing license before running the Relativity Database Upgrader. If you don’t complete this step, the Relativity Database Upgrader can’t upgrade your Processing application.
5. Run the Relativity Database Upgrader on your workspace databases.

2.3.7 New UI framework
Relativity 9.4 introduces a new UI framework, which is now turned on by default. If you need to disable the new UI framework for the Document list, click Switch to Classic UI from the user drop-down within a workspace. For help using the classic interface, refer to the 9.3 documentation which documents both interfaces side-by-side. For more information, see Navigation in the Admin guide.

When using the new UI framework, the following Relativity features have been enhanced:

- Cluster visualization
- Dashboards
- Document list and tabs throughout Relativity
- Pivot
- Sampling
- Search panel and search browser

Processing upgrade notes
Beginning in Relativity 9.4, the following processing changes may impact your upgrade experience:

- When you change the URL for the queue manager, you’re required to perform an IIS reset on the Relativity server in order to clear the cache.
- You no longer map processing fields through the processing profile. You now map through a new Source field on the Field layout, which takes you to a catalog containing the most common fields that are discovered during processing. Note the following details regarding this change:
  - Relativity 9.4 provides 46 new processing fields, in addition to the 81 fields previously provided, bringing the total number of fields that are available to map to 127.
  - The processing profile no longer contains the Processing Fields associative object list view.
- If you don't install the Processing application, Relativity still allows you to map fields as long as you've added the worker manager server to the resource pool.

- When you upgrade to 9.4, Relativity transfers any fields mapped in the processing profile named "Default" to the field mapping table. If the name of the original Default profile has been changed, that profile is still used. If you haven't mapped any fields on the Default profile in 9.3, and one or more other profiles do have fields mapped, Relativity doesn't automatically transfer fields when you upgrade to 9.4.

- You can now install Microsoft Office 2013 on your worker servers; however, due to a performance degradation in text extraction when using Office 2013, we recommend that you continue to use Office 2010 with Relativity 9.4.

- When upgrading to Relativity 9.4, you need to manually install the 2013 Visual C++ Redistributable Package for Visual Studio x86 and x64 on all worker servers prior to running the Invariant installation file for the upgrade. These packages are automatically installed during a first time Invariant installation.

- The WebAPI setting in IIS is now set to Anonymous Authentication by default and is no longer set to Windows Authentication. You must keep this set to Anonymous Authentication in order to publish documents to a workspace using the worker manager server.

Beginning in Relativity 9.4.254.2, processing to Data Grid no longer requires the RabbitMQ server. To remove RabbitMQ from your Relativity environment, see Removing RabbitMQ.

When upgrading the Processing application from 7.5 to Relativity 9.4, we strongly recommend that you first complete any outstanding processing sets in 7.5 before upgrading. However, note the following if you perform an upgrade and outstanding processing sets exist in 7.5:

- All documents published in 7.5 will retain the 7.5 document numbering format of nine digits.

- All documents published or republished in Relativity 9.4 will have the new 10 digit document numbering format. This new format extends to the Attachment Document ID, Parent Document ID, and Group ID fields.

- Documents republished in Relativity 9.4 could potentially be duplicated with the new document numbering format.

- Reference fields such as the Attachment Document ID, Parent Document ID, and Group ID on documents republished in Relativity 8 may not accurately reference the correct documents.

Specific versions of Invariant are exclusively compatible with specific versions of Relativity. For this reason, don't attempt to upgrade Invariant independent of Relativity, as doing so will result in significant issues. For example, don't upgrade from Invariant 3.3, which is supported by Relativity 8.2, to Invariant 4.0 without also upgrading to Relativity 9.0. The following table breaks down which versions of Invariant are supported by which versions of Relativity:

<table>
<thead>
<tr>
<th>Invariant version</th>
<th>Relativity version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invariant 3.0</td>
<td>Relativity 7.5</td>
</tr>
<tr>
<td>Invariant 3.1</td>
<td>Relativity 8.0</td>
</tr>
<tr>
<td>Invariant 3.2</td>
<td>Relativity 8.1</td>
</tr>
</tbody>
</table>
### Production

The following changes occur to existing productions on upgrade:

- **On upgrade to Relativity 9.4** the Relativity.Core agents for production and branding are upgraded to ADS Deployed agents. The Relativity.Core agents for production and branding are not available in a 9.3+ environment.

- Any staged or errored productions in an environment are set to a status of New and you must restage the production before running.

- If any produced productions contain native files with their Bates numbers previously stored in the Document table, the Bates numbers for the native files are moved to the Production object, and may not reflect actual Bates values if those values were overwritten.

- The Production Error field no longer exists on the Production object.

- Production sets you ran before upgrading to Relativity 9.4 aren't available to select for merging with new production sets when you select the new Existing production numbering choice. Any custom production work-arounds break upon upgrade. For more information on new productions functionality, see the Admin guide.

- Users with full permissions to the Production object prior to upgrading to Relativity 9.3 do not automatically gain permissions to the new Production Data Source object, unless they also have the Manage Object Types permission under Admin Operations. Users need rights to the new Production Data Source object to add or edit production data sources after upgrading to Relativity 9.3+.

- Any preexisting production fields are converted to a production data source upon upgrade.

- If you upgrade from Relativity 7.x to Relativity 9.4 and you were previously using the Production Tracker application, review the Production Tracker 9.4 considerations PDF in the Relativity Community.

### RAR upgrade notes

You can upgrade an Assisted Review project while review is in progress for a round or between rounds. No work is required to ensure that Assisted Review operates properly in Relativity 9.4 before or after you upgrade Assisted Review from Relativity 7.5; however, it may be helpful to note the following tasks that Relativity automatically completes when you upgrade Assisted Review. Relativity:

- Gives old rounds a round type value of 7.5.
- Creates an Assisted Review saved searches folder if it didn't already exist.
- Creates a project-specific saved searches folder.
- Copies the project saved search to the new folder and creates four saved searches if categorization has already occurred.
- Sets all issues to a Medium Importance level.
- Replaces the Net Change graph in the Round Summary with Volatility. Note that it will take several rounds to generate volatility information; for example, if you upgrade prior to starting the fourth round, volatility displays in the report after you finish the fifth round.

**Note:** When upgrading from version 7.5 to 9, every project that is currently active (in the middle of a round) will receive an error until you set the positive choice for designation.

### 2.3.8 Relativity service bus

The Relativity 9.4 infrastructure now includes a new component called the Relativity service bus. This component uses Service Bus for Windows Service as its underlying framework. Before you upgrade Relativity, you must now install Service Bus for Windows Server on a server or VM that is accessible throughout your Relativity instance. You must then configure a Service Bus for Windows Server farm in your environment. For information about prerequisites, see Service Bus for Windows Server in the Pre-Installation guide.

After installing Service Bus for Windows Server, you can upgrade your primary SQL Server. You can then install the Relativity service bus by running the upgrade installer on the machine where you installed Service Bus for Windows Server. Finally, follow the standard instructions for upgrading other Relativity components. For more information, see the Relativity Service Bus guide.

### 2.3.9 Required certificates for Relativity

Relativity 9.4 now verifies that all HTTPS services running in your environment have a trusted certificate. You may need to install additional certificates to components of your Relativity installation running HTTPS services to avoid error messages and insecure-connection icons. For more information, see the Pre-installation Guide.

**Viewer**

Relativity 9.4 uses Oracle Outside In version 8.4.0. When you upgrade to Relativity 9.4, you can install the new version of the viewer using the steps described in the Workspace Configuration guide. Previous versions of the viewer aren’t upgraded, but you can run two versions of the viewer concurrently, so there’s no need to uninstall previous versions.

### 2.3.10 Scripts

Beginning in 9.4.398.62 creating or editing scripts is controlled by the AllowAddOrEditScripts instance setting. You must enable this instance setting to give users the ability to create or edit scripts within a workspace. For more information, see AllowAddOrEditScripts in the instance settings guide.

### 2.3.11 System requirements

- Upon upgrade to Relativity 9.4, Windows Server 2008 R2 (64-bit) is no longer compatible with 9.4. Relativity 9.4 is only compatible with Windows Server 2008 R2 (64-bit) w Service Pack 1.
As of August 31, 2017, we no longer support Internet Explore (IE) 10. Please upgrade to a compatible version of IE 11.

2.3.12 Viewer (ActiveX)

To use the ActiveX viewer in Relativity 9.4 you must have Microsoft .NET 4.5.1 runtime installed on the client machine.

Beginning in Relativity 9.4.254.2 you must download and install the latest version of the Viewer Installation Kit. For more information, see Legacy viewer installation in the workstation configuration guide.

2.3.13 Configure the viewer drawing delay

If you anticipate multiple users using the same machine at the same time to perform a review, you can use a registry value to establish a drawing delay in the image viewer. This is only recommended when the standard refresh rate causes CPU utilization issues, which should only occur in a Citrix environment.

This value represents the number of milliseconds between calls to redraw the screen. In previous versions of Relativity, the image viewer behaved as though this value were set to 250. Increasing this value will reduce CPU usage when creating and/or modifying redactions and highlights, but it will also result in a choppier experience.

Changes to this value are not reflected in real-time, so you'll have to reload the image viewer for changes to take effect.

To configure the drawing delay, perform the following steps:

1. Click the Start button and type regedit in the search box, then click Enter.
2. Navigate to the appropriate location:
   - If you're using a 64-bit OS, navigate to HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\kCura\ImageViewer
   - If you're using a 32-bit OS, navigate to HKEY_LOCAL_MACHINE\SOFTWARE\kCura\ImageViewer

   **Note:** If this is your first time using this feature, the ImageViewer registry key won't exist and you'll have to create it. To create this new key, right-click the kCura folder and hover over New, then click Key.

3. Right-click the ImageViewer folder and hover over New, then click DWORD (32-bit) Value.
4. Double-click the new value to open the Edit DWORD (32-bit) Value popup.
5. In the Value name field, enter DrawingDelay.
6. In the Value data field, enter the appropriate value for your environment.

**Upgrade custom applications or code**

If your environment uses custom applications or code, you may also need to upgrade event handlers, and other components. For additional upgrade information, see the Relativity Developers site.
2.3.14 Windows or Integrated Windows authentication

If your Relativity installation currently uses Windows authentication or Integrated Windows authentication, you must set the UseWindowsAuthentication instance setting to True after upgrading your environment. For more information, see the Instance setting guide on the Relativity 9.4 Documentation site.

You may want to configure your environment so that some servers use Windows authentication, while others don’t use it. In this case, you need to add another row for this instance setting to the Instance setting table, update the machine name in this new row, and then set the value to True or False based on the Windows authentication requirements for the server.

In addition, you can set the WindowsAuthIpRange instance setting, which specifies a group of IP addresses that Relativity uses to validate the address of the user during login. If a request originates from an IP address added to the WindowsAuthIpRange instance setting, the server uses Windows Authentication to log the user in to Relativity. Relativity uses forms authentication to log in the user, when the IP address is outside the specified range. For more information, see Instance settings on the Relativity 9.4 Documentation site.

2.3.15 Workers

Beginning in Relativity 9.4.361.1, the Conversion Threads in Use column no longer appears on the Worker Status tab. Additionally, on the worker server page, you can no longer designate a worker for conversion work. To configure your environment for conversion, see Configuring your conversion agents.

2.3.16 Worker manager server

Beginning in Relativity 9.4 document conversion no longer occurs on the worker manager server. You cannot modify the priority of the following conversion jobs on the worker manager server: Pre-convert, Conversion on-the-fly, Mass Conversion, and Conversion. Instead, you must install Service Bus for Windows Server and configure conversion agents. For more information, see Configuring your conversion agents on page 61.

Beginning in Relativity 9.4.361.1 the Worker manager page no longer displays the following conversion fields: pre-convert, conversion on-the-fly, mass conversion, and conversion.

2.4 6.x to 9.4 Relativity updates

Learn more about the changes to your Relativity 6.x environment after you upgrade to Relativity 9.4. This section also includes post-upgrade processes you'll need to follow.

6.x to 9.4 Relativity updates

- Agent service
- Analytics on the next page
- Applications on page 54
- Authentication on page 15
- Conversion
- Database schema
- dtSearch index considerations on page 54
- Document Table Trigger removal considerations on page 55
2.4.1 Agent service

All Windows services now have Recovery Properties. If the Agent service should ever crash due to an unhandled exception, it recovers and immediately restarts.

2.4.2 Analytics

Relativity 9.3 introduces a new Textual Near Duplicate Identification algorithm with the following benefits:

- The new algorithm can greatly improve performance for both large and complex data sets.
- With the new algorithm you can scale your Analytics server by adding CPU cores and RAM in order to achieve faster performance.

Prior to Relativity 9.3, scaling environments did not impact performance. Without scaling past 8 cores, you should experience performance comparable to pre-9.3 on most data sets. The Textual Near Duplicate Identification algorithm in Relativity 9.3 uses different, more efficient methods to obtain similar results. However, results may differ slightly from pre-9.3 results if a Full Analysis is run against a preexisting structured analytics set. If you need preexisting results use an Incremental Analysis instead. The incremental analysis keeps the pre-9.3 results for all preexisting documents, but the newly added documents use the new algorithm to match with existing groups.
Updating the default SSL/TLS certificate for the Content Analyst
You must update the default SSL/TLS certificate on your Analytics server because Relativity requires a certificate signed by a trusted certificate authority (CA). By default, the CAAT service runs over an untrusted SSL/TLS certificate. For more information, see Post-upgrade: Upgrading the default SSL/TLS certificate for CAAT® on page 104.

2.4.2.1 Updating RestUriForCAAT instance setting
As part of upgrading (post-upgrade), you must have a valid URL value entered for the RestUriForCAAT instance setting. This is the FQDN URL to the web server hosting your Kepler services (e.g., https://client.domain.name/Relativity.REST/API).

2.4.2.2 Upgrading/installing Relativity Analytics 9.4
An install or upgrade of Relativity Analytics 9.4 is required for Relativity 9.4. To install Relativity Analytics 9.4, you must run the Relativity Analytics Server Setup wizard after installing or upgrading your Relativity instance.

When you run the Relativity Analytics Server Setup wizard, the wizard automatically:

- Installs the CAAT service
- Deploys the Relativity ODA LLC library files
- Configures the java heap size (set by default to half of RAM)
- Allows you to set an index path on new install, thus eliminating the need to manually set the location of indexes
- Sets the CAAT Windows service to log in as the Relativity Service Account

2.4.3 Applications
The Solution Snapshot application helps you identify compatibility issues with custom applications in your environment so you can resolve them prior to upgrade. Using the Solution Snapshot application, you can view a list of the applications currently installed in your Application Library and review the application owner’s recommendation for upgrade. For more information, see Solution Snapshot on the Relativity documentation site.

2.4.4 Conversion
Beginning in Relativity 9.4, conversion occurs on dedicated conversion agents instead of Invariant workers. You must configure conversion agents to ensure document conversion works properly in Relativity 9.4. For more information, see Configuring your conversion agents.

