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1 Relativity upgrade

Use the following workflows to upgrade your current Relativity installation to Relativity 9.6. 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 9.6 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 the Solution Snapshot documentation.

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 9.6, 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.
Confirm 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 9.6, 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 9.6 or above.

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 9.6 upgrade workflow

Use the following workflow when upgrading from Relativity 8.1 or 8.2 to Relativity 9.6.

**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 21](#).

Relativity Upgrade Workflow

![Relativity Upgrade Workflow Diagram]

**Notes:**
- Before you upgrade, verify that you meet all requirements outlined in the Pre-installation guide.
- Once you’ve completed upgrading core servers (Secret Store, Primary SQL, Worker Manager, Service Bus) all remaining servers can be upgraded in any order or in parallel.

1. Install the Relativity Secret Store and configure all machines in your environment to access it. This step should be completed before the Relativity upgrade and can be done online without impacting user review. For more information, see [The Relativity Secret Store Guide](#).
2. Stop all agent services.

3. Stop the IIS.

4. 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 SQL Server on page 14.

5. Run the Relativity installer on all distributed SQL servers if present. See Distributed SQL Server upgrade on page 18.

6. Install the Relativity service bus server. Ensure that the Relativity service bus server is a node in the Service Bus for Windows Server farm. See Upgrading your Relativity service bus on page 23.

   **Note:** You can find additional information in Troubleshooting the service bus installation on page 26. 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 27.


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 42.

   **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.

   **Note:** If this is your first upgrade to Relativity 9.6 and above, you must upgrade any worker servers after upgrading your worker manager server.

12. Upgrade Relativity Analytics. See Upgrading or installing your Analytics server on page 51.

1.5 **8.0 to 9.6 upgrade workflow**

Please contact the Client Services team (support@relativity.com) for more information on upgrading your 8.0 Relativity environment to Relativity 9.6.

1.6 **7.x to 9.6 upgrade workflow**

Please contact the Client Services team (support@relativity.com) for more information on upgrading your 7.x Relativity environment to Relativity 9.6.
1.7 6.x to 9.6 upgrade workflow

Please contact the Client Services team (support@relativity.com) for more information on upgrading your 6.x Relativity environment to Relativity 9.6.
2 Configuring your conversion agents

When you convert a document in Relativity, that conversion job is performed by a dedicated conversion agent.

Relativity 9.6 and above use 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 9.6. For more information, see Installing Service Bus for Windows Server in the Pre-Installation guide.

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.

2.1 Conversion agent considerations

Consider the following about conversion agents when installing or upgrading to Relativity 9.6:

- On a new installation of Relativity 9.6, 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 9.6 from 9.4 or previous, 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.

2.2 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, perform the following steps:

**Note:** These steps are only required if you're upgrading from Relativity 9.3 or earlier, since conversion was performed by a worker in those versions, and only if your worker was designated for conversion.

1. Ensure Service Bus for Windows server is installed in the environment.
2. Uninstall Invariant on the server via Windows Control Panel Add/Remove Programs. Doing this uninstalls existing Invariant applications.
3. If it’s still visible in the Server Management tab in Relativity, delete the old worker from that location.

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.

2.3 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 9.6.

2.3.1 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.
2.3.2 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.
3 Upgrading your SQL Server

Follow these steps to upgrade your primary SQL Server. Before doing so, ensure you have completed the required pre-upgrade steps. 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.

### 3.1 Primary SQL Server upgrade

**Note:** When you run the installer for the primary SQL Server, it adds the following applications to your SQL Server: Relativity, Relativity Primary Database, and Relativity Primary Procuro. These applications are required for optimum performance of Relativity. To avoid issues with registry settings, and the need for additional reset steps, don’t uninstall these applications.

The master database, called the EDDS database, resides on the primary SQL Server. You must upgrade Secret Store before updating the primary database. For more information, see Upgrading the Secret Store.

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.
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:

### 3.1.0.1 Common properties

**Note:** If you are upgrading to Relativity 9.6, some values in your response file may now be stored in the Secret Store. These values are identified by the following message: "Value exported to Secret Store." You don’t need to edit these values unless you want to update the Secret Store. For more information, see Secret Store.

- **INSTALLPRIMARYDATABASE** - Set this value to one.
  
  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.
  
  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.
  
  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 the value 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 if you want to use SQL Server login authentication.
  
  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.
  
  SQLPASSWORD=myPassword

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

### 3.1.0.2 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.
  
  DEFAULTFILEREPOSITORY=\yourmachine\FileShare

- **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.
  
  EDDSFILESHARE=\yourmachine\Fileshare

- **CACHELOCATION** - A valid UNC path for the viewer cache location. The installer ignores this value during an upgrade. It only uses this value on a new installation of Relativity. This parameter is available in Relativity 9.5.292.12 and above. For more information, see the Relativity Installation guide.
  
  CACHELOCATION=\yourmachine\ViewerCache

- **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.
  
  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.
  
  RELATIVITYINSTANCENAME=My Relativity Instance

- **ADMIN_EMAIL** - Enter the email address that you want to use for the default Relativity admin account. If you don't specify an email address, the installer uses the default value of relativity.admin@relativity.com. This parameter is available for 9.5.342.116 and above.
  
  ADMIN_EMAIL=relativity.admin@relativity.com
■ **SERVICEACCOUNT_EMAIL** - Enter the email address that you want to use for the default Relativity service account. If you don't specify an email address, the installer uses the default value of serviceaccount@relativity.com. This parameter is available for 9.5.342.116 and above.

