



# Worker Manager Server Installation Guide

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# 1 Worker manager server installation

The Relativity worker manager server provides flexible options for processing electronically stored information (ESI). Use this content to perform an Invariant installation in your environment. To install the Invariant database, queue manager, and workers, you'll use an installation input file to enter your preferences into a text file that the installer then uses to install the Invariant components.

- **Invariant Database**—this database is a queue used to track jobs submitted to Invariant.
- **Queue Manager**—the Queue Manager is responsible for adding jobs to the Invariant Database as well as removing them. It also assigns jobs to the Invariant workers.
- **Workers**—the workers execute specific subtasks or jobs assigned to them by the worker manager server.

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**Note:** We use the terms *worker manager server* and *Invariant* interchangeably throughout this site.

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**Note:** Even though Invariant is required for Relativity 9+, you are not required to purchase a Processing license unless you are using Processing.

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## 2 Worker manager server pre-installation steps

Before you begin installing the worker manager server, you must update your environment with the required security and other configuration settings. For more information about software and hardware requirements, see the System Requirements Guide.

### 2.1 Install Relativity

Before you install the worker manager server, make sure that you install Relativity. For more information, see the Relativity 2023 Documentation site.

### 2.2 Required software on the worker

The following software is required on the worker server for processing or native imaging. While you may not be processing files corresponding to some of the required software listed below, note that some of those components are still required for system use.

- Windows Server 2016
- .NET Version 4.7.2, 4.8, or 4.8.1
- Desktop Experience (Windows Server feature)
- Microsoft Office 2010 Professional SP2 (32-bit) or Microsoft Office 2013 Professional (32-bit)\* or Microsoft Office 2016 Professional (32-bit)\*\*

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**Note:** \*Some features found in files created in different versions of Office may not be available or render correctly when processed or imaged using a different version than the file was originally created in. For more information about features differences between Office versions, please consult the appropriate Microsoft documentation.

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**Note:** \*\*Note the following details regarding our support of Office 2016:

- You must install a version no earlier than 16.0.4783.1000, the December 2018 update for Microsoft Office.
- We recommend that you upgrade Invariant prior to upgrading Microsoft Office. If you upgrade Microsoft Office first, your workers will fail to validate, and Invariant will not run until you upgrade it.
- We recommend that you uninstall Microsoft Office 2013 before installing Office 2016.
- OneNote 2016 cannot export files containing more than 300 pages to PDF. Processing extracted text will fail in this case, as well.
- With the introduction of Office 2016 support, the font used to image text files is now Google's Noto Sans; previously, this was Microsoft's Arial Unicode.

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- Microsoft Works 6–9 File Converter
  - Microsoft Visio 2010 Professional or Standard SP2 (32-bit) (recommended) or Microsoft Visio 2013 Professional or Standard SP1 (32-bit)

- Microsoft Project 2010 Professional or Standard SP2 (32-bit) (recommended) or Microsoft Project 2013 Professional or Standard SP1 (32-bit)
- (Optional) Lotus Notes v8.5 and higher
- (Optional) Lotus Notes v8.5.3 with Fix Pack 6
- (Optional) Lotus Notes v8.5.2 with Fix Pack 4
- (Optional) Lotus Notes v9.0
- (Optional) Lotus Notes v9.0.1
- (Optional) Lotus Notes v10.0.1
- Solidworks eDrawings Viewer 2017 (64-bit) version only with SP5 or above.
- Solidworks eDrawings Viewer 2018 (64-bit)
- Solidworks eDrawings Viewer 2019
- Solidworks eDrawings Viewer 2020
- JungUm Global Viewer v9.1 or higher

Note that the worker, database, and queue manager do not all require the same number of software components. The following table breaks down which part of the processing infrastructure requires which software component.

Processing infrastructure component	Software component
Worker	See <a href="#">Required permissions below</a> .
Database	<ul style="list-style-type: none"> <li>▪ Windows Server 2016</li> <li>▪ Windows Server 2016</li> </ul>
Queue manager	<ul style="list-style-type: none"> <li>▪ .NET Version 4.7.2, 4.8, or 4.8.1</li> </ul>

## 2.3 Required permissions

You must set the security permissions required for installing Invariant components. The Relativity Service account must have these permissions, as the Queue Manager and workers are required to run under this account.

You are not required to install the Invariant database and Queue Manager on the same server, but you have the option of doing so. The servers that you install to must have the permissions listed under the Database and Queue Manager sections, respectively.

### 2.3.1 Database

The following permissions are required to install the Invariant Database:

- **Domain Rights**—the account used for installing the database must have read and write permissions to the path entered in the **Invariant Worker Network File Path** share in the installation wizard.

- **Server Administrator Rights**—the account used for installing the database must have the following server administration rights:
  - **Domain or Workgroup Member**—if the server is a member of a Domain, this account must also be a Domain user. If the server is a member of a Workgroup, this account must be a local user.
  - **Local Administration Rights**—the account used for installation must have local administration rights on the server. It can also be in the Domain administrator group with local administrator rights on the server.
- **SQL Administrator Rights**—the installer can use Windows or SQL authentication to log in to the SQL Server. This account must have sysadmin permissions on the SQL Server.

### 2.3.2 Queue Manager

The Queue Manager is required to run under the Relativity Service account. This account must have the following permissions on the machine where the Queue Manager is installed:

- **Server Administrator Rights**—the Relativity Service account must have the following server administration rights:
  - **Domain or Workgroup Member**—if the server is a member of a Domain, the Relativity Service account must also be a Domain user. If the server is a member of a Workgroup, the Relativity Service account must be a local user.
  - **Local Administration Rights**—the Relativity Service account must also have local administration rights on the server. It can also be in the Domain administrator group with local administrator rights on the server.
- **SQL Administrator Rights**—the Queue Manager Service account runs as the Relativity Service account, and uses the EDDSDBO account to log in to the SQL Server. Neither account requires administrator rights to the SQL Server.

### 2.3.3 Workers

Workers are required to run under the Relativity Service account. This account must have the following permissions on the machine where a worker is installed:

- **Domain Rights**—the Relativity Service account must have read and write permissions to the path entered in the Invariant Worker Network File Path share during installation.
- **Server Administrator Rights**—the Relativity Service account must have the following server administration rights:
  - **Domain or Workgroup Member**—if the server is a member of a Domain, the Relativity Service account must also be a Domain user. If the server is a member of a Workgroup, the Relativity Service account must be a local user.
  - **Local Administration Rights**—the Relativity Service account must also have local administration rights on the server. It can also be in the Domain administrator group with local administrator rights on the server.

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**Note:** The Relativity Service account must have rights to the network directory created for the database installation, as well as to other network locations used to store files, which the workers need to access.

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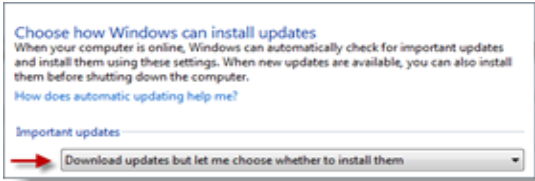
A local user account may also be configured on each worker machine to allow secure file conversion operations for Processing. Note the following details:

- The user account must be able to read and write local temporary files.
- The user account is not required to have permissions to access a file share or network.
- A single account name and password will be used for all workers in use by Invariant.
- The user account name and password must be stored in the Relativity Secret Store for Processing access. For more information on storing this information, see Installing the worker manager server.

## 2.4 Environment configuration steps

Before running the Invariant installer, you must perform the following steps to modify your environment.