2.4.5 Database schema
A number of EDDS and Workspace database tables have been changed, added, or removed to accommodate new functionality in Relativity. For more information, see Database schema updates for Relativity 9.4 in the Relativity Community.

dtSearch index considerations
There is a new paradigm to configuring and building dtSearch indexes. Keep these items in mind about your indexes after you upgrade:
For indexes built in Relativity 5.9 or below, you must perform a Full Build for them to work normally.

Any active indexes built in Relativity 6.2 or above continue work normally.

After upgrading, you must initially perform a full build of a dtSearch index before you are able to run incremental builds. You can then perform incremental builds, which follow the new paradigm.

For indexes that are in progress or in an error state when you upgrade, you must perform a Full Build.

Indexes with document level errors continue to work normally.

**Document Table Trigger removal considerations**

Relativity 9.0 includes enhancements that may affect certain areas of your existing environment when you upgrade. Improvements to the database schema make Relativity run faster in 8.1 than in previous versions. If your environment contains custom-developed functionality that involves the RelationalIndex_X tables or explicitly uses the RI_X columns in the Document tables, then you should refer to the Document table trigger removal documentation.

**Foreign key removal**

The following change was made in Relativity 9.4.284.1:

In order to improve the performance and usability of document deletion in Relativity, we’ve removed the foreign keys from the Document and non-system RDO database tables. This includes artifact, single object, and multi-object table relationships. Doing this resolves the previous issues involved with globally locking the Artifact and other tables for the entire duration of a deletion job, which could be lengthy and could subsequently delay document review. As a result of removing these foreign keys, the delete process will execute without applying a global lock, and thus no longer interrupts document review in Relativity.

There are three classifications of foreign keys, all of which are affected by this change:

- Keys from the object (Document or RDO) table to the Artifact table.
- Keys on the object table that go to a single object field.
- Keys on multi-object relational f-tables. An f-table stores the link between the objects that are connected by a multi-object field in Relativity. In this way, the only columns in an f-table are those that store the Artifact ID’s of the objects that are linked to each other by that field.

*Note: System objects aren’t subject to foreign key removal. If the Document object has a foreign key to the Folder object, that foreign key will remain because Folder is a system object.*

**2.4.6 IIS**

Beginning in Relativity 9.4.361.1, Relativity Web servers no longer require the HTMLArea Application/Virtual Directory. You can safely remove the HTMLArea Application/Virtual Directory from IIS on all web servers after the upgrade is complete.
Imaging profiles
Existing imaging profiles received updates based on their imaging method when upgrading to Relativity 9.4.

If your environment is set up for native imaging, the following changes occur upon upgrade:

- Relativity renames the default imaging profile to Native Default.
- The imaging method is set to Native for all current imaging profiles including Native Default.
- Relativity creates a new Basic Default imaging profile with the following settings:
  - **Imaging Method**: Basic
  - **Basic Image Output Quality (DPI)**: 300
  - **Basic Image Format**: TIFF
  - **Basic Image Height**: Original Setting
- For any imaging set with an imaging method set to Basic, the following changes occur:
  - The imaging profile the imaging set was linked to is copied.
  - Relativity sets the copied profile’s imaging method is set to Basic.
  - The copied profile is prepended with Basic to the profile name.

If your environment is not set up for native imaging, the following changes occur upon upgrade:
- Relativity renames the default imaging profile to Basic Default.
- The imaging method is set to Basic for all current imaging profiles including Basic Default.

2.4.7 Installation of a certificate on the database server

A certificate called RelativityIdentityCertificate is added to the EDDS database on your primary database during a first time installation or an upgrade. The authentication framework uses the thumbprint of the certificate to sign identity tokens, which are JSON web tokens (JWTs). The IdentityCertificateThumbprint instance setting stores the thumbprint associated with your certificate. For more information, see Instance setting values on the Relativity 9.4 Documentation site.

You also have the option to use your own authentication token-signing certificate. For more information, see Optionally configure an authentication token-signing certificate on the Pre-installation page in the Relativity 9.4 Documentation site.

For a clustered environment, you need to export a copy of your RelativityIdentityCertificate from the primary database server, and install the certificate to each database server hosting the EDDS. See the following instructions for more information:

- Optionally configure an authentication token-signing certificate on the Pre-installation page in the Relativity 9.4 Documentation site - These instructions describe the process for configuring your own custom token-signing certificate, but you can follow these basic steps to install RelativityIdentityCertificate to each database server in a distributed environment.

2.4.8 License Relativity

As part of the upgrade to Relativity 9.4, you need to apply a new Relativity license to your installation. Run Procuro on all databases, and then request a new Relativity license key from Relativity Client Services, and apply the activation key. For more information, see the Relativity Licensing guide.

2.4.9 New UI framework

Relativity 9.4 introduces a new UI framework, which is now turned on by default. If you need to disable the new UI framework for the Document list, click Switch to Classic UI from the user drop-down within a workspace. For help using the classic interface, refer to the 9.3 documentation which documents both interfaces side-by-side. For more information, see Navigation in the Admin guide.

When using the new UI framework, the following Relativity features have been enhanced:

- Cluster visualization
- Dashboards
- Document list and tabs throughout Relativity
- Pivot
- Sampling
- Search panel and search browser
Pre-installation steps for web servers

This section describes pre-installation steps that are required for upgrading Relativity 6.x installations. They must be completed on all web servers before installing Relativity 9.4.

Setting IIS options

Use these instructions to update IIS settings and other configuration options for environments running Windows Server 2008 or higher with IIS 7.5. These updates must be made on all web servers in your Relativity installation.

1. Install .NET Framework 4.0 on all web servers.

2. Configure the Legacy Unhandled Exception Policy on all web servers.
   a. Browse to the following directory on your web server: C:\Windows\Microsoft.NET\Framework64\v4.0.30319\.
   b. Open the Aspnet.config file in a text editor.
   c. Locate the tag <legacyUnhandledExceptionPolicy>. Set the enabled attribute to true.
   d. Save the changes to the file.

Production

The following changes occur to existing productions on upgrade:

- On upgrade to Relativity 9.4 the Relativity.Core agents for production and branding are upgraded to ADS Deployed agents. The Relativity.Core agents for production and branding are not available in a 9.3+ environment.

- Any staged or errored productions in an environment are set to a status of New and you must restage the production before running.

- If any produced productions contain native files with their Bates numbers previously stored in the Document table, the Bates numbers for the native files are moved to the Production object, and may not reflect actual Bates values if those values were overwritten.

- The Production Error field no longer exists on the Production object.

- Production sets you ran before upgrading to Relativity 9.4 aren't available to select for merging with new production sets when you select the new Existing production numbering choice. Any custom production work-arounds break upon upgrade. For more information on new productions functionality, see the Admin guide.

- Users with full permissions to the Production object prior to upgrading to Relativity 9.3 do not automatically gain permissions to the new Production Data Source object, unless they also have the Manage Object Types permission under Admin Operations. Users need rights to the new Production Data Source object to add or edit production data sources after upgrading to Relativity 9.3+.

- Any preexisting production fields are converted to a production data source upon upgrade.

- If you upgrade from Relativity 6.x to Relativity 9.4 and you were previously using the Production Tracker application, review the Production Tracker 9.4 considerations PDF in the Relativity Community.
2.4.10 Relativity service bus
The Relativity 9.4 infrastructure now includes a new component called the Relativity service bus. This component uses Service Bus for Windows Service as its underlying framework. Before you upgrade Relativity, you must now install Service Bus for Windows Server on a server or VM that is accessible throughout your Relativity instance. You must then configure a Service Bus for Windows Server farm in your environment. For information about prerequisites, see Service Bus for Windows Server in the Pre-Installation guide.

After installing Service Bus for Windows Server, you can upgrade your primary SQL Server. You can then install the Relativity service bus by running the upgrade installer on the machine where you installed Service Bus for Windows Server. Finally, follow the standard instructions for upgrading other Relativity components. For more information, see the Relativity Service Bus guide.

2.4.11 Required certificates for Relativity
Relativity 9.4 now verifies that all HTTPS services running in your environment have a trusted certificate. You may need to install additional certificates to components of your Relativity installation running HTTPS services to avoid error messages and insecure-connection icons. For more information, see the Pre-installation Guide.

2.4.12 System requirements
- Upon upgrade to Relativity 9.4, Windows Server 2008 R2 (64-bit) is no longer compatible with 9.4. Relativity 9.4 is only compatible with Windows Server 2008 R2 (64-bit) w Service Pack 1.
- As of August 31, 2017, we no longer support Internet Explore (IE) 10. Please upgrade to a compatible version of IE 11.

Viewer
Relativity 9.4 uses Oracle Outside In version 8.4.0. When you upgrade to Relativity 9.4, you can install the new version of the viewer using the steps described in the Workspace Configuration guide. Any previous versions of the viewer aren’t upgraded, but you can run two versions of the viewer concurrently, so there’s no need to uninstall previous versions.

2.4.13 Scripts
Beginning in 9.4.398.62 creating or editing scripts is controlled by the AllowAddOrEditScripts instance setting. You must enable this instance setting to give users the ability to create or edit scripts within a workspace. For more information, see AllowAddOrEditScripts in the instance setting guide.

2.4.14 Viewer (ActiveX)
To use the ActiveX viewer in Relativity 9.4 you must have Microsoft .NET 4.5.1 runtime installed on the client machine.

Beginning in Relativity 9.4.254.2 you must download and install the latest version of the Viewer Installation Kit. For more information, see Legacy viewer installation in the workstation configuration guide.
**Upgrade agents and other components**

Confirm that your environment has all the required agents and other software components added in prior versions. For more information, see the Relativity Upgrade Guide v6.10 in the [Relativity Community](https://community.relativity.com).

If your environment uses custom applications, you may also need to upgrade event handlers, and other components. For more upgrade information, see the Relativity 9.4 Developers site.

**Note:** For information about recompiling syncs, contact the Client Services team (support@relativity.com)

**2.4.15 Windows or Integrated Windows authentication**

If your Relativity installation currently uses Windows authentication or Integrated Windows authentication, you must set the `UseWindowsAuthentication` instance setting to True after upgrading your environment. For more information, see the Instance settings guide on the Relativity 9.4 Documentation site.

You may want to configure your environment so that some servers use Windows authentication, while others don’t use it. In this case, you need to add another row for this instance setting to the Instance setting table, update the machine name in this new row, and then set the value to True or False based on the Windows authentication requirements for the server.

In addition, you can set the `WindowsAuthIpRange` instance setting, which specifies a group of IP addresses that Relativity uses to validate the address of the user during login. If a request originates from an IP address added to the `WindowsAuthIpRange` instance setting, the server uses Windows Authentication to log the user in to Relativity. Relativity uses forms authentication to log in the user, when the IP address is outside the specified range. For more information, see Instance settings on the Relativity 9.4 Documentation site.

**2.4.16 Workers**

Beginning in Relativity 9.4.361.1, the Conversion Threads in Use column no longer appears on the Worker Status tab. Additionally, on the worker server page, you can no longer designate a worker for conversion work. To configure your environment for conversion, see [Configuring your conversion agents](#).

**2.4.17 Worker manager server**

Beginning in Relativity 9.4 document conversion no longer occurs on the worker manager server. You cannot modify the priority of the following conversion jobs on the worker manager server: Pre-convert, Conversion on-the-fly, Mass Conversion, and Conversion. Instead, you must install Service Bus for Windows Server and configure conversion agents. For more information, see [Configuring your conversion agents on the next page](#).

Beginning in Relativity 9.4.361.1 the Worker manager page no longer displays the following conversion fields: pre-convert, conversion on-the-fly, mass conversion, and conversion.

**2.4.18 Worker manager server**

Beginning in Relativity 9.4 document conversion no longer occurs on the worker manager server. You cannot modify the priority of the following conversion jobs on the worker manager server: Pre-convert, Conversion on-the-fly, Mass Conversion, and Conversion. Instead, you must install Service Bus for Windows Server and configure conversion agents. For more information, see [Configuring your conversion agents on the next page](#).
3 Configuring your conversion agents

Prior to Relativity 9.4, conversion occurred on Invariant workers designated to pick up conversion jobs. Beginning in Relativity 9.4 conversion occurs on dedicated conversion agents instead of Invariant workers.

Relativity 9.4 uses Service Bus for Windows Server to submit conversion jobs and communicate with your designated conversion agents. You must install Service Bus for Windows Server before you run your upgrade to Relativity 9.4. For more information, see Service Bus for Windows installation considerations.

If you have dedicated conversion workers, it's recommended that you re-purpose the dedicated workers as agent servers with a single conversion agent. For more information, see Re-purposing a conversion worker as a conversion agent.

If you have a Tier 1 or similar environment that doesn't have any Invariant workers dedicated solely to conversion, you can add a conversion agent to an existing agent server. Or you can allocate new hardware dedicated to conversion. For more information, see Adding conversion agents to an environment with no dedicated conversion workers.

3.1 Service Bus for Windows Server installation considerations

**Note:** Before planning your conversion migration, you must install Service Bus for Windows Server before you can install or upgrade to Relativity 9.4.

Consider the following when planning your conversion migration:

- You must install at least one Service Bus node. Adding additional nodes increases the reliability of the Service Bus. For more information, see Installing Service Bus for Windows Server in the Pre-Installation guide.

- Install Service Bus for Windows Server on one of the machines where you want to host a conversion agent.

- If you add your conversion agent to an existing agent server, it's best practice to install Service Bus for Windows Server the conversion agent you're adding.

- If you install an agent server dedicated to conversion on a virtual machine, and you also have an agent server that isn't in a virtualized environment, it's best to install Service Bus for Windows Server on the non-virtual agent server. If you only have virtualized agent servers, you can install Service Bus for Windows Server on one of the virtual machines.

3.2 Conversion agent considerations

Consider the following about conversion agents when installing or upgrading to Relativity 9.4:

- On a new installation of Relativity 9.4, Relativity automatically creates one conversion agent and adds it to the default secondary agent server. You should then add the agent server to the appropriate resource pool. For more information, see Resource pools in the Admin guide.
On upgrade to Relativity 9.4, you must add the Service Bus agent server to the appropriate resource pool. Then, manually create the conversion agents using a new agent type of Conversion agent. For more information, see the Agents guide.

### 3.3 Re-purposing a conversion worker as a conversion agent

If you have existing Invariant workers that Relativity uses solely for conversion, you can re-purpose your hardware to support conversion agents.

**Note:** If your worker server handles more than just conversion jobs, do not follow these steps. You still need Invariant workers for other jobs such as Processing, Imaging, and Save as PDF.

To re-purpose a conversion worker as a conversion agent:

1. Ensure Service Bus for Windows server is installed in the environment.
2. Delete the old worker from the server management page.
   - Doing this uninstalls existing Invariant applications.

4. Set up a new agent server for conversion agents. For more information, see Infrastructure configuration in the Upgrade guide.
   - This process requires a manual copy of a valid SSL certificate to the agent server.

To set up the second agent server, perform the following steps:

1. Edit the RelativityResponse.txt file to include only the lines enabled (=1).
   - INSTALLAGENTS = 1 in the feature section.
2. Run the Relativity installer on the machine. For more information, see Agent installation in the Relativity installation guide.