**Notes:**
- If you want to use a specific email address for the default Relativity admin or service account, you must enter it for each Relativity upgrade that you perform. If you entered a custom email address during a previous installation, it is overwritten by current email address that you entered or by the default email address when this parameter is blank.
- Use different email addresses for the ADMIN_EMAIL and SERVICEACCOUNT_EMAIL parameters. If you use the same email address for both parameters, the installation fails.
- The ADMIN_EMAIL parameter functions as the username for the default admin account. If you leave the ADMIN_EMAIL value blank, this username defaults to relativity.admin@relativity.com.

```
SERVICEACCOUNT_EMAIL=serviceaccount@relativity.com
```

■ **ADMIN_PASSWORD** - Enter the password that you want to use for the default Relativity admin account. This parameter is available for 9.5.342.116 and above.

```
ADMIN_PASSWORD=myPassword
```

■ **SERVICEACCOUNT_PASSWORD** - Enter the password that you want to use for the default Relativity service account. This parameter is available for 9.5.342.116 and above.

```
SERVICEACCOUNT_PASSWORD=myPassword
```

**Note:** To change the ADMIN_PASSWORD or SERVICEACCOUNT_PASSWORD password, you must also update the associated email address. If you enter a new password but don't update the email address, then new password is ignored. For example, if you use an existing or default email address, then the password remains unchanged. However, you can change the email addresses for the admin and service accounts without updating the password.

### 3.1.0.3 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.

```
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 RelativityResponse.txt file for a primary SQL database upgrade using Windows authentication looks like this:

```
INSTALLPRIMARYDATABASE=1
INSTALLDIR=C:\Program Files\kCura Corporation\Relativity
PRIMARYSQLINSTANCE=ML12
EDDSDBOPASSWORD=MySecretPassword
SERVICEUSERNAME=example\exampleusername
SERVICEPASSWORD=MySecretPassword
DEFAULTFILEREPOSITORY=\yourmachine\FileShare
EDDSFILESHARE=\yourmachine\Fileshare
CACHELOCATION=\yourmachine\ViewerCache
DTSEARCHINDEXPATH=\yourmachine\dtSearch
RELATIVITYINSTANCENAME=My Relativity Instance
ADMIN_EMAIL=relativity.admin@relativity.com
SERVICEACCOUNT_EMAIL=serviceaccount@relativity.com
ADMIN_PASSWORD=myPassword
SERVICEACCOUNT_PASSWORD=myPassword
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.

---

### 3.2 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:

#### 3.2.0.1 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.

### 3.2.0.2 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
```
3.2.0.3 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.
4 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.

4.1 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.

4.2 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
   iwr -ContentType 'application/json' -Method Get -Credential $cred 'http://localhost:15672/api/queues' | % { ConvertFrom-Json $_.Content | % {$_.messages -eq 0} | % { iwr -method DELETE -Credential $cred -uri $("http://localhost:15672/api/queues/"+$_.vhost+"/"+$_.name) } }
   ``

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

4.3 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.

### 4.4 Closing ports on the Queue Server

Close the following ports on the queue server:

- 15672
5 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.

When you perform an upgrade, the Relativity installer saves information about the 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.

5.1 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 /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.
5.2 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:

5.2.1 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.

5.2.2 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.

### 5.3 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:
- **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.

### 5.4 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](Verifying database table updates for multiple hosts on the previous page).

**Note**: For general troubleshooting information, see the Relativity Service Bus guide.
6 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.

6.1 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.

  ```
s \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.

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.
6.1.0.1 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.
  
  ```
  EDDSBOPASSWORD=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.

6.2 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 9.6 Documentation site.
7 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 9.6 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.

### 7.1 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.

```bash
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:

7.1.0.1 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
EDDSDBOPASSWORD=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.

## 7.2 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.

7.3 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 9.6 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 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'
```

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','Determine 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. ')
```

### 7.4 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 9.6 Documentation site.

### 7.5 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.
8 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>
<tr>
<td>Invariant 4.5</td>
<td>Relativity 9.5</td>
</tr>
<tr>
<td>Invariant 4.6</td>
<td>Relativity 9.6</td>
</tr>
</tbody>
</table>

**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.

8.1 Upgrade considerations for Relativity 9.6.134.78

Beginning in 9.6.134.78, the Invariant queue manager requires the Secret Store to be accessible and unsealed in order to run. Accordingly, you should note the following considerations prior to installation or upgrade:

- Before running the Invariant installer, you are required to first whitelist and then register any processing-related machines for the Secret Store so that those machines can read and write to and from the store. This includes the Invariant queue manager, all workers, and all machines on which the RPC is installed. See The Relativity Secret Store Guide for more information on configuring servers for the Secret Store.
- Once you register all servers, the Invariant installer automatically redacts all username and password values you enter into the Invariant response file and then populates those values in the Secret Store. This is the final step of the installation process.
If the server on which the Secret Store is installed gets restarted, you'll need to unseal the Secret Store before you run any processing job or run the Invariant installer.

Upgrading to 9.6.134.78 from an earlier version requires you to run the Invariant installer on your worker machines one time.

### 8.2 Upgrade exceptions

For upgrades from Relativity 8.0/Invariant 3.1 or earlier, 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.