Component	Environment Configuration Settings
Database	Disable User Access Control (UAC) and the Windows Firewall.
Queue Manager	None
Workers	<ul style="list-style-type: none"><li>▪ Enable the Desktop Experience Windows Feature.</li><li>▪ Disable User Access Control (UAC) and the Windows Firewall. Disabling UAC on the worker server suppress pop-ups from the application in which the processing engine opens files.</li><li>▪ Set Windows Updates to download, but allow you to choose whether to install. You can set this option through the Control Panel under System and Security.</li></ul>



Choose how Windows can install updates  
When your computer is online, Windows can automatically check for important updates and install them using these settings. When new updates are available, you can also install them before shutting down the computer.  
How does automatic updating help me?  
Important updates  
Download updates but let me choose whether to install them

## 2.5 Database file and network folders setup

During the installation of the Invariant Database and Queue Manager, you need to provide the file paths to the folders used for database and worker files. Create the following folders before you begin the installation.

- **MDF File Folder**—create this folder as a local directory on the SQL Server. It is used for Invariant and Relativity Imaging database files. You can add this folder to a different drive than Invariant database, but it must be local to the machine.



- **LDF File Folder**—create this folder as a local directory on the SQL Server. It is used for Invariant and Relativity Imaging log files. You can add this folder to a different drive than Invariant database, but it must be local to the machine.
- **Network Directory**—create a local network directory on the SQL Server. The Relativity Service account must have read and write permissions to this network share. The installer adds files required by the Invariant Workers to this folder. You will enter the path to this directory in the Invariant Worker Network File Path box during installation.

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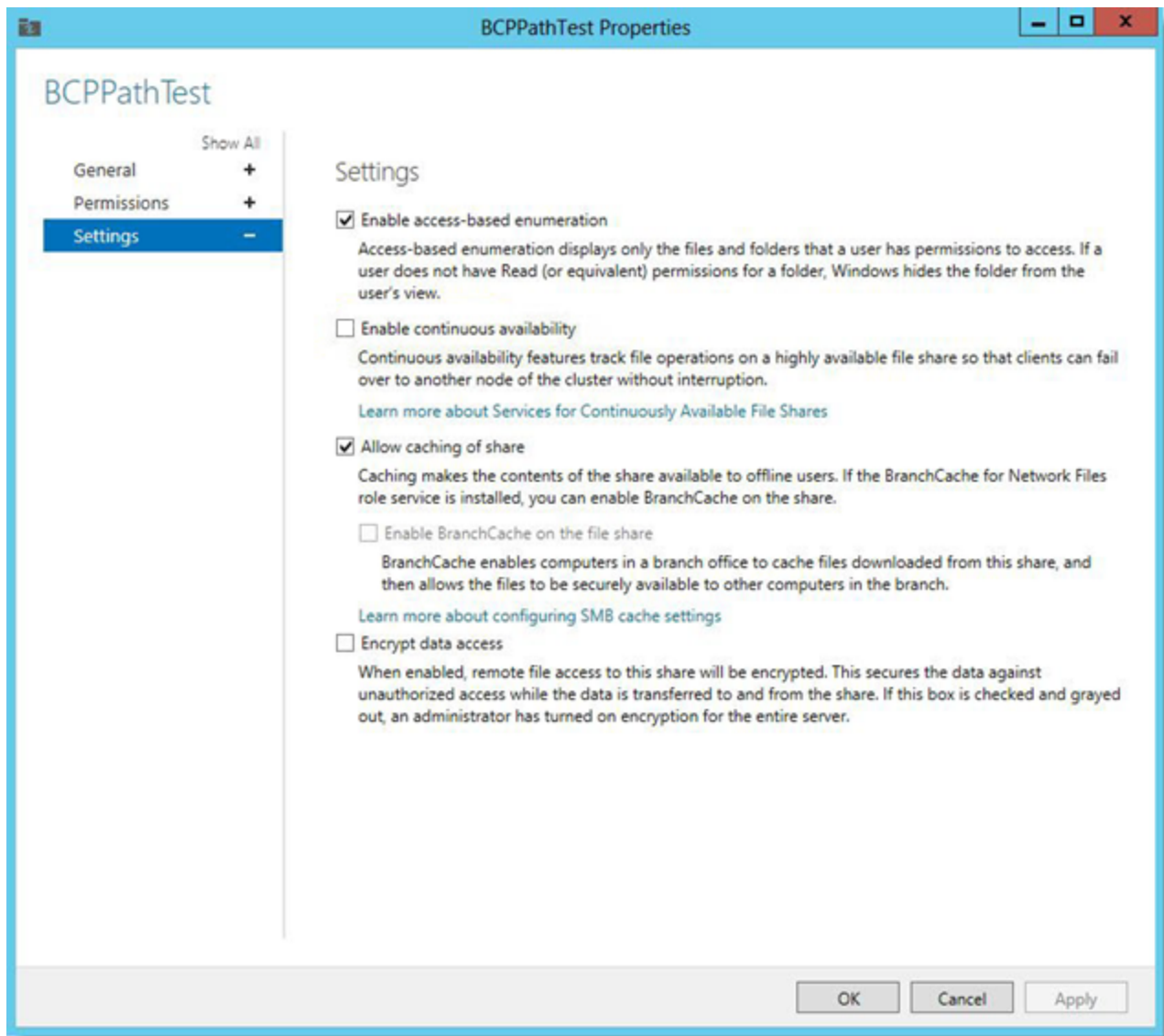
**Note:** The Invariant worker share should be around 10 GB, since it does not contain data that grows with use.

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## 2.6 Update the permissions on the BCPPath file share

In the **Failover Cluster Manager** on the database server, you must update the permission settings for the BCPPath file share to that ensure the case creation occurs properly on the failover cluster. When you create the BCPPath on a clustered disk, verify that **Enable continuous availability** option is not selected under **Settings** on the BCPPath Properties page. For more information, see the Pre-Installation Guide.

See the sample settings on the following screen shot:



**Note:** You must configure this setting only for SQL Server 2012 and 2014.

## 2.7 Enabling token authentication

You must enable token authentication on your web server for certain Relativity features, such as the worker manager server, which requires this authentication type for processing.

You must also edit the ProcessingWebAPIPath Instance Setting. This setting identifies the URL that directs to the Relativity token-authenticated endpoints that Invariant uses to process and image files. Invariant requires this URL and a Relativity admin must enter it.

To do this, perform the following steps to comply with this change:

1. While in Home mode, navigate to the **Instance Settings** sub-tab.
2. In the default All Instance Settings view, enable filters and enter **ProcessingWebAPIPath** in the **Name** field.
3. Click the **ProcessingWebAPIPath** name and click **Edit** in the instance setting layout.
4. In the **Value** field change the existing ProcessingWebAPI URL to the RelativityWebAPI URL.

The screenshot shows two panels for editing an instance setting. The top panel, 'Instance Setting Information', contains three input fields: 'Name' with the value 'ProcessingWebAPIPath', 'Section' with the value 'Relativity.Core', and 'Machine' which is empty. The bottom panel, 'Instance Setting Details', contains a 'Value Type' dropdown set to 'Text', an 'Encrypt' toggle switch that is turned off, and a 'Value' text area containing 'RelativityWebAPI/'. Below the value field is an 'Initial Value' field with the text 'blank'. At the bottom is a 'Description' field with the text: 'Identifies the URL that directs to the Relativity token-authenticated endpoints that Invariant uses to process files. Processing requires this URL and a Relativity admin must enter it. Beginning in Relativity 9.3, this setting can no longer be a Windows Authenticated Relativity Web API endpoint, it must use token authentication.'