**Note:** Service Bus for Windows Server is required only for the first agent server running conversion jobs.
3.4 Adding conversion agents to an environment with no dedicated conversion workers

If your environment doesn't have any Invariant workers dedicated to conversion, you have two options when setting up conversion for Relativity 9.4.

3.4.1 Adding a conversion agent to an existing server

You can add a conversion agent to one of your existing servers.

If you use this option, add the conversion agent to one of your lesser-used agent servers. You could also rearrange some of your existing agents between your agent servers, which dedicates more resources to conversion.

For greater control over the resources you allocate to conversion, you can also install a new agent server in a virtual machine and host a single conversion agent on that machine. For more information, see Agent installation in the Relativity installation guide.

3.4.2 Allocate additional hardware to host a new agent server

You also have the option of allocating additional hardware to host a new conversion agent server. To allocate additional hardware, follow these steps:

1. Ensure that Service Bus for Windows Server is installed in the environment.
2. Set up a new, secondary agent server for conversion agents. For more information, see Infrastructure configuration in the Upgrade guide.

To set up a secondary agent server, perform the following steps:

1. Ensure that Service Bus for Windows Server is installed in the environment.
2. Edit the RelativityResponse.txt file to include only the lines enabled (=1).
   INSTALLAGENTS = 1 in the feature section.
3. Run the Relativity installer on the machine. For more information, see Agent installation in the Relativity installation guide.

**Note:** Service Bus for Windows Server is only required for the first agent running conversion jobs.
4 Upgrading your primary SQL Server

Follow these steps to upgrade your primary SQL Server. Before you follow the steps below, you must have completed the required pre-upgrade steps for all Relativity versions. For more information, see Pre-installation Guide.

**Note:** This page also contains steps for upgrading a distributed SQL Server. You must upgrade your primary SQL Server before proceeding with these upgrades.

4.1 Primary SQL Server upgrade

The master database called the EDDS resides on the primary SQL Server. You must update the primary database before upgrading any other feature. Additionally, you must install or upgrade the Relativity service bus. You can then run the web and agent server installations in parallel.

Save the following files to the root directory of any server contributing to the Relativity environment:

- **Relativity.exe** - The executable file that installs Relativity components determined by the values entered in the RelativityResponse.txt file.

  **Notes:**
  - You must save Relativity.exe on a drive local to the server. Running Relativity.exe from a shared location results in upgrade or installation failure.
  - The Relativity.exe file does not open a user interface. Use Install.bat to proceed with installation.

- **Install.bat** - The code that prompts Relativity.exe to proceed with the installation process. You must edit line 11 of the Install.bat file with the exact name of the Relativity installation file.

  ```
  start /wait "" "INSERT EXACT NAME OF RELATIVITY INSTALLATION FILE" /log InstallLog.txt /responsefilepath=RelativityResponse.txt
  ```

  **Notes:**
  - You may need to run this file from an elevated command line prompt to avoid permission issues.
  - You must surround the name of the Relativity installation file with quotation marks.

- **RelativityResponse.txt** - The text file that determines which components Relativity.exe installs, uninstalls, or upgrades on the server.

  **Note:** Every line in the RelativityResponse.txt file that starts with ### is a comment and meant to provide instruction.

Open the **RelativityResponse.txt** file in a text editor and edit the parameters as follows to upgrade Relativity on the machine that serves the role of the primary SQL Server:
4.1.0.1 Common properties

- **INSTALLPRIMARYDATABASE** - Set this value to one.
  
  \[
  \text{INSTALLPRIMARYDATABASE}=1
  \]

- **INSTALLDISTRIBUTEDDATABASE** - Verify that this value is set to zero. You can't store the distributed database on the same machine as the primary database.
  
  \[
  \text{INSTALLDISTRIBUTEDDATABASE}=0
  \]

- **INSTALLDIR** - Enter the installation directory. This is the target directory for all files related to the local installation. This path must be local to the machine and accessible by the server. You must use ASCII characters for this path.
  
  \[
  \text{INSTALLDIR}=C:\Program Files\kCura Corporation\Relativity
  \]

- **PRIMARYSQLINSTANCE** - Enter the primary SQL instance. If you are installing to a cluster, specify the cluster and instance name. If you are installing to a named instance, specify the server and instance name. All features require this input.
  
  \[
  \text{PRIMARYSQLINSTANCE}=ML12
  \]

- **EDDSDBOPASSWORD** - Enter the EDDSDBO password.
  
  \[
  \text{EDDSDBOPASSWORD}=MySecretPassword
  \]

- **SERVICEUSERNAME** - Enter the service username. The Windows login must already exist.
  
  \[
  \text{SERVICEUSERNAME}=example\exampleusername
  \]

- **SERVICEPASSWORD** - Enter the Service password.
  
  \[
  \text{SERVICEPASSWORD}=MySecretPassword
  \]

- **USEWINAUTH** - Set the value to one to use Windows authentication for the SQL Server.
  
  \[
  \text{USEWINAUTH}=1
  \]

  **Note:** If the **USEWINAUTH** value is set to one, then the user running the installer must be a SQL sysadmin, and any values entered for **SQLUSERNAME** and **SQLPASSWORD** are ignored.

- **SQLUSERNAME** - Enter the SQL username if you want to use SQL Server login authentication.
  
  \[
  \text{SQLUSERNAME}=mySqlUserName
  \]

  **Note:** This value is ignored if **USEWINAUTH** is set to one.

- **SQLPASSWORD** - Enter the SQL password if you want to use SQL Server login authentication.
  
  \[
  \text{SQLPASSWORD}=myPassword
  \]
4.1.0.2 Primary database properties

- **DEFAULTFILEREPOSITORY** - Enter the default file repository. This path must be a shared folder to which both the user running the installer and the Relativity Service Account have read and write permissions.
  
  ```plaintext
  DEFAULTFILEREPOSITORY=\yourmachine\FileShare
  ```

- **DTSEARCHINDEXPATH** - Enter the dtSearch index. This path must be a shared folder to which both the user running the installer and the Relativity Service Account have read and write permissions.
  
  ```plaintext
  DTSEARCHINDEXPATH=\yourmachine\dtSearch
  ```

- **RELATIVITYINSTANCENAME** - Enter the Relativity instance name. Only set this value during a first-time installation. The installer ignores this value on upgrade.
  
  ```plaintext
  RELATIVITYINSTANCENAME=My Relativity Instance
  ```

- **EDDSFILESHARE** - Enter the EDDS fileshare path. This path must be a shared folder to which both the user running the installer and the Relativity Service Account have read and write permissions.
  
  ```plaintext
  EDDSFILESHARE=\yourmachine\Fileshare
  ```

4.1.0.3 Common database properties

We recommend that the following database paths are local to the SQL Server and accessible. However, we also support UNC paths on SQL Server 2012 and above.

- **DATABASEBACKUPDIR** - Enter the database backup directory.
  
  ```plaintext
  DATABASEBACKUPDIR=C:\Backup
  ```

- **LDFDIR** - Enter the LDF directory.
  
  ```plaintext
  LDFDIR=C:\Logs
  ```

- **MDFDIR** - Enter the MDF directory.
  
  ```plaintext
  MDFDIR=C:\Data
  ```

- **FULLTEXTDIR** - Enter the full text directory.
  
  ```plaintext
  FULLTEXTDIR=C:\FullText
  ```

Save your edits to the `RelativityResponse.txt` file, and launch the `Install.bat` file to proceed with the upgrade.

A sample `RelativityResponse.txt` file for a primary SQL database upgrade using Windows authentication looks like this:
### 4.2 Distributed SQL Server upgrade

If your Relativity environment uses a distributed SQL Server, then you need to run the installer on a machine other than the one that hosts the primary SQL database. After you have upgraded the primary SQL Server, you can upgrade the distributed database server and the web and agent server upgrades in parallel. Make sure that you review the steps for the database server setup in the Pre-installation Guide, including those in the Optionally configure an authentication token-signing certificate section.

Open the **RelativityResponse.txt** file in a text editor and edit the parameters as follows to upgrade Relativity on the machine that serves the role of the distributed SQL Server:

#### 4.2.0.1 Common properties

- **INSTALLPRIMARYDATABASE** - Set this value to zero. You can't store the distributed database on the same machine as the primary database.
  
  `INSTALLPRIMARYDATABASE=0`

- **INSTALLDISTRIBUTEDDATABASE** - Set this value to one.
  
  `INSTALLDISTRIBUTEDDATABASE=1`

- **INSTALLDIR** - Enter the installation directory. This is the target directory for all files related to the local installation. This path must be local to the machine and accessible by the server. You must use ASCII characters for this path.
  
  `INSTALLDIR=C:\Program Files\kCura Corporation\Relativity`

- **PRIMARYSQLINSTANCE** - Enter the primary SQL instance. If you are installing to a cluster, specify the cluster and instance name. If you are installing to a named instance, specify the server and instance name. All features require this input.
  
  `PRIMARYSQLINSTANCE=ML12`
- **EDDSDBOPASSWORD** - Enter the EDDSDBO password.
  
  `EDDSDBOPASSWORD=MySecretPassword`

- **SERVICEUSERNAME** - Enter the service username. The Windows login must already exist.
  
  `SERVICEUSERNAME=example\exampleusername`

- **SERVICEPASSWORD** - Enter the Service password.
  
  `SERVICEPASSWORD=MySecretPassword`

- **USEWINAUTH** - Set this to one to use Windows authentication for the SQL Server.
  
  `USEWINAUTH=1`

  **Note:** If the **USEWINAUTH** value is set to one, then the user running the installer must be a SQL sysadmin, and any values entered for **SQLUSERNAME** and **SQLPASSWORD** are ignored.

- **SQLUSERNAME** - Enter the SQL username to use SQL Server login authentication.
  
  `SQLUSERNAME=mySqlUserName`

  **Note:** This value is ignored if **USEWINAUTH** is set to one.

- **SQLPASSWORD** - Enter the SQL password to use SQL Server login authentication.
  
  `SQLPASSWORD=myPassword`

  **Note:** This value is ignored if **USEWINAUTH** is set to one.

### 4.2.0.2 Distributed database properties

- **DISTRIBUTEDSQLINSTANCE** - Enter the Distributed SQL instance. You can't store the distributed database on the same machine as the primary SQL Server.
  
  `DISTRIBUTEDSQLINSTANCE=ML14`

### 4.2.0.3 Common database properties

We recommend that the following database paths are local to the SQL Server and accessible. However, we also support UNC paths on SQL Server 2012 and above.

- **DATABASEBACKUPDIR** - Enter the database backup directory.
  
  `DATABASEBACKUPDIR=C:\Backup`

- **LDFDIR** - Enter the LDF directory.
  
  `LDFDIR=C:\Logs`
- **MDFDIR** - Enter the MDF directory.
  
  MDFDIR=C:\Data

- **FULLTEXTDIR** - Enter the full text directory.
  
  FULLTEXTDIR=C:\FullText

Save your edits to the **RelativityResponse.txt** file, and launch the **Install.bat** file to proceed with the upgrade.

A sample response file for a distributed SQL database upgrade using Windows authentication looks like this:

```
INSTALLDISTRIBUTEDDATABASE=1
INSTALLDIR=C:\Program Files\kCura Corporation\Relativity
PRIMARYSQLINSTANCE=ML12
EDDSDBOPASSWORD=MySecretPassword
SERVICEUSERNAME=example\exampleusername
SERVICEPASSWORD=MySecretPassword
DISTRIBUTEDSQLINSTANCE=ML14
DATABASEBACKUPDIR=C:\Backup
LDFDIR=C:\Logs
MDFDIR=C:\Data
FULLTEXTDIR=C:\FullText
USEWINAUTH=1
```

**Note:** Every line in the RelativityResponse.txt file that starts with ### is a comment and meant to provide instruction.
5 Removing RabbitMQ

Beginning in Relativity 9.4.254.2, processing to Data Grid no longer requires RabbitMQ. To remove RabbitMQ from your Relativity environment, follow the steps below.

5.1 Deleting Data Grid agents

You can delete the following Data Grid agents as of Relativity 9.4.254.2:

- Data Grid Error Queue Manager
- Data Grid Install Queue Manager
- Data Grid Process Queue Manager
- Data Grid Status Queue Manager
- Data Grid Verify Queue Manager

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 then select Delete from the drop-down menu.
3. Click Go to flag the agents for deletion from your environment.

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. For more information on managing agents, see the Agents Guide.

5.2 Deleting empty processing queues

To delete empty processing queues, complete the following steps:

1. Ensure there are no Relativity Processing jobs running.
2. Run the following script using Windows Powershell to delete empty queues.

```powershell
$cred = Get-Credential
```

3. Ensure there are no queues leftover. If there are any remaining queues, contact the Client Services team.

5.3 Uninstalling RabbitMQ Server and Erlang OTP

To uninstall RabbitMQ and Erlang:
1. Open the Control Panel.
2. Select Uninstall a program.
3. Right-click RabbitMQ Server, and then click Uninstall.
4. Repeat steps 1-3 to uninstall Erlang OTP 18.
5. Delete the installation directories for RabbitMQ:
   ```powershell
   Get-ChildItem c:\ -Force -Include *Rabbit* -Recurse | foreach {Remove-Item $_.fullname -whatif}
   ```
   **Note:** This script will delete all files related to RabbitMQ on C:. If you are using RabbitMQ for anything else in your infrastructure, you must modify this script.
   - Remove -whatif when ready to run.
   - Delete C:\Users\relativityserviceaccount\AppData\Roaming\RabbitMQ.
6. Delete the installation directories for Erlang OTP 18:
   ```powershell
   Get-ChildItem c:\ -Force -Include *erlang* -Recurse | foreach {Remove-Item $_.fullname -whatif}
   ```
   **Note:** This script will delete all files related to Erlang on C:. If you are using Erlang for anything else in your infrastructure, you must modify this script.
   - Remove -whatif when ready to run.
   - Delete the file C:\Windows\erlang.cookie and C:\Users\relativityserviceaccount\erlang.cookie.
7. Restart your machine.

### 5.4 Closing ports on the Queue Server

Close the following ports on the queue server:
- 15672
6 Upgrading your Relativity service bus

To upgrade the Relativity service bus, you run the installer on a machine where it is already installed, or where the Service Bus for Windows Server is installed. You must include the Relativity service bus server as a node in the Service Bus for Windows Server farm. For more information, see the Pre-Installation guide.

**Note:** We recommend that you install the Relativity service bus on the agent server used for running conversion agents. If you are upgrading from Relativity 9.3 or below and you have a worker server that you are converting into a conversion agent server, you would want to install it on that machine. For more information, see Configuring your conversion agents on page 61.

When you perform an upgrade, the Relativity installer saves information about the farm to the primary SQL Server database. It also performs setup tasks on farm, so that Relativity can connect to the service bus.

### 6.1 Relativity service bus upgrade

The Relativity service bus supports messaging between application components. Before installing or upgrading the Relativity service bus, upgrade the primary SQL Server. For more information, see the Relativity Service Bus guide.