### 8.3 Installing Microsoft Visual C++ Redistributable Packages

The following table breaks down which versions of Microsoft Visual C++ are required for which versions of Relativity/Invariant. Note that you’re required to install each version of Microsoft Visual C++ only if you’re upgrading to the Relativity/Invariant version listed and not if you’re installing it for the first time.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>9.3/4.3 (all monthly versions included)</td>
<td>√</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.4/4.4 (all monthly versions included)</td>
<td>√</td>
<td>√</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.5.41.87/4.5.32.2</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.5.69.85/4.5.60.2</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.5.133.118/4.5.126.16</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.5.162.111/4.5.132.8</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.5.196.102/4.5.188.20</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.5.219.30/4.5.189.29</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.5.253.62/4.5.245.54</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.5.292.12</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 8.4 Upgrading the Invariant Queue Manager

You'll use the same installation files you used to install the Invariant 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 uninstall and reinstall the Invariant Queue Manager.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>9.5.309.48</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>9.5.342.116</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>9.5.370.136</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>9.5.411.4</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>9.6.50.31/4.6.48.34</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
9 Upgrading Relativity to .NET 4.6.2.

As of Relativity 9.5.196.102, you must upgrade your Relativity environment to .NET 4.6.2. The updates must be applied to Relativity servers and client machines.

**Note:** Existing custom applications are backward-compatible with Relativity 9.5.196.102 and do not need to be recompiled, but you must upgrade your development environment to use the latest versions of Relativity SDKs.

### 9.1 All servers

Perform these steps on all servers in your Relativity environment:

2. Run the `NDP462-KB3151800-x86-x64-AllOS-ENU.exe` executable and follow the instructions in the installation wizard.
3. Turn off applications when prompted by the installation wizard.
4. Restart the server on completion.

### 9.2 Client machines

Perform these steps on all systems running Relativity and Invariant client applications (ActiveX viewer, Relativity Desktop Client, and Relativity Processing Console):

2. Run the Microsoft Visual C++ 2015 Redistributable executable and follow the instructions in the installation wizard.
4. Run the `NDP462-KB3151800-x86-x64-AllOS-ENU.exe` executable and follow the instructions in the installation wizard.
5. Turn off applications when prompted by the installation wizard.
6. Restart the machine on completion.
7. Download and install the latest versions of ActiveX viewer, RDC, and RPC.
9.3 Relativity applications

9.3.1 Backward-compatible applications
Going forward, regardless of current Relativity version, if you install new .NET 4.6.2-based versions of backward-compatible Relativity applications, you must upgrade your environment to .NET 4.6.2 as described above.

Backward-compatible applications include Data Grid, ARM, Relativity User Import, etc.

9.3.2 Custom applications built with the Relativity SDK
Custom applications that Relativity does not own or maintain can continue to target their current .NET version and will work in the new .NET 4.6.2-based Relativity. You can continue developing with older versions of the Relativity SDKs if you don't need the new features in latest version.

To develop using the latest Relativity SDK, you must update the applications' projects to target .NET 4.6.2. The developers must also update their environment to the .NET 4.6.2 Developer Pack as described below.

9.4 Development environment
If you develop custom Relativity application, you must update your development environment to use the latest version of the SDK:


2. Run the NDP462-DevPack-KB3151934-ENU.exe executable and follow the instructions in the installation wizard.

3. Turn off applications when prompted by the installation wizard.

4. Restart the machine on completion.
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 44.

(Click to expand)

Procuro is a utility used to upgrade the schema for all Relativity databases using scripts. As part of the database upgrade process, the Procuro utility automatically runs on your database server. It is also known as the Database Upgrade tool. Procuro makes updates to database schemas by adding, and removing columns in tables, creating new tables, re-naming table /columns, changing the types of data; adding or removing indexes and statistics to ensure functionality with Relativity. It is also required so Relativity can perform upgrades for future iterations created.

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 45.

The workspace upgrade 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 Relativity upgrade and Agents on the Relativity 9.6 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 cannot 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 Relativity 9.6 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.DBUpdatrer 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 49.</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.

- **Database Upgrade Progress** - the percentage of the upgrade process completed for the workspace database and the Invariant database if the Processing application is installed. It uses the following colors to indicate the upgrade status:
- Blue - indicates the upgrade is in progress.
- Green - indicates a completed upgrade.
- Red - indicates an error or failure occurred.

- Application Upgrade Progress - the percentage of the upgrade process completed for the application. It uses the same colors to indicate the upgrade status as the Database Upgrade Progress bar.

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 49.</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 page 47.</td>
</tr>
<tr>
<td>Failed Script Upgrade</td>
<td>An error occurred while upgrading SQL scripts for the workspace. See Troubleshooting upgrades on page 47.</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.

If you want to revert from and ordered priority to an unordered priority, use this procedure:

1. Select the **Priority** checkbox. Choose **Low**, **Medium**, or **High** from the drop-down menu.
2. Select the **Order** checkbox. Leave the value blank.
3. 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
- Retrying upgrade failures for system secured applications on page 50

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 9.6 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 checkboxes. 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.
10.3.3 Retrying upgrade failures for system secured applications

System secured applications are installed in the Application Library and hosted at the instance level. You can resolve upgrade failures for system secured applications by manually retrying them through the Application library tab. The following resolution for upgrade failures applies only to these applications.

10.3.3.1 Retrying system secured application upgrade failures in the Application Library

You can manually retry upgrading system secured applications through the Application Library tab.

1. Navigate to the Application Library tab.
2. Click the name of the failed application to display its detail view.
3. Click Install in the Workspace Installed section.
4. Click \(\text{Admin Case workspace}\) and select the Admin Case workspace in the pop-up picker.
5. Click Save. If the application fails to install, contact the Client Services team (support@relativity.com) team for additional help.
11 Upgrading or installing your Analytics server

**Note:** Make sure you review the Analytics upgrade considerations before upgrading Analytics. For more information, see Upgrade considerations for Relativity 9.6 on the Relativity documentation site.