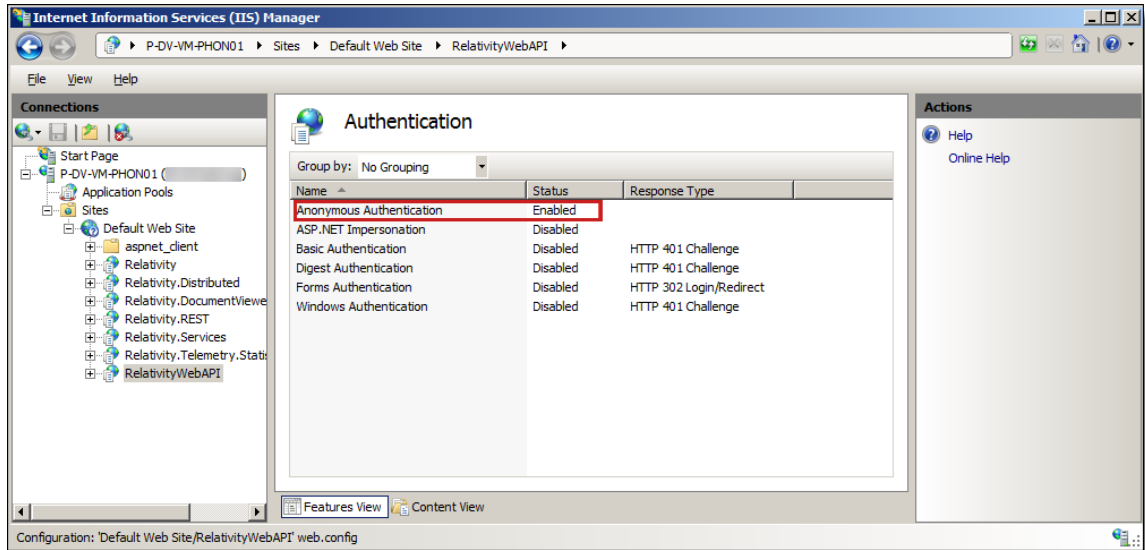
5. Click **Save**.

Depending on what Relativity version you're installing or upgrading, you may need to enable the RelativityWebAPI setting in IIS for Anonymous authentication in order to publish documents to a workspace.

To do this, perform the following steps:

1. Open IIS.
2. To enable anonymous authentication, complete the following steps:
  - a. Click on the **RelativityWebAPI** site.
  - b. In the Features view, click **Authentication**.

- c. In the Authentication view, right-click on **Anonymous Authentication** and click Enable.



- d. To update the web.config file, locate it in the following folder:  
C:\Program Files\Relativity Corporation\Relativity\WebAPI
- e. Open the file in an editor. Update the authentication mode and authorization sections as follows:

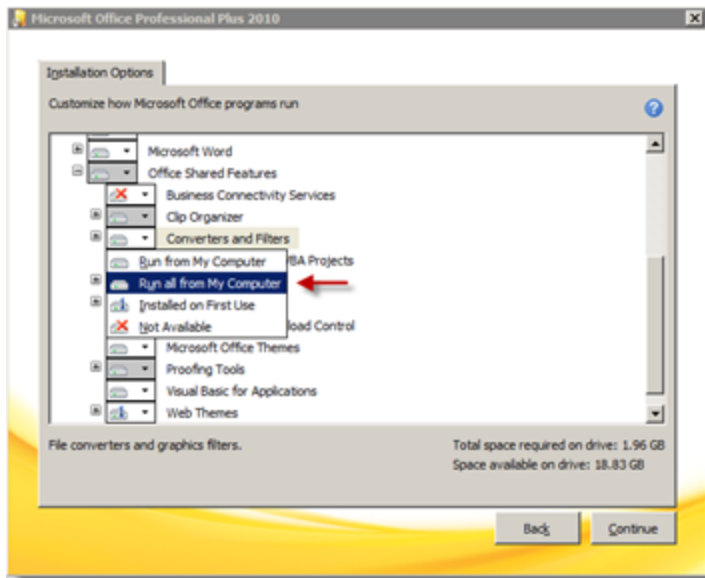
```
<system.web>
  <authentication mode="None" />
  <authorization><allow users="*" />
</authorization>
</system.web>
```

3. Restart IIS.

## 2.8 Installation setting for Microsoft Office Professional

When you install Microsoft Office, you must use the following setting to ensure that Invariant can extract text and create TIFFs from WordPerfect documents.

Run the installer for Microsoft Office. On the Installation Options tab, point to **Office Shared Features**. Point to **Converters and Filters**, and select **Run all from My Computer**.



## 3 Installing the worker manager server

You will use a response text file to install the Invariant queue manager and worker to your machine.

Note the following before you begin:

- You must have created a network directory on the SQL Server before you begin the installation. This directory must have share permissions to the Relativity Service Account.
- You should install the worker on a separate server from the machine that hosts the Invariant queue manager.
- Verify that Relativity is installed in your environment before you install the worker manager server.
- Make sure to review the [Worker manager server pre-installation steps on page 5](#).

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**Note:** There is one Invariant database per workspace, and Relativity appends the tables in that database throughout the life of the workspace, as opposed to using a new set of tables for each processing job.

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### 3.1 Upgrade considerations for Relativity Juniper

Starting in Server 2021, Invariant requires worker server installation on each worker to function properly. This ensures workers have the appropriate Microsoft Visual C++ 2019 redistributables necessary.

When installing the RPC, the username must be EDDSDBO for Relativity Servercustomers.

### 3.2 Hosting Invariant Kepler services in HTTPS

If you want to host Invariant Kepler services in HTTPS, you must complete the following steps:

1. Set the EnforceHttps instance setting to On. This will ensure that the QueueManager service attempts to start the Kepler Services in HTTPS after you create the self-signed certificate.
2. Create a self-signed certificate on the QueueManager with the following specifications. See the Pre-installation Guide for the instructions for creating a self-signed certificate in PowerShell.
  - Install the certificate to both the Personal and Trusted Root Certification Authorities certificate stores for the Computer Account on the Queue Manager server.
  - The port that the certificate is bound to is specified in the C:\Program Files\kCura Corporation\Invariant\QueueManager\Settings\appSettings.config under the ApiPort value.
  - The default port for the Invariant Kepler services is 8092.
3. Restart the Queue Manager.

Upon initialization, the Queue Manager attempts to automatically configure HTTPS and select the certificate, assuming that the EnforceHTTPS is set to On. Specifically, the Queue Manager does the following:

- It opens the Personal store for the Computer Account and look for an exact host name match. The host name comes from the fully qualified domain name of the QM server.

- If there is no exact host name match, it queries the store for all valid certificates and use the one with the largest encryption key.
- If there are no valid certificates, it looks for a wildcard certificate that would work.
- If there are no valid wildcard certificates and the scheme is set to HTTPS, it logs an exception.

To override the default automatic certificate selection behavior, add the SslCertificateThumbprint instance setting for the server to explicitly specify the certificate to use.

- **Name**—SslCertificateThumbprint
- **Section**—kCura.Service.ServiceHost
- **MachineName**—the machine name entered in the Invariant AppSettings table. When Relativity searches for the existence of the thumbprint setting, it looks up the machine name in the Invariant AppSettings table (where Category = "QueueManager" and the SubCategory = NULL) and looks for the thumbprint instance setting for this particular machine name.
- **Value**—the thumbprint of the certificate for SSL bindings. For instructions on retrieving the thumbprint, see [https://msdn.microsoft.com/en-us/library/ms734695\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/ms734695(v=vs.110).aspx).
  - Make sure to copy the Thumbprint certificate field when retrieving the thumbprint value. It is easy to confuse with the Serial number field.
  - The thumbprint value must not include spaces. When you copy-paste it from the Windows certificate form, it does include spaces.
  - You must also remove the leading space because it contains an illegal character that can't be matched when the certificate is retrieved from the store. You likely have different certificates for different machines. To configure the certificate for HTTPS bindings for each machine, use the MachineName field of the instance setting.

## 3.3 Running the handlers installer

You can run the Invariant.Handlers installer to update the file handlers in your Invariant instance. Note that this installer is for upgrades only. For details, see [Using the handlers installer on page 39](#).