Contact Relativity Client Services to get a copy of the Relativity installer.

Save the following files to the root directory of any server contributing to the Relativity environment:

- **Relativity.exe** - The executable file that installs Relativity components determined by the values entered in the RelativityResponse.txt file.

  **Notes:**
  - You must save Relativity.exe on a drive local to the server. Running Relativity.exe from a shared location results in upgrade or installation failure.
  - The Relativity.exe file does not open a user interface. Use Install.bat to proceed with installation.

- **Install.bat** - The code that prompts Relativity.exe to proceed with the installation process. You must edit line 11 of the Install.bat file with the exact name of the Relativity installation file.

  ```
  start /wait """"INSERT EXACT NAME OF RELATIVITY INSTALLATION FILE"""" /log InstallLog.txt /re-
  sponsefilepath=RelativityResponse.txt
  ```

  **Notes:**
  - You may need to run this file from an elevated command line prompt to avoid permission issues.
  - You must surround the name of the Relativity installation file with quotation marks.

- **RelativityResponse.txt** - The text file that determines which components Relativity.exe installs, uninstalls, or upgrades on the server.
Note: Every line in the RelativityResponse.txt file that starts with ### is a comment and meant to provide instruction.

### 6.2 Setting properties in the RelativityResponse.txt file

Open the `RelativityResponse.txt` file in a text editor and edit the properties as follows to install Relativity on the machine that serves the role of the service bus server:

#### 6.2.1 Feature selection

- **INSTALLSERVICEBUS** - Set this value to one to install the Relativity service bus.
  
  ```
  INSTALLSERVICEBUS=1
  ```

  Note: If the service bus server is already installed on this machine and the `INSTALLSERVICEBUS` property is set to zero, the installer removes the previously existing service bus server.

#### 6.2.2 Common properties

- **INSTALLDIR** - Enter the installation directory. This is the target directory for all files related to the local installation. This path must be local to the machine and accessible by the server. You must use ASCII characters for this path.
  
  ```
  INSTALLDIR=C:\Program Files\kCura Corporation\Relativity
  ```

- **PRIMARYSQLINSTANCE** - Enter the primary SQL instance. If you are installing to a cluster, specify the cluster and instance name. If you are installing to a named instance, specify the server and instance name. All features require this input.
  
  ```
  PRIMARYSQLINSTANCE=ML12
  ```

- **EDDSDBOPASSWORD** - Enter the EDDSDBO password.
  
  ```
  EDDSDBOPASSWORD=MySecretPassword
  ```

- **SERVICEUSERNAME** - Enter the service username. The Windows login must already exist.
  
  ```
  SERVICEUSERNAME=example\exampleusername
  ```

- **SERVICEPASSWORD** - Enter the service password.
  
  ```
  SERVICEPASSWORD=MySecretPassword
  ```

- **USEWINAUTH** - Set this to 1 to use Windows authentication for the SQL Server.
  
  ```
  USEWINAUTH=1
  ```
Note: If the USEWINAUTH value is set to one, then the user running the installer must be a SQL sysadmin, and any values entered for SQLUSERNAME and SQLPASSWORD are ignored.

- **SQLUSERNAME** - Enter the SQL username to use SQL Server login authentication.

  SQLUSERNAME=mySqlUserName

  **Note:** This value is ignored if USEWINAUTH is set to one.

- **SQLPASSWORD** - Enter the SQL password to use SQL Server login authentication.

  SQLPASSWORD=myPassword

  **Note:** This value is ignored if USEWINAUTH is set to one.

Save your edits to the **RelativityResponse.txt** file, and launch the **Install.bat** file to proceed with the installation.

A sample response file for a service bus only installation looks like this:

```
INSTALLSERVICEBUS=1
INSTALLDIR=C:\Program Files\kCura Corporation\Relativity
PRIMARYSQLINSTANCE=ML12
EDDSDBOPASSWORD=MySecretPassword
SERVICEUSERNAME=example\exampleusername
SERVICEPASSWORD=MySecretPassword
USEWINAUTH=1
```

**Note:** Every line in the RelativityResponse.txt file that starts with ### is a comment and meant to provide instruction.

### 6.3 Verifying database table updates for multiple hosts

If you have optionally installed Service Bus for Windows Server on multiple hosts, verify that installer has updated the ServiceBusHosts table on the EDDS database.

**Note:** For more information, see Service bus PowerShell cmdlets in the Relativity service Bus guide.

Use the following procedure to verify the FQDN in the ServiceBusHosts table:

1. Obtain FQDN for each of the service bus nodes. If you don’t know the FQDNs, run the *Get-SBFarm* command and copy the FQDNs for the hosts from the output.
2. Log in to Microsoft SQL Server Management Studio on your primary SQL Server.
3. Run the following SQL command to obtain the list of hosts added to the ServiceBusHosts table:

   ```sql
   Select * From EDDS.eddsdbo.ServiceBusHosts
   ```

4. Verify that the entries returned from this command match the FQDNs of your service bus nodes obtained in step 1 or contain only a single value that matches the FarmDns. Complete the following
tasks if the entries don’t match:
  - **Missing an FQDN** - insert a row with the FQDN into the table. See the following sample command:
    
    ```sql
    INSERT INTO EDDS.eddsdbo.ServiceBusHosts Values('<FQDN of the host>')
    ```
  - **Incorrect host name** - execute an UPDATE statement to add the correct FQDN for the host.
  - **Extraneous host name** - execute a DELETE statement to remove the names of hosts not currently used in your environment.

### 6.4 Troubleshooting the service bus installation

Use the following information to troubleshoot issues that may occur during the service bus installation:

- In the RelativityResponse.txt file, ensure that you set the **INSTALLSERVICEBUS** property to 1 before you run the installer.
- Verify that the following instance settings contain the correct values:
  - ServiceBusFullyQualifiedDomainName
  - ServiceBusHttpPort
  - ServiceBusTcpPort

  **Note:** For more information, see the Instance Setting guide.

- To troubleshoot connection errors with multiple hosts, verify that installer has properly updated the ServiceBusHosts database table. You should also confirm that you have used the fully qualified domain name for each of the machines hosting the Service Bus for Windows Server. For more information, see [Verifying database table updates for multiple hosts on the previous page](#).

  **Note:** For general troubleshooting information, see the Relativity Service Bus guide.
7 Upgrading your agent server

This section provides the prerequisites and the steps required to upgrade your agent server to a new version of Relativity. For more information, see Pre-installation Guide.

Before you begin upgrading your agent server, confirm that you have upgraded the SQL Server and have started the SQL service. Additionally, you must install or upgrade the Relativity service bus.

7.1 Agent server upgrade

Contact Relativity Client Services to get a copy of the Relativity installer.

Save the following files to the root directory of any server contributing to the Relativity environment:

- **Relativity.exe** - The executable file that installs Relativity components determined by the values entered in the RelativityResponse.txt file.

  **Notes:**
  - You must save Relativity.exe on a drive local to the server. Running Relativity.exe from a shared location results in upgrade or installation failure.
  - The Relativity.exe file does not open a user interface. Use Install.bat to proceed with installation.

- **Install.bat** - The code that prompts Relativity.exe to proceed with the installation process. You must edit line 11 of the Install.bat file with the exact name of the Relativity installation file.

  ```
  start /wait "" "INSERT EXACT NAME OF RELATIVITY INSTALLATION FILE" /log InstallLog.txt /responsefilepath=RelativityResponse.txt
  ```

  **Notes:**
  - You may need to run this file from an elevated command line prompt to avoid permission issues.
  - You must surround the name of the Relativity installation file with quotation marks.

- **RelativityResponse.txt** - The text file that determines which components Relativity.exe installs, uninstalls, or upgrades on the server.

  **Note:** Every line in the RelativityResponse.txt file that starts with ### is a comment and meant to provide instruction.

To upgrade the agent server:

Open the **RelativityResponse.txt** file in a text editor and edit the parameters as follows to upgrade Relativity on the machine that serves the role of the agent server:

**Note:** The following settings assume that the same machine does not host the agent server that hosts the primary or distributed SQL database servers.
7.1.0.1 Common properties

- **INSTALLDIR** - Enter the installation directory. This is the target directory for all files related to the local installation. This path must be local to the machine and accessible by the server. You can't use unicode special characters for this path.

  ```
  INSTALLDIR=C:\Program Files\kCura Corporation\Relativity
  ```

- **PRIMARYSQLINSTANCE** - Enter the primary SQL instance. If you are installing to a cluster, specify the cluster and instance name. If you are installing to a named instance, specify the server and instance name. All features require this input.

  ```
  PRIMARYSQLINSTANCE=ML12
  ```

- **EDDSDBOPASSWORD** - Enter the EDDS database object password.

  ```
  EDDSDBOPASSWORD=MySecretPassword
  ```

- **SERVICEUSERNAME** - Enter the service username. The Windows login must already exist.

  ```
  SERVICEUSERNAME=example\exampleusername
  ```

- **SERVICEPASSWORD** - Enter the service password.

  ```
  SERVICEPASSWORD=MySecretPassword
  ```

- **USEWINAUTH** - Set this to one to use Windows authentication for the SQL Server.

  ```
  USEWINAUTH=1
  ```

  **Note:** If the **USEWINAUTH** value is set to one, then the user running the installer must be a SQL sysadmin, and any values entered for **SQLUSERNAME** and **SQLPASSWORD** are ignored.

- **SQLUSERNAME** - Enter the SQL username to use SQL Server login authentication.

  ```
  SQLUSERNAME=mySqlUserName
  ```

  **Note:** This value is ignored if **USEWINAUTH** is set to one.

- **SQLPASSWORD** - Enter the SQL password to use SQL Server login authentication.

  ```
  SQLPASSWORD=myPassword
  ```

  **Note:** This value is ignored if **USEWINAUTH** is set to one.

Save your edits to the **RelativityResponse.txt** file, and launch the **Install.bat** file to proceed with the upgrade.

A sample **RelativityResponse.txt** file for a agents only upgrade looks like this:

```
INSTALLAGENTS=1
INSTALLDIR=C:\Program Files\kCura Corporation\Relativity
```
Note: Every line in the RelativityResponse.txt file that starts with ### is a comment and meant to provide instruction.

7.2 Service Host Manager HTTPS configuration

Service Host Manager runs Relativity services on all web and agent servers in your environment. The services are used by applications like Production and Processing on. If your web and agent servers must be set up for HTTPS access, special setup is required for Service Host Manager.

For more information, see Service Host Manager on the Relativity 9.4 Documentation site.
8 Upgrading your web server

This section provides the prerequisites and the steps required to upgrade your web server to a new version of Relativity. For more information, see Pre-installation Guide.

Before you begin upgrading your web server, confirm that you have upgraded the SQL Server, started the SQL service, and that IIS is stopped. Additionally, you must install or upgrade the Relativity service bus.

**Note:** When you install Relativity, it is configured to use HTTPS by default. If you decided not to use HTTPS in your environment, you must set the CookieSecure instance setting to **False** before logging in to Relativity, or you receive an error message. For more information, see Instance setting on the Relativity 9.4 Documentation site. If you later decide to use HTTPS in your environment, you can find information about how to set up this functionality in the section called Configuring SSL on a web server on the Pre-installation page.

8.1 Web server upgrade

The web server hosts Relativity and its services, such as the Services and Web APIs. After you have installed the primary SQL Server, you can run the web and agent server, as well as the distributed database server installations in parallel.

Contact [Relativity Client Services](#) to get a copy of the Relativity installer.

Save the following files to the root directory of any server contributing to the Relativity environment:

- **Relativity.exe** - The executable file that installs Relativity components determined by the values entered in the RelativityResponse.txt file.

  **Notes:**
  - You must save Relativity.exe on a drive local to the server. Running Relativity.exe from a shared location results in upgrade or installation failure.
  - The Relativity.exe file does not open a user interface. Use Install.bat to proceed with installation.

- **Install.bat** - The code that prompts Relativity.exe to proceed with the installation process. You must edit line 11 of the Install.bat file with the exact name of the Relativity installation file.

  ```
  start /wait "" "INSERT EXACT NAME OF RELATIVITY INSTALLATION FILE" /log InstallLog.txt /responsefilepath=RelativityResponse.txt
  ```

  **Notes:**
  - You may need to run this file from an elevated command line prompt to avoid permission issues.
  - You must surround the name of the Relativity installation file with quotation marks.

- **RelativityResponse.txt** - The text file that determines which components Relativity.exe installs, uninstalls, or upgrades on the server.
Note: Every line in the RelativityResponse.txt file that starts with ### is a comment and meant to provide instruction.

The following settings assume that the same machine does not host the web server that hosts the primary or distributed SQL database servers.

Open the RelativityResponse.txt file in a text editor and edit the parameters as follows to install Relativity on the machine that serves the role of the web server:

8.1.0.1 Common properties

- **INSTALLWEB** - set this value to one.
  
  INSTALLWEB=1

  Note: If the web server is already installed on this machine and the above value is set to zero, the installer removes the previously existing web server.

- **INSTALLDIR** - enter the installation directory. This is the target directory for all files related to the local installation. This path must be local to the machine and accessible by the server. You can't use unicode special characters for this path.
  
  INSTALLDIR=C:\Program Files\kCura Corporation\Relativity

- **PRIMARYSQLINSTANCE** - enter the primary SQL instance. If you are installing to a cluster, specify the cluster and instance name. If you are installing to a named instance, specify the server and instance name. All features require this input.
  
  PRIMARYSQLINSTANCE=ML12

- **EDDSDBOPASSWORD** - enter the EDDS database object password.
  
  EDDSDBOPASSWORD=MySecretPassword

- **SERVICEUSERNAME** - enter the service username. The Windows login must already exist.
  
  SERVICEUSERNAME=example\exampleusername

- **SERVICEPASSWORD** - enter the service password.
  
  SERVICEPASSWORD=MySecretPassword

- **USEWINAUTH** - set this to one to use Windows authentication for the SQL Server.
  
  USEWINAUTH=1

  Note: If the USEWINAUTH value is set to one, then the user running the installer must be a SQL sysadmin, and any values entered for SQLUSERNAME and SQLPASSWORD are ignored.
SQLUSERNAME - enter the SQL username to use SQL Server login authentication.

```
SQLUSERNAME=mySqlUserName
```

**Note:** This value is ignored if **USEWINAUTH** is set to one.

SQLPASSWORD - enter the SQL password to use SQL Server login authentication.

```
SQLPASSWORD=myPassword
```

**Note:** This value is ignored if **USEWINAUTH** is set to one.

Save your edits to the **RelativityResponse.txt** file, and then launch the **Install.bat** file to proceed with the upgrade.

A sample **RelativityResponse.txt** file for a web only upgrade looks like this:

```
INSTALLWEB=1
INSTALLDIR=C:\Program Files\kCura Corporation\Relativity
PRIMARYSQLINSTANCE=ML12
EDDSOOPASSWORD=MySecretPassword
SERVICEUSERNAME=example\exampleusername
SERVICEPASSWORD=MySecretPassword
```

**Note:** Every line in the **RelativityResponse.txt** file that starts with ### is a comment and meant to provide instruction.