An upgrade of your Analytics server is required for Relativity 9.6. 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. Install or upgrade your Relativity instance by performing the required steps.
2. Perform a See Analytics server setup in the Pre-Installation Guide.

This topic contains the following sections:

- Installing / Upgrading Relativity Analytics below
  - Installing Analytics for the first time to Relativity 9.6.50.31 and above on the next page
  - Upgrading from Relativity 9.3.362.9 (CAAT 3.19) and above on page 57
  - Upgrading from Relativity 9.3.332.21 (CAAT 3.17) or prior on page 60
- Updating the default SSL/TLS certificate on page 66
- Disabling TLS 1.0 and 1.1 (optional) on page 73
- Installing Analytics server when SQL Server uses SSL encryption on page 74
- Changing the REST password on page 75
- Uninstalling the Relativity Analytics server on page 76

11.1 Installing / Upgrading Relativity Analytics

You need the following items in order to successfully run the Relativity Analytics upgrade or installation:

- 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 74 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.
- A self-signed or a trusted SSL certificate with the certificate's private key is required by Relativity Analytics. If you do not have a SSL certificate, see Updating the default SSL/TLS certificate on page 66.

**Note:** We recommend that you use a certificate from a trusted authority rather than a self-signed certificate.
Notes:

- Before attempting an upgrade, stop all Relativity Analytics engine processes (i.e., ensure that all Java and Postgres processes are stopped). In versions previous to 9.5.133.118, the Windows Service will be called Content Analyst CAAT. In Relativity 9.5.133.118 and above, the service will be called Relativity Analytics Engine. After you do this, 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.

- The Analytics Index Share houses all of your Analytics data for a particular Analytics server, and it can grow to be very large. We have found that NTFS file systems work for small environments, but if you anticipate running sets of 10 million or more documents through your Analytics Engine, you should use a file system that supports larger files such as exFAT or ReFS. We do not have a recommendation for either file system, so you must determine which is the better fit for you.

This section contains the following content:

- Installing Analytics for the first time to Relativity 9.6.50.31 and above below
- Upgrading from Relativity 9.3.362.9 (CAAT 3.19) and above on page 57
- Upgrading from Relativity 9.3.332.21 (CAAT 3.17) or prior on page 60

11.1.1 Installing Analytics for the first time to Relativity 9.6.50.31 and above

11.1.1.1 Setting properties in the response-file.properties file

Before new installations, unzip the Analytics package and open the response-file.properties file in a text editor. Complete the below Common Properties settings in the input file.

Note: For first time installs, all settings are considered and you must specify all response file values. Check to make sure the provided default works with your environment.

The following are available properties in the response-file.properties file:

caat.install-dir
In former versions of the installer, this was called “Analytics Server folder.” This is the path to the folder containing the Analytics installation files. This value is required for upgrades.

- 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.

A forward slash (\/) or a double back slash (\\) should be used as a path separator, rather than a single back slash, as shown in the examples below.

<table>
<thead>
<tr>
<th>caat.install-dir=c:/CAAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>caat.install-dir=C:\CAAT</td>
</tr>
</tbody>
</table>

Note: Spaces cannot be present within the file path.
**caat.license-file**  
This is the file path to the license key file that will be installed to run the Analytics engine. Keep the default of caat-license.jar. This value is required for upgrades.

```
caat.license-file=caat-license.jar
```

**caat.http-port**  
In former versions of the installer, this was called “Analytics Server Port Number.” This is the HTTP port to be used for requests to the Analytics engine. The HTTP port will default to 8080 for new installations, but you can configure a different port number. For upgrades, the value entered will only be used to ensure that the CAAT server is not running on that port.

```
caat.http-port=8080
```

**caat.upgrade-now**  
Set this option to true. This value is required for upgrades.

```
caat.upgrade-now=true
```

**caat.as-windows-service**  
This option should be set to true. Please note that this option is ignored upon upgrade.

```
caat.as-windows-service=true
```

**caat.windows-service-name**  
This is the Windows service name. The service name will default to Relativity Analytics Engine if a service name is not provided. Please note that the service name will not change upon an upgrade, and this value is ignored upon upgrade.

```
caat.windows-service-name=Relativity Analytics Engine
```

**caat.single-data-dir**  
In former versions of the installer, this was called “Analytics Index Directory.” The Analytics data directory must also be created before installing Relativity Analytics. A forward slash (/) or a double back slash (\) should be used as a path separator, rather than a single back slash, as shown in the examples below. This is 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 in the Environment optimization guide.
- Do not create a local drive map to a UNC. For example, do not open \servername\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.
- This value is ignored upon upgrade.
caat.single-data-dir= E:/AnalyticsData
caat.single-data-dir= E:\AnalyticsData
caat.single-data-dir= //servername/AnalyticsData
caat.single-data-dir= \\servername\AnalyticsData

caat.min-heap-size
This is the minimum Java Heap size in megabytes. If this is left blank, the default will be used. The default is 1/8 of total physical memory installed on the machine. It is recommended to leave this blank. This value is ignored upon upgrade.

caat.min-heap-size=

caat.max-heap-size
This is the maximum Java Heap size (-xmx) in megabytes (e.g., 4096). If this is left blank the default will be used. The default is 1/2 of total physical memory installed on the machine. This value should not be set between 32 to 47 GB.

caat.max-heap=

caat.http.authentication-status
This value must be set to true.

caat.http.authentication-status=true

caat.http-password
In former versions of the installer, this was called “REST Password.” This is 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. This value is required for upgrades.