### 3.3.1 Installing the Invariant database to a non-default SQL Server port

You can configure Invariant to connect to a SQL server on a non-default port. To do this, perform the following steps:

1. Ensure that no jobs are in the queue or in progress and that a backup has been made of the Invariant queue manager.
2. Stop the **Invariant Queue Manager** service.
3. Reconfigure your SQL Server instance to use a port other than the default of 1433.
4. Restart your SQL Server instance.
5. Ensure that you can connect to your SQL Server instance using the server name and port number via SSMS. The formatting should be **<server\_name>,<port\_number>**. For example, InvariantSql001,1435.
6. Update your sys.servers table to include the comma separated port number in the server name.

7. Restart the SQL Server instance.
8. Once the server has been restarted, reconnect to your SQL Server instance and ensure that the name is correct in the sys.servers table.
9. Update your stores to point to the new server name by running the following command on the Stores table:  

```
UPDATE [Invariant].[dbo].[Stores]
SET [Server] = '<server_name>,<port_number>'
```
10. Update all of your **InvariantResponse.txt** files to include the following additional response file parameter, which is not included in the response file by default. For example, SQLINSTANCEPORT=1435.
11. Run the Invariant upgrade as normal on the Queue Manager. See [Installing the Invariant queue manager below](#).
12. Upon completion of the upgrade, validate that:
  - a. All of your stores were successfully upgraded to the latest version by the Relativity Workspace Upgrade Worker agent. You can find the status of the store upgrade in the **Workspace Upgrade Queue** tab. Note this could take several minutes while the agent works to run the workspace and store upgrades.
  - b. Running a processing set in a workspace with an existing store completes successfully.
  - c. Running a processing set in a new workspace completes successfully.

## 3.4 Invariant installation files

You will use the following files to install Invariant. Steps for downloading these files are included in the procedures described below.

- **Install.bat**—a batch script designed to run the install exe with logging. You can alter this for the purposes of repair or uninstall, as noted in the actual batch script file. You will need to copy over this and the Invariant.exe file during upgrades.
- **InvariantResponse.txt**—the text file to be filled out with the proper parameters for Invariant installation. Here is where you specify which components, queue manager and worker, you would like to install, as well as the SQL instance, service user names and passwords.
- **Invariant.exe**—the executable combining the three different installer for the components, queue manager and worker. You will need to copy over this and the Install.bat file during upgrades. The name will reflect the type of build it was, as well as the version number ending with "Invariant.exe."

## 3.5 Installing the Invariant queue manager

To install the Invariant queue manager, follow these steps:

1. Create a network directory on the SQL Server before you begin the installation. This directory must have share permissions to the Relativity Service Account.



2. Log in to the server with the Relativity Service Account where you want to install the Invariant queue manager.
3. Contact [Support](#) and request the Invariant.exe and the InvariantResponse.txt files. You'll save them both to the root directory of the computer you want to use as the worker manager server.
4. Open the InvariantResponse.txt file in a text editor.

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**Notes:**

Each option in the input file has a description of what it is for, as well as an example input. Accidental spaces can cause an installation failure, so only include spaces if they are needed.

---

5. Complete the following **Feature Selection** settings in the input file:

```
##### FEATURE SELECTION #####
### 0 for: Do not install or uninstall.
### 1 for: Install or upgrade.
###
### E.g. INSTALLQUEUEMANAGER=1
###
#####

INSTALLQUEUEMANAGER=0
INSTALLWORKER=0
```

- **INSTALLQUEUEMANAGER**—set this to 1 to install the Queue Manager on this machine.
  - Changing the URL for the queue manager requires an IIS reset on the Relativity server in order to clear the cache.
- **INSTALLWORKER**—set this value to 0, as you want to install the Worker on a different machine.

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

```

##### COMMON PROPERTIES #####
### The following properties are for all features.
#####

### Target SQL server for Invariant install
### This SQL server must be locally accessible
### Only enter the SQL server name for this property (exclude the instance name)
### The primary instance for this SQL server will be the instance used
### E.g. SQLINSTANCE=MySQLServer

SQLINSTANCE=

### Target SQL server port for Invariant install
### This value only needs to be set if the default value (1433) is not being used
### Ensure that the value matches the value set in sys.servers
### E.g. SQLINSTANCEPORT=1234

SQLINSTANCEPORT=

### SQL instance for Relativity install
### This SQL instance must be network accessible from local machine
### E.g. RELATIVITYSQLINSTANCE=MyRelativitySQLServer

RELATIVITYSQLINSTANCE=

### Target SQL server port for Relativity install
### This value only needs to be set if the default value (1433) is not being used
### Ensure that the value matches the value set in sys.servers
### E.g. RELATIVITYSQLINSTANCEPORT=1234

RELATIVITYSQLINSTANCEPORT=

### Windows username to run queue manager service as
### E.g. SERVICEUSERNAME=domain\username

SERVICEUSERNAME=

### Password for Windows username to run queue manager service as
### E.g. SERVICEPASSWORD=MySecretPassword

SERVICEPASSWORD=

### The EDDSDBO password for the target SQL instance
### The EDDSDBO account must already exist
### E.g. EDDSDBOPASSWORD=MySecretPassword

EDDSDBOPASSWORD=

### Whether or not to use Windows authorization for SQL access
### 0 for: Do not use Windows authorization
### 1 for: Use Windows authorization

USEWINAUTH=

### The name of a SQL Server login.
### This SQL login must be a SQL sysadmin.
### This property is only needed if USEWINAUTH is set to 0.
### E.g. SQLUSERNAME=mySqlUserName

SQLUSERNAME=

### The password for the SQLUSERNAME.
### This property is only needed if USEWINAUTH is set to 0
### E.g. SQLPASSWORD=myPassword

SQLPASSWORD=

### The file share for worker files
### E.g. \\WORKGROUP\NETWORKPATH\MySQLServer\TransportNetworkShare

```

- **SQLINSTANCE** —enter the name of the SQL instance you want to use as the Invariant database host.
  - This SQL instance must be locally accessible.
  - Do not enter "localhost" as the SQL Instance name.
  - The Invariant.exe confirms that SQL Server 2012 is installed. It attempts to connect to the SQL instance with the authentication method that you select.
- **SQLINSTANCEPORT**—if you are using something other than the default port of 1433, enter the SQL server port for the Invariant installation.
  - This is only required if you are using something other than the default port of 1433. For example, SQLINSTANCEPORT=1234.
  - Ensure that the port you enter here matches the value set in the sys.servers.
  - For details about setting up an Invariant installation for a non-default port, see [Installing the Invariant database to a non-default SQL Server port on page 15](#).
- **RELATIVITYSQLINSTANCE**—enter the SQL instance for the Relativity installation. This must be network-accessible from a local machine. If this machine will be used as a standalone Invariant service, make sure to point to a machine with a valid Relativity installation. The EDDSDBO password of the Relativity SQL instance must match that of the of the Invariant SQL instance.
- **RELATIVITYSQLINSTANCEPORT**—if you are using something other than the default port of 1433, enter the SQL server port for the Relativity installation.
  - This is only required if you are using something other than the default port of 1433. For example, RELATIVITYSQLINSTANCEPORT=1234.
  - Ensure that the port you enter here matches the value set in the sys.servers.
  - For details about setting up an Invariant installation for a non-default port, see [Installing the Invariant database to a non-default SQL Server port on page 15](#).
- **SERVICEUSERNAME**—enter the Windows user name under which you want to run the queue manager service. For example, *domain\username*.
- **SERVICEPASSWORD**—enter the password that corresponds to the Windows username you entered above.

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**Note:** The queue manager service runs under the SERVICEUSERNAME and SERVICEPASSWORD credentials. If the server is a member of a Domain, the user name and password must be credentials of a Domain user. If the server is a member of a work group, they must be the credentials of a local user. For a server in a work group, format the user name as **machine\username**. This user must also have local administrator rights on the server.

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- **EDDSDBOPASSWORD**—enter the EDDSDBO password for the target SQL instance.
  - We create an EDDSDBO account for you upon installation.
  - The EDDSDBO password of the Relativity SQL instance must match that of the of the Invariant SQL instance.