### 8.2 Verifying the machine key settings on the IIS

When setting up the IIS for a Relativity installation, you need to verify that the machine keys are configured to use the appropriate methods for the encryption and decryption of forms authentication data.

Use these steps to set the machine key for the IIS:

1. Open the IIS Manager.
2. Highlight your Relativity website to display configuration options in the Feature View on the IIS dashboard.
3. Double-click the **Machine Key** icon.
4. Update the following fields for your version of Windows server:
   - **Windows Server 2008 R2** - select **SHA1** for the **Encryption method** and **AES** for the **Decryption method**.

   **Note:** You could also select Auto for the Decryption method, but we recommend setting it to AES.
Windows Server 2012 R2 - select SHA1 for the Validation method and AES for the Encryption method.
5. Save your changes.

8.3 Upgrading a web server configured for mixed authentication with AD

Use the following steps to upgrade a web server configured for mixed mode authentication with Active Directory (AD). For information about setting up a web server configured for mixed authentication with AD, see Authentication on the Relativity 9.4 Documentation site.

To update the UseWindowsAuthentication instance setting:

1. Open SQL Server Management Studio on your Relativity database server.
2. Connect to the EDDS database.
3. Execute one of the following SQL statement to set the WindowsAuthentication instance setting to True:
   - Update all servers to use Windows Authentication.
UPDATE EDDS.eddsdbo.InstanceSetting SET value = 'True' WHERE Name = 'UseWindowsAuthentication'

- Update a specific server to use Windows Authentication. Replace YourServerName in the WHERE clause to the name of your machine, which you want to configure for Windows Authentication. You only need the machine name if you want to set this setting per server.

UPDATE EDDS.eddsdbo.InstanceSetting SET value = 'True' WHERE Name = 'UseWindowsAuthentication' and MachineName = 'YourServerName'

- Add a new row to the instance setting table for each additional machine that you need to enable AD authentication. Use this option when you want AD enabled on multiple web servers in your Relativity environment, but not on all of them. You need to execute the following SQL statement with the name of the additional machine, which you want to configure for Windows Authentication. Replace YourSecondServerName with the name of that machine.

INSERT INTO EDDS.eddsdbo.InstanceSetting VALUES ('Relativity.Authentication','UseWindowsAuthentication','True','YourSecondServerName','Determines whether Relativity uses Windows Authentication. Set this value False if you want to disable WinAuth. Set it to True if you want to enable WinAuth and require the user to log in to Relativity from the current machine.')

### 8.4 Service Host Manager HTTPS configuration

Service Host Manager runs Relativity services on all web and agent servers in your environment. The services are used by applications like Production and Processing on. If your web and agent servers must be set up for HTTPS access, special setup is required for Service Host Manager.

For more information, see Service Host Manager on the Relativity 9.4 Documentation site.

### 8.5 SignalR

When running Relativity on IIS 7.5 and older, the SignalR protocol may exhibit performance issues, including slow responses and connection failures as it falls back to other supported connection protocols. To resolve this issue, disable dynamic content compression for the Relativity.REST application in the Compression section in IIS:
You can also add the following property to the **system.webServer** section of the Relativity.REST web.config file:

```xml
<urlCompression doDynamicCompression="false" />
```

This change will improve SignalR performance on older versions of IIS.
9 Upgrading a worker manager server installation

You can use these instructions for upgrading the Invariant Database, Queue Manager, and Worker. When you upgrade to a new version of Invariant, the installer removes any components from the previous version installed on the local machine before it replaces them with the upgraded version. You must be logged in as the Relativity Service Account to perform the upgrade.

Specific versions of Invariant are exclusively compatible with specific versions of Relativity. For this reason, don't attempt to upgrade Invariant independent of Relativity, as doing so will result in significant issues. For example, don't upgrade from Invariant 3.3, which is supported by Relativity 8.2, to Invariant 4.0 without also upgrading to Relativity 9.0. The following table breaks down which versions of Invariant are supported by which versions of Relativity:

<table>
<thead>
<tr>
<th>Invariant version</th>
<th>Relativity version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invariant 3.0</td>
<td>Relativity 7.5</td>
</tr>
<tr>
<td>Invariant 3.1</td>
<td>Relativity 8.0</td>
</tr>
<tr>
<td>Invariant 3.2</td>
<td>Relativity 8.1</td>
</tr>
<tr>
<td>Invariant 3.3</td>
<td>Relativity 8.2</td>
</tr>
<tr>
<td>Invariant 4.0</td>
<td>Relativity 9.0/9.1</td>
</tr>
<tr>
<td>Invariant 4.2</td>
<td>Relativity 9.2</td>
</tr>
<tr>
<td>Invariant 4.3</td>
<td>Relativity 9.3</td>
</tr>
<tr>
<td>Invariant 4.4</td>
<td>Relativity 9.4</td>
</tr>
</tbody>
</table>

If you’re performing separate upgrades for the Invariant components, you must upgrade the Invariant database first, and then the Queue Manager. Invariant workers automatically upgrade when the database is upgraded.

If the Invariant Worker Network File Path you specified during installation is not stored on the same SQL Server as the Invariant database, instead of upgrading, you should uninstall Invariant and perform a fresh installation of Invariant. When you install the new version, be sure to select a folder that's stored on the same SQL Server as the Invariant database. If this folder is not stored on the same server, you could lose all your data and be unable to uninstall or upgrade.

**Note:** When you apply a new processing license in your Relativity environment, all jobs in the processing queue must complete before Relativity identifies any additional worker manager servers that you may have purchased as licensed.

9.1 Upgrade exceptions

For upgrades from Relativity 8.0/Invariant 3.1 or lower, you must first manually install the required .NET 4.5 on all of your pre-existing Invariant Database, Queue Manager, and Worker machines before running the installer. Similarly, you must install the required Microsoft Visual C++ Redistributable on all of your pre-existing Worker machines before running the installer.

The 3.2 and above installers only validate whether .NET 4.5 is installed; they don't install the software. For brand new Worker installations, the installer verifies that .NET 4.5 is installed. Installing a new Worker will automatically install MS Visual C++ 2012 for you.
For upgrades from Relativity 7.3/Invariant 2.0, you must first upgrade to a later Invariant version (2.1, 3.0, 3.1, 3.2, or 3.3) before you upgrade to Invariant 4.0.

9.2 Installing Microsoft Visual C++ Redistributable Packages

When upgrading to Relativity 9.4/Invariant 4.4, you need to manually install the following versions of C++ on all of your worker servers prior to running the Invariant installation files for your upgrade:

- Microsoft Visual C++ 2010 Redistributable x86 and x64
- Microsoft Visual C++ 2012 Redistributable x86 and x64
- Microsoft Visual C++ 2013 Redistributable x86 and x64

**Note:** This is not required for initial installations of Relativity 9.4/Invariant 4.4, as the installer will automatically install these C++ components.

9.3 Upgrading the Invariant Database and Queue Manager

You'll use the same installation files you used to install the Invariant Database and Queue Manager to upgrade them. To access the steps for performing an upgrade, see the Worker Manager Installation guide. These installation files upgrade both the Invariant and Relativity Imaging databases. During an upgrade, you can't modify the SQL instance name, the Queue Manager Service Username, or the installation location of the Queue Manager. If you need to change any of these settings, you need to uninstall and reinstall the Invariant Database or Queue Manager.

**Note:** If you have an alternative configuration where the Invariant Database and the Queue Manager are on separate servers, you must upgrade the database first. However, this type of configuration is not recommended.

9.4 Automatically upgrading the worker

When you upgrade the Invariant Database, all Worker machines are also automatically upgraded. The Invariant Installer does not allow manual upgrades to a Worker machine. If you attempt a manual upgrade, an error message displays.

**Note:** By default, when you install Relativity, each worker in your environment is designated to do all available work (processing and imaging).
10 Upgrading workspaces

You can use the Workspace Upgrade queue to monitor the progress of scripts as they update workspace database schemas. In addition, you can also monitor upgrades to applications currently installed in workspaces. It also provides you with the ability to view detailed error messages when a script or application upgrade fails. You can use the advanced mass operations on the queue to edit the priority and order of workspace upgrades, as well as retry failed upgrades, and cancel upgrades.

10.1 Monitoring upgrades with the Workspace Upgrade queue

You can view the Workspace Upgrade queue from Home. Select the Queue Management tab, and click Workspace Upgrade Queue. The Workspace Upgrade queue displays the current status and the progress of the upgrade for each workspaces.

Beginning in Relativity 9.4.398.62, the Workspace Upgrade Queue also displays the current status and version of the processing store upgrade process, which the Workspace Upgrade Worker agent completes in addition to upgrading the workspace.

For descriptions of the columns, see Workspace Upgrade queue columns on page 90.

As part of the database upgrade process, the Procuro utility automatically runs on your database server. Procuro automatically sets the Upgrade Status of the workspaces to Pending in the Workspace Upgrade queue. This status indicates to the upgrade agents running in your environment that they can begin upgrading the workspaces immediately. You can use the advanced mass operation options to change the upgrade priority and order of workspaces or to prevent workspaces from upgrading. For more information, see Editing upgrade priority and order for a workspace on page 91.

The workspace upgrader uses agents that run jobs for upgrading the workspace database schemas and installing applications. You must configure these agents through the Agents tab in Relativity. See Populating the Workspace Upgrade queue on the next page.

If you don't see any activity in the Workspace Upgrade queue, these agents haven't been configured. An alert message lists the agents that you need to configure.

For configuration information, see Running the Relativity installer and Agents on the Relativity 9.4 Documentation site.
10.1.1 Populating the Workspace Upgrade queue

The Workspace Upgrade queue continually populates with status information by the upgrade agents as they run scripts to update workspace databases and installed applications. The following agents run the scripts and the application upgrades:

- **Workspace Upgrade Worker** - picks up pending jobs in the queue for script updates.

  **Note:** 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.

- **Workspace Upgrade Manager** - queues applications required for installation in workspaces.

- **Application Installation Manager** - installs required applications to workspaces.

For more information about agents, see Agents on the Relativity9.4 Documentation site.

During a Relativity upgrade, the agents complete the following tasks and then update the statuses displayed on the Workspace Upgrade queue:

1. **Set upgrade status to Pending.** Procuro runs and sets the status on workspaces in the Workspace Upgrade queue to Pending.

2. **Pick up pending jobs.** The Workspace Upgrade Worker sees a pending job in the queue, picks it up, and begins upgrading the workspace.

3. **Run upgrade scripts.** The Workspace Upgrade Worker sets the status of the workspace to Upgrading scripts and runs the SQL scripts to update the workspace database schema. When the scripts complete, the upgrade status on the workspace is set to Pending Application Upgrade.

4. **Set upgrade status to Upgrading Applications.** The Workspace Upgrade Manager queues applications required for installation in workspaces in the Application Install table, and it sets the upgrade status to Upgrading Applications.

5. **Install applications.** The Application Installation Manager installs the required applications.

6. **Complete installation.** When the application upgrades have installed successfully, the Workspace Upgrade Manager checks the application status, and then sets the status of the workspace to Completed.

During an Invariant upgrade, the agents complete the following tasks and then update the statuses displayed on the Workspace Upgrade queue:

1. **Set store upgrade status to Pending.** The Invariant.DBUpdater runs and sets the store status on workspaces in the Workspace Upgrade queue to Pending.

2. **Pick up pending store upgrade jobs.** The Workspace Upgrade Worker sees a pending store upgrade job in the queue, picks it up, and begins upgrading the store.

3. **Run upgrade scripts.** The Workspace Upgrade Worker sets the status of the workspace to Upgrading scripts and runs the SQL scripts to update the store database schema.
10.1.2 Workspace Upgrade queue columns

The Workspace Upgrade queue displays the following columns:

- **Artifact ID** - the Artifact ID of a workspace undergoing an upgrade.
- **Workspace Name** - the name of a workspace undergoing an upgrade. Click the name to display the document list in the workspace.
- **Priority** - the upgrade order assigned to the workspace. Priorities include Low, Medium, and High. See Editing upgrade priority and order for a workspace on the next page.
- **Upgrade Status** - the status of the workspace upgrade as determined by the current Procuro stage. See Upgrade statuses descriptions on the next page.
- **Workspace UpgradeStatus** - the value assigned to the Status field on the workspace details page. See Upgrade statuses descriptions on the next page.
- **Current Relativity Version** - the workspace is currently updated to this version of Relativity.
- **Store Upgrade Status** - the status of the upgrade of the Invariant store, as completed by the Workspace Upgrade Worker agent. The possible values in this column are the same as for the workspace upgrade. This field is empty if you don't have processing installed. You could see any of the following status values:

<table>
<thead>
<tr>
<th>Status</th>
<th>What it means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pending</td>
<td>The Invariant store have been added to the Workspace Upgrade queue, but the Workspace Upgrade Worker hasn’t picked it up yet.</td>
</tr>
<tr>
<td>Upgrading Scripts</td>
<td>The Workspace Upgrade Worker agent is running scripts against the Invariant store.</td>
</tr>
<tr>
<td>Completed</td>
<td>The store is fully upgraded and ready for use.</td>
</tr>
<tr>
<td>Failed Script Upgrade</td>
<td>An error occurred while upgrading SQL scripts for the Invariant store, the upgrade failed, and Relativity Processing is disabled in the workspace.</td>
</tr>
<tr>
<td>Canceled</td>
<td>The user canceled the upgrade when it had the status of Pending, Pending Application Upgrade, Upgrading Scripts, or Upgrading Applications. See Canceling or retrying workspace upgrades on page 94.</td>
</tr>
<tr>
<td>NULL</td>
<td>A Store has not been created on this workspace.</td>
</tr>
</tbody>
</table>

- **Current Store Version** - the version of Invariant you are upgrading to. This field always displays the most current version of Invariant available. This is because if the upgrade fails, it displays the version of Invariant you were attempting to upgrade to, and if the upgrade was successful, it displays the version you just upgraded to, which is the most current.