Note: The caat.http-password value entered here must be 20 characters or less.

caat.http-password=SuperSecretPassword

Note: It is not possible to change an existing password with this entry. In order to change the password, see Changing the REST password on page 75.

caat.http-user
In former versions of the installer, this was called “REST Username.” This is 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. This value is required for upgrades.
Note: It is not possible to change an existing username with this entry.

caat.http-user=AnalyticsUser

caat.ssl-status
This value needs to be set to true. This value is ignored upon upgrade.

caat.ssl-status=true

caat.ssl-certificate-key-path
This is the file path to the existing valid PKCS12 certificate-key file. This value is ignored upon upgrade. A forward slash (/) or a double back slash (\) should be used as a path separator, rather than a single back slash, as shown in the examples below.

caat.ssl-certificate-key-path=C:/CertPath/AnalyticsCert.pfx
caat.ssl-certificate-key-path=C:\CertPath\AnalyticsCert.pfx

Note: This value is required. The Relativity Analytics engine accepts both self-signed and trusted certificates. To create a self-signed certificate, see Updating the default SSL/TLS certificate on page 66.

caat.ssl-password
This is the SSL certificate password. This value is ignored upon upgrade.

caat.ssl-password=CertificatePasswordHere

Note: This value is required before performing a first time install.

11.1.1.2 Analytics installer considerations
Note the following before running the Relativity Analytics Server Installer:

- 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.

11.1.1.3 Running the Install.cmd file

1. Stop the Content Analyst CAAT Windows Service.

Note: This service may be named “Relativity Analytics Engine” depending on your version of Relativity.

2. Open Task Manager and ensure all analytics processes have stopped. This includes java.exe, lsiapp-p.exe, postgres.exe, and booleng.exe. If the processes do not disappear after a few minutes, right click them and kill the processes.

3. After configuring the response-file.properties file (see Setting properties in the response-file.-properties file), right-click on the Install.cmd file and select the “Run as administrator” option to
start the Analytics Installation. This can take several minutes to complete. The installation specifications will be displayed in the command line window. Do not close the command prompt until the installation is complete.

4. (Optional) Monitor the status of the installation. The installation is finished after “The installation is complete” message is displayed in the command prompt:

```
The following configuration files from the previous installation have changed. If you made any custom configuration changes you may want to verify that the new files were properly merged to include your changes. Copies of the previous versions were saved as NAME-old for your reference.
bin/env
bin/env.cmd
etc/caat-realm.xml
etc/itemstore.properties
etc/login.conf
etc/realm.properties
webapps/nexus/WEB-INF/web.xml
The installation is complete.
```

5. Once the installation is complete, change the Content Analyst CAAT (or Relativity Analytics Engine) Windows service to run under the Relativity Service Account.

6. Relativity requires a certificate signed by a trusted certificate authority (CA). If you did not specify a valid PKCS12 certificate-key file during installation or the certificate expired, you will need to update the certificate. By default, the Analytics service runs over an untrusted SSL/TLS certificate. For steps to modify, see Updating the default SSL/TLS certificate on page 66.

7. Start the Content Analyst CAAT (or Relativity Analytics Engine) Windows Service.

8. (Optional) Confirm that all components of the Analytics service are running by visiting: http://<Analytics Server Hostname>:<REST Port>/nexus/services

Check the Available Services list. Make sure to specify your Analytics server host name and REST port in the URL.

9. If this is a new Analytics server, add it to the Servers list. For these steps, see Adding an Analytics server in the Admin guide. 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.

10. Verify that you have a valid URL value entered for the RestUriForCAAT instance setting. This is the fully qualified domain name (FQDN) URL to the web server hosting your Kepler services (e.g., https://client.domain.name/Relativity.REST/API).
11.1.1.4 Logging
During the installation or upgrade of the Relativity Analytics Engine, the process will log to a file (i.e., installer.log) in the logs directory (i.e., CAAT-win64-kcura-[Version].GA\logs).

The log pattern for each log message is described below:

- **[log-level] [date] [thread-name] message** (e.g., [INFO] [2017-01-18 19:05:54 [main]: Loading installation options)

**Note:** Log messages will be appended to the same log file on subsequent runs.

11.1.2 Upgrading from Relativity 9.3.362.9 (CAAT 3.19) and above

11.1.2.1 Setting properties in the response-file.properties file (for upgrading to Relativity 9.6.50.31 or above)
Before upgrades or new installations, unzip the Analytics package and open the response-file.properties file in a text editor.

For upgrades, only the following settings are considered:

- caat.install-dir
- caat.upgrade-now
- caat.license-file
- caat.http-user
- caat.http-password

For a complete list of settings and descriptions, see Installing Analytics for the first time to Relativity 9.6.50.31 and above on page 52.

Complete the following **Common Properties** settings in the input file.

**caat.install-dir**
In former versions of the installer, this was called “Analytics Server folder.” This is the path to the folder containing the Analytics installation files. This value is required for upgrades.

- 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.

A forward slash ( / ) or a double back slash ( \ ) should be used as a path separator, rather than a single back slash, as shown in the examples below.

<table>
<thead>
<tr>
<th>caat.install-dir=C:/CAAT</th>
</tr>
</thead>
</table>

**Note:** Spaces cannot be present within the file path.
caat.upgrade-now
Set this option to true. This value is required for upgrades.

caat.upgrade-now=true

caat.license-file
This is the file path to the license key file that will be installed to run the Analytics engine. Keep the default of caat-license.jar. This value is required for upgrades.

caat.license-file=caat-license.jar

caat.http-user
In former versions of the installer, this was called “REST Username.” This is 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. This value is required for upgrades.