- For more information about this account, see the Pre-Installation page on the Relativity 2023 Documentation site.
- **USEWINAUTH**—determines whether or not to use Windows authentication for SQL access.
  - Enter 0 if you do not wish to use Windows authentication.
  - Enter 1 to use Windows authentication.
- **SQLUSERNAME**—enter the name of the SQL Server login.
  - This login must be that of a SQL system admin.
  - This is only required if you set the USEWINAUTH property above to 0.
- **SQLPASSWORD**—enter the password that corresponds to the SQLUSERNAME property above. This is only required if you set the USEWINAUTH property above to 0.
- **RESTRICTEDUSERNAME**—enter the restricted user account created on the worker machine. It is recommended to use this account in order to restrict operations requiring minimal permissions in Invariant and limit the elevated permissions for some third party applications. To limit access, this local user must be created on every worker with the correct configuration before installation in order to use Processing. For more information on creating and configuring this user account, see Pre-installation.
- **RESTRICTEDUSERPASSWORD**—enter the password that corresponds to the RESTRICTEDUSERNAME property above. This user name and password will be stored in the Relativity Secret Store for Processing access. Note the following details:
  - The path where this secret must be stored is predefined, based on the name of your Invariant SQL server. In other words, the value of the Instance Setting InvariantServerName.
  - The secret path is "invariant/value-of-InvariantServerName/restrictedaccount".
  - The names of the values in the secret are RESTRICTEDUSERNAME and RESTRICTEDUSERPASSWORD.
  - These values are taken from the InvariantResponse.txt file and populated into the Relativity Secret Store. This can also be configured using the Secret Store client utility.
- **WORKERNETWORKPATH**—enter the location of the file share for the worker files. For example, \\<machinename>\InvariantNetworkShare. This can be local, but it is not required to be.
- **IDENTITYSERVERURL**—enter the identity server of your environment. Note the following details:
  - This setting is only used for RPC authentication. Make sure your RPC instance is behind your firewall.
  - This server does not need to be load-balanced.
  - For fresh installs, you must edit the default value of //localhost/Relativity/Identity and point this to a web server. For example, *https://webservername/Relativity/Identity*.
  - You will not see this value listed when upgrading, only for a fresh install. In this way, you must manually add this line and the identity server location when upgrading.

- This should be https.
- In SQL Server Management Studio, the IdentityServerURL needs to be set correctly in the Invariant.dbo.AppSettings table. This value is case sensitive. If it is not entered in the proper case, you can run the following statement to capitalize "relativity":

```
--begin tran
--update Invariant.dbo.AppSettings
--set Value1 = 'https://<WebServerName>/Relativity/Identity'
--where Category = 'IdentityServerURL'
--commit
```

7. Complete the following **Queue Manager Properties** settings in the input file:

```
##### QUEUE MANAGER PROPERTIES #####
### The following properties are for the Queue Manager feature.
#####

### The install path for queue manager files and database utilities (NISTUtility, DbUpdater, Deployment)
### E.g. QUEUEMANAGERINSTALLPATH=C:\Program Files\kCura Corporation\Invariant\QueueManager\

QUEUEMANAGERINSTALLPATH=C:\Program Files\kCura Corporation\Invariant\QueueManager\

### The file path for database data files
### E.g. MDFDIR=C:\Data

MDFDIR=C:\Data

### The file path for database log files
### E.g. LDFDIR=C:\Logs

LDFDIR=C:\Logs

### The file share for dtSearch files
### E.g. DTSEARCHINDEXPATH=\\MySQLServer\DtSearchIndexes

DTSEARCHINDEXPATH=\\MySQLServer\DtSearchIndexes

### The file share for data files
### E.g. DATAFILESNETWORKPATH=\\MySQLServer\Fileshare

DATAFILESNETWORKPATH=\\MySQLServer\Fileshare

### The nist package path to install (OPTIONAL)
### If higher or equal Nist package already installed, new install is skipped
### E.g. NISTPACKAGEPATH=C:\NISTPackage.zip

NISTPACKAGEPATH=
```

- **QUEUEMANAGERINSTALLPATH**—enter the installation path for the queue manager files. For example, *C:\Program Files\kCura Corporation\Invariant\QueueManager\*.
  - The Invariant.exe. adds the queue manager files to this folder.
  - This path must be completely separate from the WORKERINSTALLPATH.

- **MDFDIR**—enter the file path for the database data files. For example, *C:\Data*. The Invariant.exe will add the Invariant data files to this folder.
- **LDFDIR**—enter the file path for the log files. For example, *C:\Logs*. The Invariant.exe will add the Invariant log files to this folder.
- **DTSEARCHINDEXPATH**—enter the path to the share location where dtSearch indexes are stored. For example, *\\MySQLServer\DtSearchIndexes*.
- **DATAFILESNETWORKPATH**—enter the file share for the data files. For example, *\\MySQLServer\Fileshare*. This is the path to the shared location where you want to store the files that you import for processing so that those files are not written to random locations on each worker server when you use the Relativity Processing Console (RPC) to import data and dtSearch indexes.
  - If you are using the RPC, don't enter a local path here. This must be a UNC path that is accessible by all components of Invariant, which includes the queue manager, workers, and users running the RPC.
  - It is recommended that you also have a separate file share not used by Relativity for this location.
- **NISTPACKAGEPATH**—enter the local path for the location of the NIST database, if you plan to de-NIST files during processing.
  - This option was introduced in Relativity Version.
  - If you already installed the NIST database prior to Relativity Version, you do not have to enter a value for this setting.
  - If you plan on installing the NIST database through the NIST installer, you can ignore this setting. For more information, see [Installing the NIST database on page 32](#).

8. Complete the following **Worker Properties** settings in the input file:

```
##### WORKER PROPERTIES #####
### The following properties are for the queue manager and worker features.
#####

### The install path for worker files
### E.g. WORKERINSTALLPATH=C:\Program Files\kCura Corporation\Invariant\Worker\

WORKERINSTALLPATH=C:\Program Files\kCura Corporation\Invariant\Worker\
```

- **WORKERINSTALLPATH**—enter the install path for worker files. Do not select a location that is a sub directory of the worker network file path. This path must be completely separate from the QUEUEMANAGERINSTALLPATH.

9. Upon completing the InvariantResponse.txt file, save it to the root directory of the worker manager server. The following is an example of a completed InvariantResponse.txt file for a queue manager installation:

```
INSTALLQUEUEMANAGER=1
INSTALLWORKER=0
SQLINSTANCE=MySQLServer
RELATIVITYSQLINSTANCE=MyRelativitySQLServer
SERVICEUSERNAME=domain/username
SERVICEPASSWORD=MySecretPassword
EDDSDBOPASSWORD=MySecretPassword
USEWINAUTH=1
SQLUSERNAME=MySQLUsername
SQLPASSWORD=MySQLPassword
WORKERNETWORKPATH=\\MySQLServer\InvariantNetworkShare
IDENTITYSERVERURL=https://MyWebServer/Relativity/Identity
QUEUEMANAGERINSTALLPATH=C:\Program Files\kCura Cor-
poration\Invariant\QueueManager\
MDFDIR=C:\MDF
LDFDIR=C:\LDF
DTSEARCHINDEXPATH=\\MySQLServer\DTSearchIndexes
DATAFILESNETWORKPATH=\\MySQLServer\FileShare
WORKERINSTALLPATH=C:\Program Files\kCura Corporation\Invariant\Worker\
```

10. Run the Install.bat file that came with the installation package to proceed with the installation.
  - The installation process can take a while to complete, and there is no progress bar.
  - When the installation is complete, you'll see a second line in the command line.
  - Logs are found in the same directory as the Install.bat with the names InstallLog.txt. You can also find individual logs for the queue manager and worker .msi.