- **Upgrade Progress** - the percentage of the upgrade process that has completed. It uses the following colors to indicate the upgrade status:
  - **Blue** - indicates the upgrade is in progress.
  - **Green** - indicates a completed upgrade.
10.1.3 Upgrade statuses descriptions

The following table contains descriptions for the statuses displayed in the Upgrade Status column on the Workspace Upgrade queue:

<table>
<thead>
<tr>
<th>Status</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canceled</td>
<td>The user canceled the upgrade when it had the status of Pending, Pending Application Upgrade, Upgrading Scripts, or Upgrading Applications. See Canceling or retrying workspace upgrades on page 94.</td>
</tr>
<tr>
<td>Completed</td>
<td>The upgrade of the workspace completed successfully.</td>
</tr>
<tr>
<td>Failed Application Upgrade</td>
<td>An error occurred while upgrading applications in the workspace. See Troubleshooting upgrades on the next page.</td>
</tr>
<tr>
<td>Failed Script Upgrade</td>
<td>An error occurred while upgrading SQL scripts for the workspace. See Troubleshooting upgrades on the next page.</td>
</tr>
<tr>
<td>Pending</td>
<td>The workspace has been added to the Workspace Upgrade queue, but the Workspace Upgrade Worker hasn’t picked it up yet.</td>
</tr>
<tr>
<td>Pending Application Upgrade</td>
<td>The Workspace Upgrade Manager populates the application installation queue with any required applications.</td>
</tr>
<tr>
<td>Upgrading Applications</td>
<td>The Application Installation Manager upgrades the applications in the workspace.</td>
</tr>
<tr>
<td>Upgrading Scripts</td>
<td>The Workspace Upgrade Worker runs Procuro scripts against the workspace database.</td>
</tr>
</tbody>
</table>

10.2 Editing upgrade priority and order for a workspace

You can set order and priority on workspaces for upgrades. Relativity always upgrades ordered workspaces before unordered workspaces regardless of their priority. Relativity uses priority to determine which of the workspaces to upgrade first when you don’t assign an order.

In addition, if you assign the same order to a group of workspaces, Relativity uses their Artifact ID to determine the upgrade order. It follows a similar process if you assign the same priority to a group of workspaces.

The priority and order options provide you with the flexibility needed to control the workspaces that Relativity upgrades first and those that are upgraded later. For example, you might upgrade workspaces in high demand, so that they are available to users sooner than those less frequently accessed workspaces. The default priority for workspaces is Medium and the default order is blank.

**Note:** Your users may notice decreased Relativity performance if they are using a workspace on the same SQL Server where you are upgrading other workspaces. However, if you are upgrading workspaces on another server in a distributed environment, users shouldn’t notice any change in performance.

Use this procedure to change the priority and order:
1. Perform one of these tasks to select the workspaces:
   - To set the priority for only a specific group of workspaces, select their checkboxes. In the mass operations bar, choose **Checked**.
   - To set the priority for all workspaces, choose **All Items** in the mass operations bar.

2. Select **Edit Priority** in the mass operations bar.

3. Click **Go** to display the Edit Upgrade Priority dialog.

4. Perform one or both of the following tasks:
   - Select the **Priority** checkbox. Choose **Low**, **Medium**, or **High** from the drop-down menu.
   - Select the **Order** checkbox. Enter a value in the text box. You use this value to specify the order that you want used for workspace upgrades. Relativity upgrades workspaces with a smaller order values before those with a larger values. The default value for Order is blank.

5. Click **Ok** to save your changes.

### 10.3 Troubleshooting upgrades

From the Workspace Upgrade queue, you can view script and application errors, which may have occurred during an upgrade. You can also use the mass operations for retrying a workspace upgrade from the queue or canceling an upgrade. For more information, see the following sections:

- **Viewing upgrade errors**
- **Canceling or retrying workspace upgrades**

#### 10.3.1 Viewing upgrade errors

When an application or script fails to upgrade properly, the Upgrade Status column displays a link that you can use to view additional information about the error that occurred.
Note: You can also view errors, upgrade status, script details, and other information on the History of Workspace dialog. To display this information, click the Workspace Details tab, and then click the View Audit button.

10.3.1.1 Script or other non-application upgrade fails

When a script upgrade fails, click the Failed Script Upgrade link to display the Error Information dialog, which includes a detailed error message, server, source, and other information.

You can’t access a workspace when a script or other upgrade non-application error occurs. If you attempt to open a workspace with these upgrade errors, you receive a message indicating that the workspace is inaccessible. Click the Return to Home link to display the default Home tab.

Note: If you only want to display workspaces that are fully upgraded and accessible, add a condition on the workspace view where the Workspace Accessibility field is set to Enabled. This setting filters only upgrade accessible workspaces, and hides any workspaces that users can’t interact with.

When a script error occurs during an upgrade, review the details of the failure in the error message available from the Failed Script Upgrade link. You may also want to rerun the upgrade using the Retry Upgrade option. See Canceling or retrying workspace upgrades on the next page.
10.3.1.2 Application upgrade fails in a workspace
When an application upgrade fails, click the Failed Application Upgrade link to display the Application Errors dialog. If multiple applications failed to upgrade, click this link to display a pop-up with links to the error pages for these applications.

When an application error occurs, review the details of the failure in the error message available from the Failed Application Upgrade link. You can resolve locking conflicts that occur when a locked application prevents an upgrade, and naming conflicts that occur when an object type in an application shares the same name as another object type in the workspace. To resolve these errors, perform one of the following tasks:

- **Locking conflicts** - Click the Failed Application Upgrade link to display the detailed error message. Select the Unlock <Application Name> checkbox, and click Retry Import on the error message.

- **Naming conflicts** - Click the Failed Application Upgrade link to display the detailed error message. Select Rename from the drop-down box, enter a new name for the object in the text box, and click Retry Import on the error message.

In addition, you can perform these tasks for resolving locking and naming conflicts through the Application Library tab.

You can continue accessing a workspace when an application that it contains fails to upgrade successfully for additional troubleshooting. From the Relativity Applications tab, you can view the application details to resolve application errors. When a workspace contains an application in this failed upgrade state, Relativity displays an orange message bar across most of its pages, which contains with a warning indicating that workspace upgrade isn’t complete.

For more information, see Troubleshooting application errors in the Relativity 9.4 Developers site.

10.3.2 Canceling or retrying workspace upgrades
You can cancel an upgrade job on a workspace or retry an upgrade job as necessary. After you cancel a job, the workspace remains in a partially upgraded state so it is no longer accessible. You must attempt to complete a successful upgrade in order to access the workspace.

Use this procedure to cancel or retry an upgrade job:
1. Perform one of these tasks to select the workspaces:
   - To retry or cancel the upgrade jobs for only a specific group of workspaces, select their check-boxes. In the mass operations bar, choose **Checked**.
   - To retry or cancel the upgrade jobs for all workspaces, choose **All Items** in the mass operations bar.

2. Select **Retry Upgrade** or **Cancel Upgrade** in the mass operations bar.

3. Click **Go** to display a confirmation dialog.

4. Click **OK** if you want to continue with your selected action.
11 Upgrading or installing your Analytics server

An upgrade of your Analytics server is required for Relativity 9.4. To upgrade to Relativity Analytics 9.4, you must first:

1. Install or upgrade your Relativity instance. Install or upgrade your Relativity instance.
2. Run the Relativity Analytics Server Setup wizard.

When you run the Relativity Analytics Server Setup wizard, the wizard automatically:

- Installs the CAAT service
- Deploys the Relativity library files
- Configures the java heap size (set by default to half of RAM)
  - If you re-install the Analytics server after already adjusting the java heap size settings, the new installation will overwrite the java heap adjustments you made.
- Allows you to set an index path on new install, thus eliminating the need to manually set the location of indexes
- Sets the CAAT Windows service to log in as the Relativity Service Account

This topic contains the following sections:

- [Upgrading your Analytics server below](#)
- [Running the Analytics installer on the next page](#)
- [Upgrading clusters for CAAT 3.17.2 and higher from Relativity 9.1 and lower on page 101](#)
- [Addressing "Could not configure security" installer warning on page 103](#)
- [Post-upgrade: Updating the default SSL/TLS certificate for CAAT® on page 104](#)
- [Disabling TLS 1.0 and 1.1 (optional) on page 110](#)
- [Installing Analytics server when SQL Server uses SSL encryption on page 111](#)
- [Changing the REST password on page 112](#)
- [Uninstalling the Relativity Analytics server on page 112](#)

11.1 Upgrading your Analytics server

Follow these steps to upgrade your analytics server(s). Before upgrading the Analytics server(s), make sure you’ve completed the steps contained in the following sections:

1. Required upgrade steps for all Relativity versions.
2. Install or upgrade the primary SQL Server in your Relativity instance.
3. See Analytics server setup in the Pre-Installation Guide.

**Note:** Before attempting an upgrade, stop all CAAT processes (i.e., ensure that all Java and Postgres processes are stopped), and then back up the CAAT install directory and the CAAT data directory. If something goes wrong with the upgrade, this will greatly reduce any downtime spent to fix the problem.
You need the following items in order to successfully run the Relativity Analytics Server Setup wizard:

- The primary database server instance name and corresponding EDDSDBO password. If your SQL Server uses SSL encryption, see [Installing Analytics server when SQL Server uses SSL encryption on page 111](#) before beginning the Analytics server installation.
- The Relativity Service Account username and password.
- All SQL Servers must be active and accessible at the time of the installation.

### 11.2 Running the Analytics installer

The following steps may be necessary when installing Analytics:

**Running Relativity Analytics server setup**

Note the following before running the Relativity Analytics Server Setup:

- Run the server setup as the Relativity Service Account.
- You must have system admin rights to both the Analytics server and the index share path in order to run the installer without interruption. If you don't, the installer informs you that the directories can't be configured and that you must check to make sure that your permissions are correct.

**Note:** If a "Could not configure security for the following directories" warning occurs during your Analytics installation or upgrade, see [Addressing "Could not configure security" installer warning on page 103](#).

Follow these steps to run the Relativity Analytics Server Setup:

2. Click **Next** on the Relativity Analytics Server Setup welcome dialog.
3. Enter values for the following **Primary Database Server Configuration** fields and click **Next**:

- **Primary Database Server Instance** - the primary database server to which you want to install the Content Analyst service. The value you enter must match the **Name** value recorded on the **Servers** tab in Relativity.

- **EDDSDBO Password** - the password to the EDDSDBO account of the primary database. If you change the password to your primary database server instance, you must re-run the Relativity Analytics Server Setup wizard.

- **Relativity Service Account** - the service account of the Relativity instance that is using this installation of Content Analyst. You must use the following format for the service account name: `<domain>\<user>`.

- **Relativity Service Account Password** - the password for the Relativity instance.

4. Enter values for the following **REST API configuration** fields, and then click **Next**. These values must match those of the corresponding fields on the Analytics server object in Relativity. For more information, see Servers in the Admin Guide.

- **REST Port** - the port that the REST API will use via https. By default, this setting uses port 8443.

- **REST Username** - the username that a system admin or Relativity uses to authenticate with the REST API. This can be any username that you choose, but for ease of use, you may want to enter your Relativity Service account username. Whatever you enter here corresponds only with the REST API username field on the Analytics server that you will add in Relativity.
after you install the Analytics server here. This value isn't related to any pre-existing part of the system, meaning that it isn't a SQL login, Windows Domain user, or Relativity user.

- **REST Password** - the password you create for the REST API user. This can be any password that you choose, but for ease of use, you may want to enter your Relativity Service account password. Whatever you enter here corresponds only with the REST API password field on the Analytics server that you will add in Relativity after you install the Analytics server here. This value isn't related to any pre-existing part of the system, meaning that it isn't the password for a SQL login, Windows Domain user, or Relativity user.

- **Confirm REST Password** - retype the password you created for the REST API user.

5. Check, edit, or enter the values for the following **Relativity Analytics Server Installation** fields, and then click **Install**. These are automatically populated and are editable only if there is no existing installation of Content Analyst. If there is an existing installation of Content Analyst that has a non-default service name, Relativity isn't able to detect that installation. Thus, you must enter the correct values for these fields to successfully upgrade your installation of CAAT:

- **Analytics Server folder** - the path to the folder containing the Analytics installation files.
  - We recommend using the default folder of C:\CAAT (or C:\ContentAnalyst for a legacy installation).
  - This path must be absolute, and it can’t contain spaces or invalid characters.
  - If the installer can't find or access the location you specify, it installs the application to the default C:\CAAT folder.

- **Analytics Server Service Name** - the Windows service name of the Analytics instance. We recommend leaving this as the default value. This can’t contain any invalid characters and it can’t exceed 80 characters.

- **Analytics Server Port Number** - the port number of the Analytics server. The default port is 8080, but you can configure a different port number.

- **Analytics Index Directory** - the directory where indexes and structured analytics sets are stored on disk.
  - We recommend that you not keep the index directory on the C: drive due to the size requirements.
  - We recommend you use locally-attached storage referenced by a drive letter, i.e. E:\CAATIndexes, rather than a UNC path. For more information, see Index directory requirements.
  - Do not create a local drive map to a UNC. For example, do not open \server-name\CAAT1 and map it to drive Z:. This is because drive mappings are specific to each Windows user and may not be available to the Relativity Service Account.
  - This path must be absolute, and it can’t contain spaces, invalid characters, or any Unicode.
  - Always use the installer to make changes to your Analytics configuration, including the index directory. If you need to specify a new folder path, see Moving Analytics indexes and structured analytics sets in the Admin Guide.
- **Postpone upgrading data elements until accessed at runtime** - When this is checked, structured analytics data is not upgraded until it's accessed for the first time (recommended). When this is unchecked, structured analytics data is upgraded as part of the overall CAAT upgrade process (this may cause the upgrade to take a much longer time).

**Note:** If using a UNC path for the **Analytics Server Folder** and (Optional) **Analytics Index Share Folder** fields, the path must point to a Windows server directory.

When you first click **Install**, Relativity unzips the Analytics installer. This can take several minutes to complete.

6. (Optional) Monitor the status of the installation. You don’t have to click next once this process is complete.

7. (Optional) Note the installation specifications in the command line window. Do not close this during installation. It closes automatically when installation is complete and the final step of the wizard appears.

8. Click **Finish** to complete the installation.

9. Relativity 9.3 and above requires a certificate signed by a trusted certificate authority (CA). By default, the CAAT service runs over an untrusted SSL/TLS certificate. For steps to modify, see [Post-upgrade: Updating the default SSL/TLS certificate for CAAT® on page 104](#).

10. (Optional) Confirm that all components of the Analytics service are running by visiting `http://<Analytics Server Hostname>:<REST Port>/nexus/services` and checking the Available Services list. Make sure to specify your Analytics server host name and REST port in the URL. For versions of Relativity prior to 9.4.361.1, use the CA port (e.g., 8080).

![Available Services](image.png)

**Available Services:**

- AutomationService [wsdl]
- ClusterService [wsdl]
- LanguageIdService [wsdl]
- OperationsService [wsdl]
- SearchService [wsdl]
- StagingService [wsdl]
- TextCategorizerIndexService [wsdl]
- TextCategorizerStoreService [wsdl]
- TextIndexService [wsdl]
- TextSummaryService [wsdl]

11. If this is a new Analytics server, add it to the Servers list. For these steps, see Adding an Analytics server on the Documentation site. If the server has already been added, navigate to the Servers tab.
and activate it. Make sure to enter the information on the server layout the same as you did in the
Analytics installer.

- If you enter the information correctly, you can successfully save the server.
- If you receive a *not found* error on the server, make sure the Analytics service is running and
  that you used the correct port.
- If you get an unauthorized error, make sure that you entered the credentials correctly.

Content Analyst is now installed in your environment.

### 11.3 Upgrading clusters for CAAT 3.17.2 and higher from Relativity 9.1 and lower

Upgrading clusters for CAAT 3.17.2 and higher from Relativity 9.1 or lower

**Note:** The instructions in this section are only necessary when upgrading to Relativity from Relativity
9.1 or below.

Relativity 9.2.271.9 installs CAAT 3.17.2 which includes clustering performance improvements. You must
upgrade your existing clusters if they were created using a version of CAAT previous to 3.17.2.