Note: It is not possible to change an existing username with this entry.

caat.http-user=AnalyticsUser

caat.http-password
In former versions of the installer, this was called “REST Password.” This is 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. This value is required for upgrades.

Note: The caat.http-password value entered here must be 20 characters or less.

caat.http-password=SuperSecretPassword

Note: It is not possible to change an existing password with this entry. In order to change the password, see Changing the REST password on page 75.

11.1.2.2 Analytics installer considerations
Note the following before running the Relativity Analytics Server Installer:

- 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.
11.1.2.3 Running the Install.cmd file

1. Stop the Content Analyst CAAT Windows Service.

   **Note:** This service may be named “Relativity Analytics Engine” depending on your version of Relativity.

2. Open Task Manager and ensure all analytics processes have stopped. This includes java.exe, lsiapp-p.exe, postgres.exe, and booleng.exe. If the processes do not disappear after a few minutes, right click them and kill the processes.

3. After configuring the `response-file.properties` file (see [Setting properties in the response-file .properties file](#)), right-click on the `Install.cmd` file and select the “Run as administrator” option to start the Analytics Installation. This can take several minutes to complete. The installation specifications will be displayed in the command line window. Do not close the command prompt until the installation is complete.

4. (Optional) Monitor the status of the installation. The installation is finished after “The installation is complete” message is displayed in the command prompt:

   ![Command Prompt Output](image)

5. Once the installation is complete, change the Content Analyst CAAT (or Relativity Analytics Engine) Windows service to run under the Relativity Service Account.

6. Relativity requires a certificate signed by a trusted certificate authority (CA). If you did not specify a valid PKCS12 certificate-key file during installation or the certificate expired, you will need to update the certificate. By default, the Analytics service runs over an untrusted SSL/TLS certificate. For steps to modify, see [Updating the default SSL/TLS certificate on page 66](#).

7. Start the Content Analyst CAAT (or Relativity Analytics Engine) Windows Service.

8. (Optional) Confirm that all components of the Analytics service are running by visiting: `http://<Analytics Server Hostname>:<REST Port>/nexus/services`
   Check the Available Services list. Make sure to specify your Analytics server host name and REST port in the URL.

9. If this is a new Analytics server, add it to the Servers list. For these steps, see [Adding an Analytics server in the Admin guide](#). 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.

10. Verify that you have a valid URL value entered for the RestUriForCAAT instance setting. This is the fully qualified domain name (FQDN) URL to the web server hosting your Kepler services (e.g., https://client.domain.name/Relativity.REST/API).

11.1.2.4 Logging

During the installation or upgrade of the Relativity Analytics Engine, the process will log to a file (i.e., installer.log) in the logs directory (i.e., CAAT-win64-kcura-[Version].GA\logs).

The log pattern for each log message is described below:

- **[log-level] [date] [thread-name] message** (e.g., [INFO] [2017-01-18 19:05:54 [main]: Loading installation options)

**Note:** Log messages will be appended to the same log file on subsequent runs.

11.1.3 Upgrading from Relativity 9.3.332.21 (CAAT 3.17) or prior

**Note:** If you are upgrading from Relativity 9.3.332.21 (CAAT 3.17) or lower, first run the Relativity 9.3.362.9 or 9.4 Analytics server installer using the below instructions. Contact Support for this installer. After installation, run the response file-based installer (see Upgrading from Relativity 9.3.362.9 (CAAT 3.19) and above on page 57).

11.1.3.1 Analytics installer considerations (for upgrading to Relativity 9.5.89.76 or prior)

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.
- You can 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

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 on page 63.

11.1.3.2 Running the Relativity Analytics Server Setup wizard (Relativity 9.5.89.76 or prior)
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 [Updating the default SSL/TLS certificate on page 66](#).

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.

![Available Services](image)

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.

### 11.1.3.3 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.

11.1.3.4 Upgrading clusters for CAAT 3.17.2 and higher from Relativity 9.1 or prior

**Note:** The instructions in this section are only necessary when upgrading 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 66

**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.

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.

**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.

**11.2 Updating the default SSL/TLS certificate**

**Note:** The below section is required if you are installing Relativity for the first time or if you are upgrading from Relativity 9.3.332.21 (CAAT 3.17) or lower.

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.

### 11.2.1 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.

### 11.2.2 1) Deleting the default, unsigned certificate

Complete the following steps to delete the default, unsigned certificate:

**Note:** Replace the jdk1.8.0_144 noted in the instructions for the sections below with the relevant Revision Number of the Java Virtual Machine for the SSL / TLS certificate command lines (if you are using a version prior to 9.5.196.102). This value is found in the naming of the CAAT install directory.

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:
   - `<PathToKeystore>` - this is the file path to the keystore. To find this path, open `start.ini` and look for the `jetty.keystore` value.
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:
   `<PathToKeystore>` - this is the file path to the keystore. To find this path, open start.ini and look for the jetty.keystore value.