### 3.5.1 Starting the queue manager service

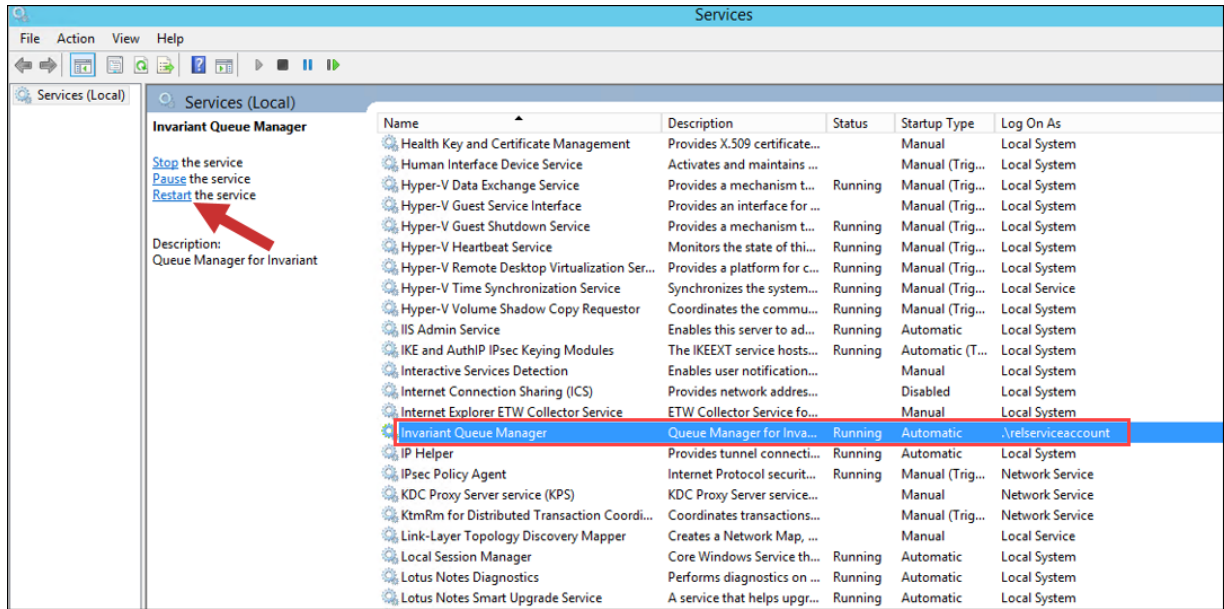
The queue manager is a Windows service that is deployed automatically with the installer, and it starts automatically after you finish the installation.

If at any point you need to manually start the queue manager, you can do so through the following steps:

1. Connect to the Windows Server the queue manager is installed on.
2. Open the Start menu.
3. Enter **services.msc** and locate the service called Invariant Queue Manager.



4. Click **Restart this service** in the upper left corner.



### 3.6 Installing the worker

Install the Invariant queue manager before installing the worker component.

Note the following before you begin:

- You should install the worker on a separate server from the machine that hosts the Invariant queue manager.
- Only use worker machines for running workers executing tasks for Invariant. You should not use these machines for running other applications or performing other tasks.
- The Relativity Service Account must remain logged in to the worker machines at all times. If the Relativity Service Account is not logged in to this machine, the Invariant Worker fails.
- You must be logged in as the Relativity Service Account to perform the installation.

To install the worker, follow these steps:

1. Log in with the Relativity Service Account to the server where you want to install Invariant Workers.
2. Open the InvariantResponse.txt file in a text editor.
3. Complete the following **Feature Selection** settings in the input file:
  - **INSTALLQUEUEMANAGER**—set this value to 0 because you don't want to install the queue manager on the same machine as the worker.
  - **INSTALLWORKER**—set this value to 1.
4. Complete the following Common Properties settings in the input file:
  - **SQLINSTANCE** —enter the name of the SQL instance you want to use as the Invariant queue manager host. This SQL instance must be locally accessible.

- **RELATIVITYSQLINSTANCE**—enter the SQL instance for the Relativity installation. This must be network-accessible from a local machine. If this machine will be used as a standalone Invariant service, be sure to point to a machine with a valid Relativity installation.
- 
- Note:** The EDDSDBO password of the Relativity SQL instance must match that of the of the Invariant SQL instance.
- 
- **EDDSDBOPASSWORD**—enter the EDDSDBO password for the target SQL instance. The EDDSDBO account must already exist.
5. Complete the following Queue Manager and Worker Properties settings in the input file:
- **QUEUEMANAGERINSTALLPATH** - enter the installation path for the queue manager files. For example, *C:\Program Files\kCura Corporation\Invariant\QueueManager\*.
    - The Invariant.exe. will add the queue manager files to this folder.
    - This path must be completely separate from the WORKERINSTALLPATH.
  - **WORKERINSTALLPATH**—enter the install path for worker files. Do not select a location that's a sub directory of the worker network file path.
6. Upon completing the InvariantResponse.txt file, save it to the root directory of the worker. The following is an example of a completed InvariantResponse.txt file for a worker installation:

```
INSTALLQUEUEMANAGER=0
INSTALLWORKER=1
SQLINSTANCE=localhost
RELATIVITYSQLINSTANCE=MyRelativitySQLServer
EDDSDBOPASSWORD=MySecretPassword
QUEUEMANAGERINSTALLPATH=C:\Program Files\kCura Cor-
poration\Invariant\QueueManager\
WORKERINSTALLPATH=C:\Program Files\kCura Corporation\Invariant\Worker\
WORKERNETWORKPATH=\\us11shsql01t\InvNetworkDirectory
USEWINAUTH=1
```

7. Run the Install.bat file that came with the installation package to proceed with the installation.

### 3.7 Troubleshooting the worker manager server installation

You may encounter the following issues during installation of any component of the worker manager server:

Error	Cause	Resolution
Incorrect SQL instance name	If the installer cannot find the SQL Instance, you receive a message stating that a network-related or instance-specific error occurred while establishing a connection to SQL Server. The server was not found or was not accessible. In this case, you need to verify that the instance name is correct and that the SQL Server was configured to allow remote connections.	Verify that the SQL Instance name is entered correctly and that it is located on the current machine.
SQL Server Windows	The user cannot log in to the server.	Confirm that the user running the installer has

Error	Cause	Resolution
authentication fails		administrator rights on the specified SQL instance.
Wrong Version of Windows server installed	The Windows Server is not 2008R2 or higher.	Upgrade your Windows Server to a supported version.
Wrong Version of .NET installed	The version of .NET is not up to date.	Install the required version of .NET Framework. For more information, see the System Requirements guide.
Wrong Version of SQL Server installed	The SQL instance is not version SQL Server 2012.	Upgrade your SQL Server to a supported version.
Error opening installation log file	The user does not have permission to create a file on the root c:\ drive. It may also display when the file c:\InvariantInstall.log exists, but the user running the installation does not have write permission to the file.	Confirm that the server has User Access Control (UAC) disabled and that the user running the installation has local administrator rights.
Wrong version for installation or upgrade	Invariant requires that you upgrade or install the Queue Manager and Workers using an installer with the same version as the installed Invariant queue manager. If you attempt to run an installer with the wrong version, you'll receive a message notifying you of the mismatch.	Run a version of the installer that matches the Invariant version listed in the error message.

### 3.8 Invariant DBUpdater considerations

The Invariant.DBUpdater performs the following when you install the queue manager:

1. Updates the main Invariant database.
2. Sets Relativity stores to Pending, which tells the Workspace Upgrade Worker agent to pick them up.
3. Updates the RPC stores.
4. Produces a detailed XML log file, which gets created in the install directory and provides information on what happened during the database upgrade. Specifically, this log file contains:
  - A list of the all the tasks that were run against the specified databases, including each individual script and success/failure.
  - The input parameters that were given to Invariant.DBUpdater.
  - It also contains a list of all Relativity Stores that were set to Pending.

---

**Note:** Upgrade results from Relativity stores will not appear in the log file, as any errors are captured in the Relativity Errors tab.