To upgrade your clusters, use one of the following upgrade methods:

- Run Create Cluster Upgrade Jobs script below
- Upgrade clusters on the fly on page 103

#### 11.3.0.1 Run Create Cluster Upgrade Jobs script

Complete the following steps to automate the cluster set upgrade process by creating upgrade jobs for
one workspace or all workspaces using the Create Cluster Upgrade jobs script:

1. Navigate to *Home*.
2. Click the *Relativity Script Library* tab.
3. Locate and click the *Create Cluster Upgrade Jobs* script.
4. Click *Run Script*.
5. Select the workspace that contains the clusters you want to upgrade from the *Workspace Name*
drop-down menu or select `<All Workspaces>` to upgrade all clusters in all of your workspaces.
6. Click Run followed by OK.

7. Close the Create Cluster Upgrade Jobs script dialog.

Cluster upgrade jobs added by the Create Cluster Upgrade Jobs script are managed by the Cluster Upgrade Worker agent. See the Agents guide for more information regarding the Cluster Upgrade Worker agent. See the Admin Guide for additional details regarding the Create Cluster Upgrade Jobs script and script results.

11.3.0.2 Monitor cluster upgrade jobs

The Monitor Cluster Upgrade Jobs script checks and reports the status of all Analytics cluster upgrade jobs added using the Create Cluster Upgrade Jobs script.

Complete the following steps to view a count of clusters that are upgraded and not upgraded by workspace:

1. Navigate to Home.
2. Click the Relativity Script Library tab.
3. Locate and click the Monitor Cluster Upgrade Jobs script.
4. Click Run Script.
5. Click Run. With the Monitor Cluster Upgrade Jobs dialog still open, click Run again to refresh the list.
6. Close the **Monitor Cluster Upgrade Jobs** script dialog.

See the Admin Guide for additional details regarding the Monitor Cluster Upgrade Jobs script and script results as well as steps to identify failed cluster upgrades.

**11.3.0.3 Upgrade clusters on the fly**

If you have any clusters created using versions of Content Analyst previous to CAAT 3.17.2 that weren't upgraded using the Create Cluster Upgrade Jobs script, the system automatically calculates and stores the cluster distance data on the fly when a user first clicks to view a cluster's nearby cluster visualization.

The on the fly upgrade and calculation require anywhere from a few seconds to a number of minutes depending on the size and complexity of the data. While the system upgrades a cluster and calculates the distance data, the cluster can't be accessed using cluster visualization, and a notification message informs the user the cluster data is being updated.

When the upgrade and calculation processes complete for a cluster, users can access the cluster using cluster visualization with the performance improvements in effect.

**11.4 Addressing "Could not configure security" installer warning**

Addressing "Could not configure security" installer warning

The following warning message may occur when upgrading or installing Relativity Analytics:

*Could not configure security for the following directories:*

*Please confirm that the Relativity Service account has full control on them.*
This warning that indicates that the user account running the installer failed to update the permissions on the listed directories for the Relativity Service account. After you acknowledge the warning, continue and complete the installation or upgrade of Analytics. The installation is still valid.

After finishing the Analytics installation or upgrade, complete the following steps to ensure the Relativity Service account has appropriate access to the directories listed in the warning message:

1. Stop the Content Analyst CAAT Windows service if it's running.
2. Add the Relativity Service Account user to the Administrators and Users groups.
3. Grant the Relativity Service Account Full Control permissions on C:\CAAT (the installation directory).
4. Grant the Users group Full Control permissions on C:\CAAT\pgsql\data.
5. If the installation contains a C:\CAAT\data-default folder, grant the Users group Full Control permissions on this folder.
6. If the index directory is different from the default (i.e. on another drive or share), ensure the Relativity Service Account has Full Control permissions on the index directory.
7. Restart the Analytics server after updating the user and group permissions.
8. Verify the Relativity Service Account is running the CAAT Content Analyst Windows Service.

11.5 Post-upgrade: Updating the default SSL/TLS certificate for CAAT®

As of Relativity 9.3, Relativity requires a trusted certificate for all HTTPS traffic, including the internal traffic for the Analytics server. We recommend placing the certificate and testing it prior to the day of the upgrade to Relativity 9.3. By default, the Content Analyst (CAAT®) service runs over an untrusted SSL/TLS certificate. There are several options for getting a trusted certificate in place. You most likely already have a certificate for your externally facing web servers. However, it’s likely that the domain name for that certificate doesn’t match the internal fully qualified domain name (FQDN) of the Analytics server(s). If it DOES match, you may use the same certificate currently on your web server.

For example, if the external certificate is *company.com but your domain is *.company.corp, then this does not match and cannot be used. If it does not, we strongly recommend purchasing one from a trusted certificate authority and placing it on the Analytics server before the upgrade. If you choose not to purchase a certificate, it is possible to use a self-signed certificate as a temporary measure. Should you choose to do this, we recommend using the fully qualified domain name when creating the self-signed certificate so that it can be swapped for a real certificate from a trusted authority later on.

To check the fully qualified domain name (FQDN) of the Analytics server:

1. Open the Control Panel.
2. Navigate to Control Panel\System and Security\System.
3. Under the Computer name section, find the entry for Full Computer Name.
4. If you have an existing certificate, verify that it matches the FQDN of the Analytics server.
   - If it does not, you must either purchase a new certificate or generate a self-signed certificate.

Perform the following steps to use a trusted certificate:
Note: Beginning in 9.4.321.2, Relativity Analytics Server includes an update to the java version. Replace the jdk1.8.0_74 noted in the instructions with the previous version jdk1.8.0_25 for the SSL / TLS certificate command lines if you are using a version prior to 9.4.321.2.

11.5.1 Overview of how to update the SSL / TLS certificate
Perform the following steps to use a certificate. The detailed substeps under each major step are outlined in the section below.

1. Delete the default, unsigned certificate.

2. If you have a trusted certificate (that uses the FQDN), proceed directly to step 3 (importing a certificate). Otherwise, Create a self-signed certificate first before proceeding to step 3.

   Note: It is recommended that you use a certificate from a trusted authority (if possible). For workgroup environments, a self-signed certificate is necessary.

3. Import a certificate (trusted or self-signed) that uses the FQDN.

4. Verify the Analytics server in Relativity.

11.5.2 1) Deleting the default, unsigned certificate
Complete the following steps to delete the default, unsigned certificate:

1. Log in to the analytics server as the Relativity Service Account.

2. Open a command prompt window.

3. View a list of all certificates in the keystore by running the following command:

   
   C:\CAAT\jdk1.8.0_121\bin\keytool.exe -list -keystore C:\CAAT\etc\ssl\server.keystore -v

   Note: These commands assume that the CAAT installation directory is C:\CAAT. They may need to be modified to account for differing installation drive letters or installation folder names.

4. You will be prompted to enter a keystore password. The default password is caat4me. Type this into the command prompt and then hit Enter.

   Note: The password will not appear on the screen while typing.

5. Take note of the certificate(s) listed in the keystore. The alias name for the default CAAT® certificate to be deleted is contentanalyst.

6. To delete the default CAAT certificate, run the following command:

   C:\CAAT\jdk1.8.0_121\bin\keytool.exe -delete -keystore C:\CAAT\etc\ssl\server.keystore -alias contentanalyst
11.5.3 2) Creating a self-signed certificate (no trusted certificate) - optional step

Complete the following steps to create a self-signed certificate:

1. Copy the internal fully qualified domain name (FQDN) of the Analytics server(s) in a text file for use later in this process. You can determine this value by running the following command in a command prompt window on your Analytics server:

   \( \text{hostname} \)

2. Run PowerShell as an administrator.

3. Create your self-signed certificate in PowerShell using the following command (replace \(<<\text{hostname}>>\) with the output of the command from step 1):

   ```powershell
   New-SelfSignedCertificate -certstorelocation cert:\localmachine\my -dnsname \(<<\text{hostname}>>\)
   ```

   Running that command will add the self-signed certificate to the local certificate store and generate a thumbprint (e.g., CE0976529B02DE058C9CB2C0E64AD79DAFB18CF4).

4. Copy the thumbprint for use later.

5. In the PowerShell window, enter the following command to populate a variable with a password you'll use when exporting the certificate from the local certificate store (replace \(<<\text{password}>>\) with a password of your choice):

   ```powershell
   $pwd = ConvertTo-SecureString -String "<<\text{password}>>" -Force -AsPlainText
   ```

6. Export the certificate from the local certificate store to a directory of your choosing accessible to the keystore (replace \(<<\text{thumbprint}>>\) with the output of the command in step 4 and replace \(<<\text{pfxcert-filepath}>>\) with the destination filepath for the pfx certificate that will be generated):

   ```powershell
   Export-PfxCertificate -cert cert:\localMachine\my\<<\text{thumbprint}>> -FilePath <<\text{pfxcert-filepath}>> -Password $pwd
   ```

   **Note:** Do not export the cert as a *.cer file. A *.cer file does not include the certificate's private key and will not work in CAAT.

7. Import the self-signed certificate into the keystore. See Importing a certificate (trusted or self-signed).

   **Note:** In some cases, you may have a security policy in pace that prevents the export of the cert's private key. CAAT must have the certificate's private key in order for SSL to function. You must either override your security policy or generate a new SSL certificate with a new private key and export this new certificate and private key.

Complete the following steps to create a self-signed certificate in command prompt:
**Note:** Beginning in 9.4.321.2, Relativity Analytics Server includes an update to the java version. Replace the `jdk1.8.0_74` noted in the instructions with the previous version `jdk1.8.0_25` for the SSL / TLS certificate command lines if you are using a version prior to 9.4.321.2.

1. Run the following command from the Analytics server:

   ```
   C:\CAAT\jdk1.8.0_74\bin\keytool.exe -genkey -keyalg RSA -alias selfsigned -keystore C:\CAAT\etc\ssl\server.keystore -storepass caat4me -validity 360 -keysize 2048
   ```

2. You will be prompted several times. Enter the FQDN of the Analytics server for all prompts except the last, which is just the country abbreviation.

3. Use the same keypass as the keystore when prompted. You can either hit return or type in `caat4me`.

4. Export the certificate using the following command:

   ```
   C:\CAAT\jdk1.8.0_74\bin\keytool.exe -export -alias selfsigned -file C:\selfsigned.crt -keystore C:\CAAT\etc\ssl\server.keystore
   ```

5. Restart the Content Analyst CAAT windows service.

6. Import the certificate to the Trusted Root of the following servers:
   - Analytics servers
   - Agent servers
   - Primary and distributed SQL servers
   - Web servers

   To do so, complete the following:
   a. Navigate to the endpoint for the CAAT certificate ([https://<server-name.FQDN>:8443/nexus/r1/](https://<server-name.FQDN>:8443/nexus/r1/)).
   b. A warning will appear indicating there is a problem with the website's security certificate. Click "continue to this website (not recommended)".
   c. Upon clicking continue, you will be prompted to enter your REST account credentials.
   d. Click on the certificate error in the address bar.
   e. Click View Certificates.
   f. Click Install Certificate.
   g. Import the certificate to either the Current User or Local Machine store location.
   h. Select "Place all certificates in the following store" and browse for "Trusted Root Certification Authorities".
   i. Click Finish.
   j. Test that the import was successful by navigating to the REST site again.
   k. Repeat this process for each server listed above.
7. Proceed to Upgrading or installing your Analytics server on page 96.

11.5.4 3) Importing a certificate (trusted or self-signed)
The certificate you import must be a PKCS12 certificate with the certs private key.
When you have a valid certificate (trusted or self-signed) matching the FQDN of the analytics server, complete the following steps to import it to the keystore:

1. Run the following command, replacing <Certificate> with the file path, name, and extension of the certificate (i.e., C:\folder\RelativityCert.pfx) and replace <CertPassword> and <DestinationPassword> with the relevant passwords.

   <CertPassword> - this is the password of the certificate. (For a self-signed certificate, this password was set when exporting the cert from the local certificate store. For a trusted certificate, this must be provided to you by the CA or your IT admins.)

   <DestinationPassword> - this is a value you are setting now, it will be used while modifying start.ini in step X

   ```cmd
   C:\CAAT\jdk1.8.0_121\bin\keytool.exe -importkeystore -srckeystore \Certificate\ -srcstorepass \CertPassword\ -srcstoretype pkcs12 -destkeystore C:\CAAT\etc\ssl\server.keystore -destkeypass \DestinationPassword\ -deststoretype JKS
   ```

2. When prompted for the keystore password, enter it again.

   **Note:** The default password for the keystore is caat4me. The password for the certificate must match the password for the keystore. The password will not appear on the screen while typing.

3. Verify that the certificate is in the keystore by running the following command to list the certificates:

   ```cmd
   C:\CAAT\jdk1.8.0_121\bin\keytool.exe -list -keystore C:\CAAT\etc\ssl\server.keystore -v
   ```

4. Modify the start.ini file as detailed below (C:\CAAT\start.ini).
   a. Ensure that --module=ssl is uncommented
   b. Ensure that jetty.keystore=etc/ssl/server.keystore is set
   c. Ensure that the follow are set correctly:

      - `jetty.keystore.password=<password for the server.keystore>` The default is caat4me.

      - `jetty.keymanager.password=<DestinationPassword>` This value is set in step 1, while importing the cert into the keystore.

      **Note:** Optional: For instructions on how to change and obfuscate the default Jetty passwords, refer to the Relativity Community.

5. Restart the Content Analyst CAAT windows service.

   **Note:** The endpoint for the CAAT certificate is https://<servername.FQDN>:8443/nexus/r1/.
6. Test the certificate by opening a browser from the Analytics server and at least one other server and navigating to the endpoint above. You should not get a certificate error when navigating to the URL.

7. Depending on whether you have a trusted certificate or a self-signed certificate, proceed as follows:
   ■ If you are using a trusted certificate, you can proceed directly to Verifying the Analytics server in Relativity.
   ■ If you are using a self-signed certificate, proceed to step 8.

8. If you have imported a self-signed certificate, import the certificate to the Trusted Root of the following additional servers:
   ■ Analytics servers
   ■ Agent servers
   ■ Primary and distributed SQL servers
   ■ Web servers

To do so, follow these instructions:
   a. Navigate to the endpoint for the CAAT certificate (https://<servername.FQDN>:8443/nexus/r1/).
   b. A warning will appear indicating there is a problem with the website’s security certificate. Click "continue to this website (not recommended)".
      Upon clicking continue, you will be prompted to enter your REST account credentials.
   c. Click on the certificate error in the address bar.
   d. Click View Certificates.
   e. Click Install Certificate….
   f. Import the certificate to either the Current User or Local Machine store location.
   g. Select "Place all certificates in the following store" and browse for "Trusted Root Certification Authorities".
   h. Click Finish.
   i. Test that the import was successful by navigating to the REST site again.
   j. Repeat this process for each server listed above.