   ```
   C:\CAAT\jdk1.8.0_144\bin\keytool.exe -delete -keystore <<PathToKeystore>> -alias contentanalyst
   ```

**11.2.3 2) Creating a self-signed certificate (no trusted certificate) - optional step**

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

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:

   ```
   echo %COMPUTERNAME%.%USERDNSDOMAIN%
   ```

2. Run PowerShell as an administrator.

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

   ```
   New-SelfSignedCertificate -certstorelocation cert:\localmachine\my -dnsname <<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 `<<password>>` with a password of your choice):

   ```
   $pwd = ConvertTo-SecureString -String "<<password>>" -Force -AsPlainText
   ```

6. Export the certificate from the local certificate store to a directory of your choosing accessible to the keystore (replace `<<thumbprint>>` with the output of the command in step 4 and replace `<<pxcert-filepath>>` with the destination filepath for the pfx certificate that will be generated):
Export-PfxCertificate -cert cert:\localMachine\my\<<thumbprint>> -FilePath <<pfxcert-file-path\filename.pfx>> -Password $pwd

Example:

Export-PfxCertificate -cert cert:\localMachine\my\D660E83A0E84653F27C3D1A08DFFB6258392E92E -FilePath c:\selfsigned.pfx -Password $pwd

**Note:** 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. If this is an upgrade, import the self-signed certificate into the keystore. See [Importing a certificate (trusted or self-signed)] for more information. If this is a new installation, update the response.-properties file as follows:

   - `caat.ssl-certificate-key-path` - use the certificate you generated in Powershell in step 3.
   - `caat.ssl-password` - use the `<<password>>` value you generated in step 5.

**Note:** In some cases, you may have a security policy in place 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:** Replace the jdk1.8.0_144 noted in the instructions for the sections below with the relevant Revision Number of the Java Virtual Machine for the SSL / TLS certificate command lines (if you are using a version prior to 9.5.196.102). This value is found in the naming of the CAAT install directory.

1. Run the following command from the Analytics server: 
   `<PathToKeystore>` - this is the file path to the keystore. To find this path, open `start.ini` and look for the `jetty.keystore` value.

   ```sh
   C:\CAAT\jdk1.8.0_25\bin\keytool.exe -genkey -keyalg RSA -alias selfsigned -keysize 2048 -keystore <<PathToKeystore>> -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:

   ```sh
   C:\CAAT\jdk1.8.0_25\bin\keytool.exe -export -alias selfsigned -file C:\selfsigned.pfx -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://<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)".
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 4) Verifying the Analytics server in Relativity on page 72.

11.2.4 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:

**Note:** Replace the jdk1.8.0_144 noted in the instructions for the sections below with the relevant Revision Number of the Java Virtual Machine for the SSL / TLS certificate command lines (if you are using a version prior to 9.5.196.102). This value is found in the naming of the CAAT install directory.

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 4.

   `<PathToKeystore>` - this is the file path to the keystore. To find this path, open start.ini and look for the jetty.keystore value.
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:

   ```bash
   C:\CAAT\jdk1.8.0_144\bin\keytool.exe -list -keystore <<PathToKeystore>> -v
   ```

4. Modify the start.ini file as detailed below (C:\CAAT\start.ini).

   **Note:** If you are upgrading from a version before Relativity 9.6, you may find the start.ini file in the following folder: C:\CAAT\start.d\ssl.ini.

   a. Ensure that `--module=ssl` is uncommented

   b. Ensure that `jetty.keystore` and `jetty.truststore` match the keystore path specified in step 1.

   c. Ensure that the following Jetty passwords match the value set in step 1 while importing the cert into the keystore
      - `jetty.keystore.password`
      - `jetty.keymanager.password`
      - `jetty.truststore.password`

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

   ```yaml
   # Setup a demonstration keystore and truststore
   jetty.keystore=/etc/keystore
   jetty.truststore=/etc/keystore

   # Set the demonstration passwords.
   # Note that OBF passwords are not secure, just protected from casual observation
   # See http://www.eclipse.org/jetty/documentation/current/configuring-security-secure-passwords.html
   jetty.keystore.password=OBF:1mot1tv71ng1d11kyltvw1esx
   jetty.keymanager.password=OBF:1mot1tv71ng1d11kyltvw1esx
   jetty.truststore.password=OBF:1mot1tv71ng1d11kyltvw1esx
   ```

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:
   - Agent servers
   - Web servers
   - Service Bus
   - Secret Store

   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.

### 11.2.5 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://cli-ent.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: \texttt{https://<servername.FQDN>:8443/}. (For versions of Relativity prior to 9.4.361.1, use this format: \texttt{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. Add the Analytics Move script to the Relativity Script Library and run the script.
   a. Navigate to the \textbf{Relativity Script Library} tab.
   b. Click \textbf{New Relativity Script}.
   c. Select and copy the contents of the \textbf{Analytics Move} script file. Paste the script text into the \textbf{Script Body} field, overwriting the default script body text.
   d. Click \textbf{Save}.

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.

\section*{11.3 Disabling TLS 1.0 and 1.1 (optional)}

1. Open \texttt{C:\CAAT\jetty\etc\jetty-ssl.xml}.

2. Insert \texttt{<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>
```

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.

### 11.4 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.

#### 11.4.1 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.
11.4.2 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.

11.5 Changing the REST password

Changing the REST password

If you need to change the REST password, perform the following steps:

**Note:** You'll need an encryption tool to encrypt a new BCrypt Hash Password. We recommend using BCrypt Calculator. The default number of rounds is typically fine

1. Navigate to the C:\CAAT\etc folder on the Analytics server. Open the realm.properties file in a text editor.

2. The REST Username displays on the left and a BCrypt Hash Password displays on the right side:

3. Once you have encrypted a new BCrypt Hash Password, copy and paste your newly encrypted password in the C:\CAAT\etc\realm.properties file (replacing the old password).

   - When updating the hash value, ensure that it starts with $2a$ as in the example above. The 2y tag is not supported by CAAT at this time. The hash value will likely come from the generator with the 2y tag like the following:

     $2y$12$hoLehyRmW3Kj6s6OrltFUOSiCbQeFv9xt9v8TrtnomVf3Z0oXo/6

     When you add it to the realm.properties file, ensure it looks like the following:

     $2a$12$hoLehyRmW3Kj6s6OrltFUOSiCbQeFv9xt9v8TrtnomVf3Z0oXo/6

     The number after the 2y tag indicates the number of rounds. The default value of 12 is typically fine.