---

## 3.9 Uninstalling or repairing the worker manager server

If you need to uninstall the worker manager server, you have the following options:

- **Add/Remove Programs**—use the Add/Remove Programs option on your computer's Control Panel to uninstall all components of Invariant. Specifically, you select **Invariant** in the list of programs and select **Uninstall**. This method does not provide the benefit of a log file or the ability to uninstall individual components, such as the database, queue manager, or worker only.
- **Modify the Install.bat script**— to perform an uninstall or repair, add "/uninstall" or "/repair" to the end of the start line in the same batch script you used to install. By doing this method, you get a log file for your uninstall. We recommend that you change the log file name before running the uninstall command. Note the following examples of an uninstall and repair batch script:

```
echo Running Invariant installer bundle...
start /wait Invariant.Installer.exe /log UninstallLog.txt /responsefilepath=InvariantResponse.txt /uninstall
```

```
echo Running Invariant installer bundle...
start /wait Invariant.Installer.exe /log RepairLog.txt /responsefilepath=InvariantResponse.txt /repair
```

- **Modify the InvariantResponse.txt file**—after upgrading using a certain install package and Install.bat file, you can run the response file with a modify job and remove certain components of invariant from a machine. If the database, queue manager, and worker properties are all set to 1 in the response file, but you only want to install the database and queue manager, simply update the response file to say `INSTALLWORKER=0` and then re-run the Install.bat file.

### 3.9.1 Configuring the worker manager server in your environment

Once you have installed the worker manager server, you can access and configure it in Relativity.

Use the following steps to access the worker server manager settings:

1. Navigate to the **Servers** sub-tab.
2. Click the name of the worker manager server in the list of servers.
3. If you want to edit the fields, click **Edit**, make the desired changes, and click **Save**.

The following fields are visible on a worker manager server:

Resource Server Information \*
Priorities \*
Other Server Details

Name \*

Type

Server Name \*

Is Default

Status  Active  Inactive

Temporary Directory

Version 6.3.64.19

- **Name**—give the worker manager server a name that appears on the Servers tab.
- **Type**—this is a read only field that displays the server's primary function.
- **Server Name**—the name of the server where the Invariant Queue Manager is installed. This value should include a fully qualified domain if the server is on a domain. For example, *pt-func-sql02.testing.corp*.

---

**Note:** This value does not require a net.tcp reference that includes a port number. It also does not require a domain unless the worker manager server and Relativity are on different domain.

---

- **Is Default**—if checked, this worker manager server is the default worker manager server added to any resource pool upon creation and any resource pool that does not currently have a worker manager server. On upgrade, the default worker manager server automatically associates with all existing resource pools. If unchecked, you must manually add the worker manager server to each resource pool.

---

**Note:** Every resource pool should have a worker manager server linked to it. If a resource pool does not have a worker manager server linked to it, any workspace linked to that resource pool is unable to perform imaging and processing.

---

- **Status**—when a worker manager server is added to Relativity, the server manager agent attempts to make a connection and get information about workers. The Status field is automatically set to **Active** if a server is online. Relativity automatically updates this value to **Inactive** when the server manager agent exceeds the maximum connection attempts set by the ServerManagerRetries instance setting.

- **Temporary directory**—a UNC share path used as a temporary location for storing files during Relativity processes. This field is available for all server types except Analytics servers. Use the format \\<server name>\ <shared folder name> for the path, and ensure that the directory is accessible to the agent server running the export. Relativity validates the path you enter. If the path format is invalid, you receive an error message when trying to save. If a permission error occurs, Relativity writes a message to the Errors tab.
- **Version**—this read only field displays the version of Invariant installed on the worker manager server.

Use the **Priorities** tab to specify which jobs the worker manager server gives precedence to when managing jobs. Only one job runs at a time, the lower numbered job runs first and the higher numbered job runs last.

Resource Server Information *	Priorities *	Other Server Details
Inventory *	100	
Discovery *	100	
Publish *	91	
Imaging on-the-fly *	1	
Mass Imaging/Imaging Set *	100	
Single Save As PDF *	100	
Mass Save As PDF *	100	

- **Inventory**—holds the prioritization for inventory jobs.
- **Discovery**—holds the prioritization for discovery jobs.
- **Publish**—holds the prioritization for publish jobs.
- **Conversion**—document conversion occurs on conversion agents working with Rabbit MQ or Windows Service Bus. You cannot modify the priority of the following conversion jobs on the worker manager server: conversion on-the-fly, pre-convert, mass conversion, and conversion. For more information, see *Configuring your conversion agents in the upgrade guide*.
- **Imaging**—holds the priority for imaging jobs, both native and basic.
- **Image on the Fly**—holds the priority for Image on the fly jobs.
- **Save As PDF**—holds the priority for Save as PDF jobs.
- **Mass Imaging/Imaging Set**—holds the priority of a mass imaging job or imaging set
- **Single Save As PDF**—holds the priority for when you execute Save as PDF on a single document.
- **Mass PDF**— holds the priority for all Mass PDF jobs. These occur when you select a group of documents from the Documents tab and then select the Save As PDF option from the mass operations drop-down menu.

## 3.10 Entering the ProcessingWebAPIPath instance setting

You must enable token authentication on your web server for certain Relativity features, such as the worker manager server, which requires this authentication type for processing.

You must also edit the ProcessingWebAPIPath Instance Setting. This setting identifies the URL that directs to the Relativity token-authenticated endpoints that Invariant uses to process and image files. Invariant requires this URL and a Relativity admin must enter it.

To do this, perform the following steps to comply with this change:

1. While in Home mode, navigate to the **Instance Settings** sub-tab.
2. In the default All Instance Settings view, enable filters and enter **ProcessingWebAPIPath** in the **Name** field.
3. Click the **ProcessingWebAPIPath** name and click **Edit** in the instance setting layout.
4. In the **Value** field change the existing ProcessingWebAPI URL to the RelativityWebAPI URL.

The screenshot shows the configuration interface for the 'ProcessingWebAPIPath' instance setting. It is divided into two main sections: 'Instance Setting Information' and 'Instance Setting Details'.

**Instance Setting Information:**

- Name:** ProcessingWebAPIPath
- Section:** Relativity Core
- Machine:** (empty field)

**Instance Setting Details:**

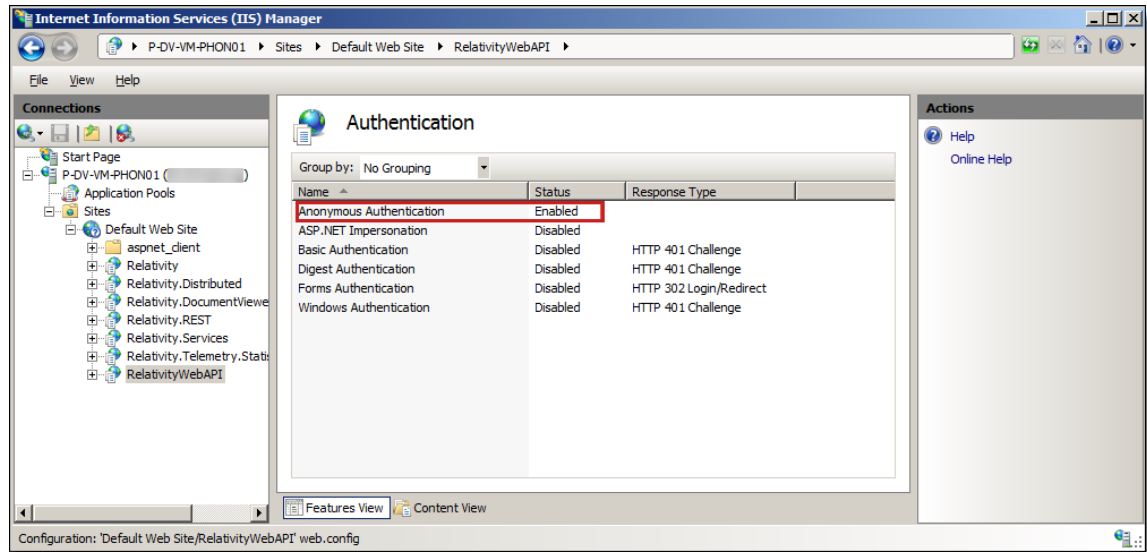
- Value Type:** Text
- Encrypt:** (toggle switch, currently off)
- Value:** RelativityWebAPI/
- Initial Value:** blank
- Description:** Identifies the URL that directs to the Relativity token-authenticated endpoints that Invariant uses to process files. Processing requires this URL and a Relativity admin must enter it. Beginning in Relativity 9.3, this setting can no longer be a Windows Authenticated Relativity Web API endpoint, it must use token authentication.