9. Proceed to Verifying the Analytics server in Relativity:

11.5.5 4) Verifying the Analytics server in Relativity

Verify in Relativity that the Analytics server URL uses the FQDN and not the server name or IP address. Navigate to the Servers tab, and check the URL of the Analytics server. If it does not contain the FQDN, then follow these steps:

1. Verify that you have a valid URL value entered for the RestUriForCAAT instance setting. This is the FQDN URL to the web server hosting your Kepler services (e.g., https://client.domain.name/Relativity.REST/API).
2. Add a new Analytics server from the Servers tab in Relativity. See Adding an Analytics server in the Admin Guide for more information.
   When entering the URL:
   a. Use this format: https://<servername.FQDN>:8443/. (For versions of Relativity prior to 9.4.361.1, use this format: http://<servername.FQDN>:8080/nexus/services/)
   b. Duplicate all other settings from the original Analytics server.
3. Add the new Analytics server to all of the same Resource Pools as the original server.
4. Place the Analytics Move script into the Relativity Script Library.
5. Test functionality by creating a small structured analytics set or index.
6. Run the Analytics Move script to swap all references from the original server to the new server just created.
7. Delete the old Analytics server from the Servers tab in Relativity.

11.6 Disabling TLS 1.0 and 1.1 (optional)

**Note:** The following instructions apply to versions of Relativity using CAAT versions 3.19 and above. Earlier version of CAAT do not support disabling TLS 1.0 -- all versions of CAAT support communication over TLS 1.2.

1. Open C:\CAAT\jetty\etc\jetty-ssl.xml.
2. Insert `<Set name="ExcludeProtocols">` item in the configuration file as shown below at the end of Configure a TLS (SSL) Context Factory.

   ```xml
   <Item>SSL_RSA_EXPORT_WITH_DES40_CBC_SHA</Item>
   <Item>SSL_DHE_RSA_EXPORT_WITH_DES40_CBC_SHA</Item>
   <Item>SSL_DHE_DSS_EXPORT_WITH_DES40_CBC_SHA</Item>
   </Array>
   </Set>

   <Set name="ExcludeProtocols">
   <Array type="String">
   <Item>TLSv1</Item>
   <Item>TLSv1.1</Item>
   </Array>
   </Set>

   <!-- Create a TLS specific HttpConfiguration based on the common HttpConfiguration defined in jetty.xml -->

3. Restart the Content Analyst (CAAT) Windows service.
4. Update the registry key on all web and agent servers:
   a. Create or update the following registry keys on each server as shown below. You should be able to create a *.reg file out of the snippet below.
b. Restart IIS or the agent service on each applicable server.

5. Verify that the connection works by clicking **Save** in the Analytics Server layout.

### 11.7 Installing Analytics server when SQL Server uses SSL encryption

When your primary SQL Server uses SSL encryption, you must satisfy the following additional environment requirements in order for the Analytics server to communicate with SQL Server:

- The SQL Server's certificate is installed in the Analytics server KeyStore. See [Install a SQL Server certificate in the Analytics server KeyStore below](#).
- The Common Name (CN) property of the SQL Server's certificate matches the server name value recorded for the SQL Server in Relativity. See [Use the CN property of a SQL Server certificate in Relativity on the next page](#).

#### 11.7.1 Install a SQL Server certificate in the Analytics server KeyStore

Complete the following steps to install a SQL Server's certificate in your Analytics server KeyStore:

1. Export the SQL Server's certificate in X.509 DER format and place a copy of the certificate on the Analytics server.
2. Note the **CN** property value recorded in the certificate.
3. Open the following directory in a command prompt on your Analytics server:

   ```
   <CAAT install drive>\jdk1.x\jre\lib\security
   ```

   The `<CAAT install drive>` reference represents the Analytics server installation folder, and x represents the version of the JDK installed on your Analytics server. Browse to the `security` directory using Windows Explorer first to ensure you use the correct Analytics server installation path.
4. Run the following command from the command prompt:

   ```
   ..\bin\keytool.exe -import -alias <CN> -keystore cacerts -file <path to cert file from Step 1>
   ```

   Replace `<CN>` with the **CN** property recorded in the SQL Server's certificate and replace `<path to cert file from Step 1>` with the path location of the certificate file you copied to the Analytics server.
5. Enter your Java KeyStore password followed by **yes** when prompted to install the certificate.

**Note:** This step is only required if your Java KeyStore is password protected. Please refer to Oracle for default Java password information.
11.7.2 Use the CN property of a SQL Server certificate in Relativity

When running an Analytics server with a SQL Server that uses SSL encryption, the name of the SQL Server recorded on the Servers tab in Relativity and the name entered during Analytics server installation must match the CN value recorded in the SQL Server's security certificate. When running the Relativity Analytics Server installation, enter the CN property value from your SQL Server's certificate in the Primary Database Server Instance field on the Primary Database Server Configuration dialog.

**Note:** If your SQL Server’s Name value recorded on the Servers tab in Relativity doesn’t match the CN property in the SQL Server’s security certificate, contact support@relativity.com for assistance with updating the SQL Server name in Relativity. Change the SQL Server’s Name value in Relativity after you complete the Analytics installation.

11.8 Changing the REST password

If you need to change the REST password, perform the following steps:

1. Rerun the Analytics installer and enter the new password in the REST Password field.
2. Go to the Servers tab in Relativity select the Analytics server.
3. Enter the new password in the now-optional REST API password field and click Save.

11.9 Uninstalling the Relativity Analytics server

We don't recommend uninstalling the Relativity Analytics Server application for any reason as it causes data loss. If you uninstall the Relativity Analytics Server application from the analytics server, all structured analytics sets created in Relativity 8.2 and higher can't be used with another installation. There is no way to merge a previous Relativity Analytics Server installation with a new installation. As a result, structured analytics sets created in Relativity 8.2 and higher become unusable.

You shouldn't uninstall the application from the server unless you're certain you won't use the server for Analytics functionality in the future, and you understand that uninstalling Relativity Analytics renders structured analytics sets created in Relativity 8.2 and higher unusable.

If you still need to uninstall the Relativity Analytics components from the server, complete the following steps:

1. Click your Start menu.
2. Select Add or remove programs.
3. Right-click on **Relativity Analytics Server** and select **Uninstall**.

![Uninstall or change a program dialog](image)

Uninstalling the Relativity Analytics server automatically:

- Removes the version key from the registry
- Unregisters the Windows Service

**Note:** When you uninstall Relativity Analytics server, the indexes aren't deleted. However, any structured analytics sets created in Relativity 8.2 and higher are no longer usable.
12 Upgrading from Data Grid 2.1.2 to 2.3.3.x

Beginning in Relativity 9.4.284.1, you must upgrade from Data Grid 2.1.2 to 2.3.3.58 or later. Once you upgrade to Data Grid 2.3.3.x, you’re unable to use your Data Grid clusters with 2.1.2 or have a partially upgraded cluster.

In order to upgrade Data Grid from 2.1.2 to 2.3.3.x, complete the following workflow:

- Prepare the environment for upgrade. For more information, see Preparing the environment for upgrade below.
- Run the upgrade script on data, master, and client nodes in that order. For more information, see Running the upgrade script on the next page.
- Verify your upgrade completed successfully. For more information, see Verifying the upgrade on the next page.

If you want to manually upgrade Data Grid, see Running a manual upgrade on page 116.

12.1 Preparing the environment for upgrade

Before upgrading Data Grid, perform the following:

- Ensure that the Data Grid service is running under a user account that has access to SQL Server, and specifically has read, write, and bulk permissions for all workspace databases.
- Verify that no reads or writes to Data Grid occur during the upgrade process.
- Disable all Audit migration and deletion agents.
- Disable all Text migration and deletion agents.
- Verify that all imports or publishing from Processing have stopped.
- Save a backup of the current lib and bin folders from any node and the data folder from the master node to mitigate the risk in possible restoration. Don’t save the backup files to the installer folder.
- If you are also upgrading Java versions, open the command prompt and run the following command. This example assumes you are upgrading to Java 8 Update 45 (64-bit). Edit the version number appropriately.

```
SETX /M KCURA_JAVA_HOME "C:\Program Files\java\jdk1.8.0_45"
```

- Disable shard allocation:
  - Run the following command in Sense to turn off re-balancing and set the cluster to persistent. The persistent state ensures that re-balancing stays off when the cluster restarts.

```
PUT _cluster/settings
{
  "persistent":{"cluster.routing.allocation.enable": "none"}
}
```
Run the following command to perform a synced flush:

```
POST /_flush/synced
```

## 12.2 Running the upgrade script

**Note:** If you run the script on PowerShell versions earlier than 5.1, the script displays an error during back up but will continue with the upgrade.

Extract the contents of the upgrade package, and make sure the following files are in the folder:

- datagrid-2.3.3.58-install.zip
- elasticupgrade.ps1
- upgrade.psd1

You must run the upgrade script on each node. We recommend the following order when upgrading your nodes:

1. Data nodes
2. Master nodes
3. Client nodes

To upgrade a node, complete the following:

1. Open the `upgrade.psd1` file in a text editor. Update the following configurations:
   - **UpgradeFile** - enter the file path to the upgrade package.
   - **CurrentPath** - enter the current location of the installed Elasticsearch service.
   - **Url** - enter the URL of the local machine's Elastic endpoint.
   - **UserName** - (optional) enter the service user name that has access to SQL.
   - **Password** - (optional) enter the password for the server user.
2. Run `elasticupgrade.ps1`.

## 12.3 Verifying the upgrade

After you upgrade all of the nodes on your cluster, complete the following on the cluster to complete the upgrade:

1. Run the following command in Sense:

```
GET /nodes/jvm?filter_path=*.jvm.gc_collectors
```

Ensure the result shows "ParNew", "ConcurrentMarkSweep".
2. Enable shard allocation to rebalance the cluster:

```
PUT _cluster/settings
{
  "persistent":{"cluster.routing.allocation.enable": "all"}
}
```

You can monitor the indexes by running the following in Sense:

```
GET _cat/recovery
```

3. Verify the cluster status by running the following command in Sense.

```
GET _cat/health
```

Once the cluster is GREEN, your upgrade is complete.

If the cluster status remains RED for an extended period, run the following in Sense to identify which indexes are RED:

```
GET _cat/recovery
```

**Note:** If you are using Kibana, ensure your version of Kibana is compatible with your version of Data Grid.

**Note:** With Shield on by default, other plugins like Marvel or Head are not supported. In order to use your other plugins, you need to provide the Kibana server with credentials so it can access the .kibana index and monitor the cluster. See the Relativity Data Grid guide for more information.

### 12.4 Running a manual upgrade

Click to expand instructions on how to run a manual Data Grid upgrade.

In order to upgrade Data Grid from 2.1.2 to 2.3.3.x, complete the following workflow:

- Prepare the environment for upgrade. For more information, see [Preparing the environment for upgrade on page 114](#).
- Upgrade your data, master, and client nodes in that order. For more information, see [Upgrading a node below](#).
- Verify your upgrade completed successfully. For more information, see [Verifying the upgrade on the previous page](#).

#### 12.4.1 Upgrading a node

Perform the following steps on each node in the cluster. We recommend the following order when upgrading your nodes:

1. Data nodes
2. Master nodes
3. Client nodes
To upgrade a node, complete the following:

1. Shut down the node.
   a. Open a Windows command prompt as an administrator, and then navigate to the bin directory in the RelativityDataGrid folder.
      
      `c:\RelativityDataGrid\elasticsearch-main\bin`
   
   b. Stop the Data Grid service by running the following command:
      
      `.\kservice.bat stop`

      **Note:** If the service doesn’t shut down after being stopped, end the process using Process Explorer.

2. Save your current Java settings.
   a. Run the following:
      
      `.\kservice.bat manager`
   
   b. On the Java tab, take note of the values for the following settings:
      - Initial memory pool
      - Maximum memory pool
      - Thread stack size

![Elasticsearch (elasticsearch-service-x64) Properties](image)
3. Remove the service:

   \kservice.bat remove

4. Delete the old lib, bin, sqlauth, modules, and plugin folders from \RelativityDataGrid\elasticsearch-main.

   - Copy the lib, bin, sqlauth, modules, and plugin folders from the Elastic 2.3.3.x extracted zip file to \RelativityDataGrid\elasticsearch-main.

5. Configure the elasticsearch.yml file (\RelativityDataGrid\elasticsearch-main\config\elasticsearch.yml) with the following:

   a. Add .security to the action.auto_create_index values. This is required when Shield is enabled and auto create is set to false.

      # This disables automatic index creation
      action.auto_create_index: false,.security

   b. Configure the Shield settings as follows:

      **Note**: To disable Shield, remove the number sign (#) in front of shield.enabled:false.

      ```yaml
      #shield.enabled: false
      shield.authc.realms:
      custom:
        type: kCuraBearerRealm
        order: 0
        publicJWKsUrl: https://<RELATIVITY_IDENTITY_SERVER>/Relativity/Identity/.well-known/jwks
      esusers1:
        type: esusers
        order: 1
      
      **Note**: The URL must point to the Relativity installation where Identity Server can be found. This should be the same URL used to log in to Relativity.
      ```

6. Install the service:

   \kservice.bat install

7. Verify the Java settings:

   \kservice.bat manager

   a. On the Java tab, make sure the values for the following settings for each particular node match the settings you took note of above:

      - Initial memory pool
      - Maximum memory pool
      - Thread stack size
b. Select the the **Log On** tab. In the **Log on as** setting, select **This account**. Enter a valid Relativity service account domain name and password and confirm the password.

![Elasticsearch Properties](image)

8. Restart the service:

```
\kservice.bat start
```

If the service fails to restart, navigate to `C:\RelativityDataGrid\elasticsearch-main\logs` and troubleshoot any errors in the logs.

9. Run the following command in Sense to monitor the progress of your node. Wait for the node to go to YELLOW before upgrading the next node.

```
GET _cat/health
```

### 12.4.2 Verifying the upgrade

After you upgrade all of the nodes on your cluster, complete the following on the cluster to complete the upgrade:

1. Run the following command in Sense:

```
GET /_nodes/jvm?filter_path=**.jvm.gc_collectors
```

Ensure the result shows "ParNew", "ConcurrentMarkSweep".
2. Enable shard allocation to rebalance the cluster:

```json
PUT _cluster/settings
{
  "persistent": {"cluster.routing.allocation.enable": "all"}
}
```

You can monitor the indexes by running the following in Sense:

```
GET _cat/recovery
```

3. Verify the cluster status by running the following command in Sense.

```
GET _cat/health
```

Once the cluster is GREEN, your upgrade is complete.

If the cluster status remains RED for an extended period, run the following in Sense to identify which indexes are RED:

```
GET _cat/recovery
```

**Note:** If you are using Kibana, ensure your version of Kibana is compatible with your version of Data Grid.

**Note:** With Shield on by default, other plugins like Marvel or Head are not supported. In order to use your other plugins, you need to provide the Kibana server with credentials so it can access the .kibana index and monitor the cluster. See the Relativity Data Grid guide for more information.
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