4. Save the realm.properties file.

5. Restart the Relativity Analytics Engine / Content Analyst Windows service.

Once the password is updated on the Analytics server, you must update it in Relativity.
1. Navigate to Relativity.

2. Navigate to the Servers tab, and then select Edit next to the Analytics server.

3. Update the REST API password, and then click Save.

### 11.6 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 above 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 above 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:

**Uninstalling Relativity Analytics**

1. Open Windows Services and stop the Content Analyst CAAT or Relativity Analytics Engine Windows service if it is running.

2. Open Task Manager, and check to see if Java is running. If it is, right click it, and then select **End process tree**.

3. Navigate to the Analytics directory (e.g., C:\CAAT).

4. Run the `C:\CAAT\bin\unregisterWinService.cmd` file as an Administrator to unregister the Windows service.

5. If desired, delete the Analytics installation directory (e.g., C:\CAAT) and the index directory associated with Analytics.

**Note:** Any structured analytics sets created in Relativity 8.2 and above are no longer usable.
12 Upgrading Data Grid

The Data Grid Core and Audit applications are updated automatically with Relativity. If you are upgrading to Relativity 9.6 and your environment uses Elasticsearch 2.3.3.58 or below to store audits, you must upgrade to Elasticsearch 2.3.3.79 or above when upgrading to Relativity 9.6. Once you upgrade to Elasticsearch 2.3.3.79, you're unable to use your Elasticsearch clusters with 2.1.2 or have a partially upgraded cluster.

- If you are upgrading to Relativity 9.6 from a version prior to Relativity 9.5.219.30, you must move your long text data out of Elasticsearch and import it to SQL. After upgrade, reimport the data to Data Grid. Only then will you be able to access your long text in Data Grid. For more information contact Relativity Support.

12.1 Finding the Elasticsearch version

To find the version of Elasticsearch installed, you must connect to your client node endpoint. The client node is a member of a Relativity Data Grid Elastic cluster. The client nodes stores no data itself; rather, it communications to and from Relativity agent and web servers and the Data Grid Elastic cluster.

The client node is the value in the AuditDataGridEndPoint and/or DataGridEndPoint instance setting. To connect to the client endpoint, enter the following URL into Chrome or Firefox, substituting the name of your client node. Internet Explorer won't properly display the page.

**Note:** You may be prompted for a username and password. If you are not sure of the username and password, see Resetting the Shield or Head password on page 84.

http://nameofclientnode:9200/

Once you connect to the endpoint, the following page appears which displays, among other things, your Elasticsearch version number.

```
{
   "name" : "emtTest",
   "cluster_name" : "Prod01",
   "version" : {
      "number" : "2.3.3",
      "build_hash" : "218bdf10790eeef486ff2c413df5cfa32a9d6e7d",
      "build_timestamp" : "2016-05-17T15:40:04Z",
      "build_snapshot" : false,
      "lucene_version" : "5.4.0"
   },
   "tagline" : "You Know, for Search"
}
```
12.2 Upgrading from Elasticsearch 2.1.2 to 2.3.3.x

In order to upgrade Elasticsearch from 2.1.2 to 2.3.3.x, complete the following workflow:

Click to expand instructions for upgrading Elasticsearch.

In order to upgrade Elasticsearch 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 Elasticsearch, see Running a manual upgrade on page 80.

12.3 Preparing the environment for upgrade

Before upgrading Elasticsearch, perform the following:

- Ensure that the Elasticsearch 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 Elasticsearch 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
```
12.4 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`.

12.5 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?&v

3. Verify the cluster status by running the following command in Sense.

GET _cat/health

Once the cluster is GREEN, your node restart 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?&v

**Note:** If you are using Kibana, ensure your version of Kibana is compatible with your version of Elasticsearch.

**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.

### 12.6 Running a manual upgrade

Click to expand instructions on how to run a manual Elasticsearch upgrade.

In order to upgrade Elasticsearch 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 78](#).
- 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 page 83](#).

#### 12.6.1 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.
b. Stop the Elasticsearch 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

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:

   ```
   #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.

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
```

### 12.6.2 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:

```java
PUT _cluster/settings
{
  "persistent": {"cluster.routing.allocation.enable": "all"}
}
```

You can monitor the indexes by running the following in Sense:

```
GET _cat/recovery?&v
```

3. Verify the cluster status by running the following command in Sense.

```
GET _cat/health
```

Once the cluster is GREEN, your node restart 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?&v
```

**Note:** If you are using Kibana, ensure your version of Kibana is compatible with your version of Elasticsearch.

**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.

### 12.7 Resetting the Shield or Head password

When navigating to Head or Sense on any node, you may be prompted for a username and password. If you are unsure of the password, or if the password is not set, you can use the esusers tool in the shield folder. This tool can list users, change passwords, and create REST users on the node. The tool is node-specific, meaning you create a user and password only on that node.

1. Run PowerShell as an administrator, and then navigate to `C:\RelativityDataGrid\elasticsearch-main\bin\shield`.
2. Enter the following command to list the users on the node.

```
.esusers list
```
3. If no user exists, create a user using the following command.

```
.esusers passwd esadmin -p password123 -r admin
```

**Note:** This example creates a new user, `esadmin`, with the password `password123` and the role of `admin`. Substitute the user name and password for the user you want to create.
4. To change the password on the node, use the following command:

```bash
./esusers passwd esadmin -p newpasswordhere
```
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