5. Click **Save**.

Depending on what Relativity version you're installing or upgrading, you may need to enable the RelativityWebAPI setting in IIS for Anonymous authentication in order to publish documents to a workspace.

To do this, perform the following steps:

1. Open IIS.
2. To enable anonymous authentication, complete the following steps:
  - a. Click on the **RelativityWebAPI** site.
  - b. In the Features view, click **Authentication**.
  - c. In the Authentication view, right-click on **Anonymous Authentication** and click Enable.



- d. To update the web.config file, locate it in the following folder:  
C:\Program Files\Relativity Corporation\Relativity\WebAPI
- e. Open the file in an editor. Update the authentication mode and authorization sections as follows:

```
<system.web>
  <authentication mode="None" />
  <authorization><allow users="*" />
</authorization>
</system.web>
```

3. Restart IIS.

### 3.11 Installing the NIST database

If you are using the worker manager server to run native imaging only, or if you are running processing and do not want to de-NIST files, you can choose not to install the NIST database.

Before you install the NIST database:

- Your Invariant environment must be installed and operational.
- No processing jobs should be running or submitted while you install or update the NIST database.

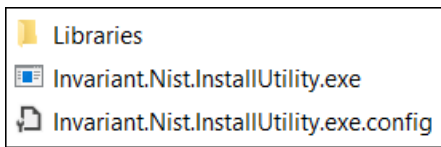
To import the NIST package, perform the following steps:

It is important that you read and understand each of the steps before you begin.

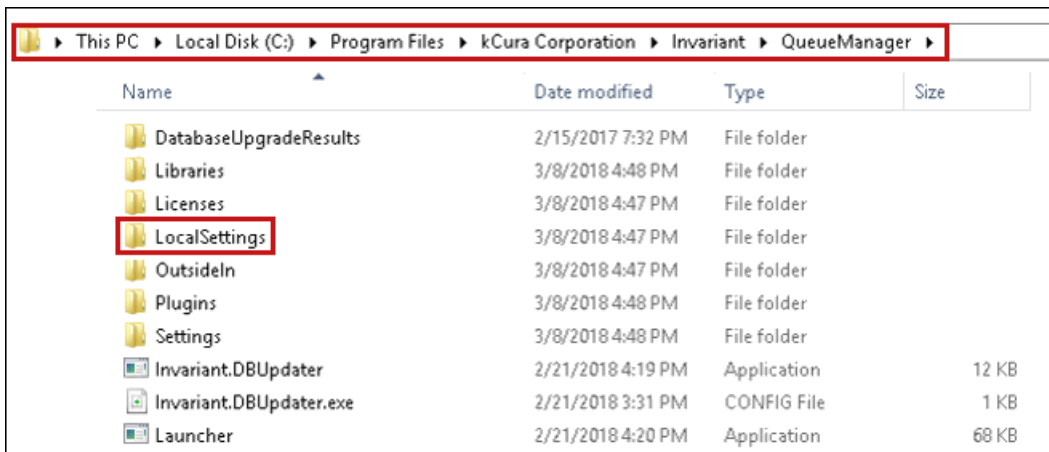


1. Login to the [NIST Package Download](#) webpage on the Relativity Community website and download the two NIST installation files. The files include:
  - nist\_<version>.zip—which contains the latest NIST hashes
  - nist\_installer\_<installer-release-date>—which contains the latest NIST installer
2. Be sure to save the two zip archives to the machine where the Queue Manager service is installed.
  - Note the NIST packages are large, between 10-15GB. Be sure you have sufficient space and time prior to downloading the files.
3. **Extract** the contents of the NIST installer zip file to a folder.
  - DO NOT extract the larger NIST package zip archive.

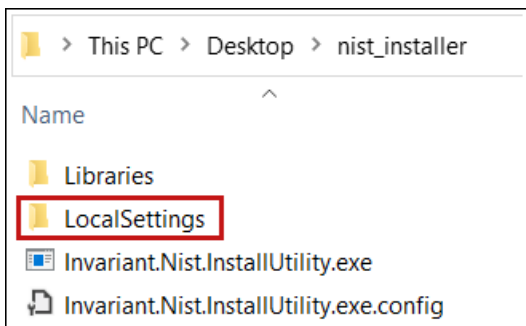
The contents of the extracted zip files should look like to the image below.



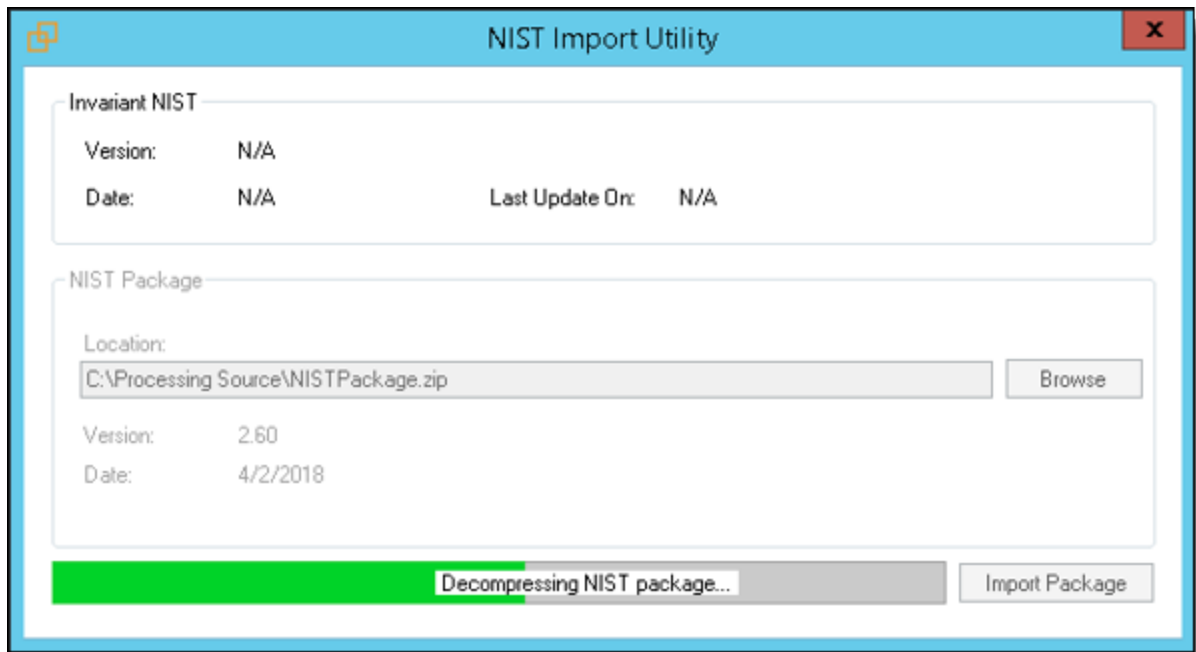
4. Navigate to the **QUEUEMANAGERINSTALLPATH** folder on the **Invariant Queue Manager Server**. (This QUEUEMANAGERINSTALLPATH folder is specified in the response file during database installation.) Copy the **LocalSettings** folder.



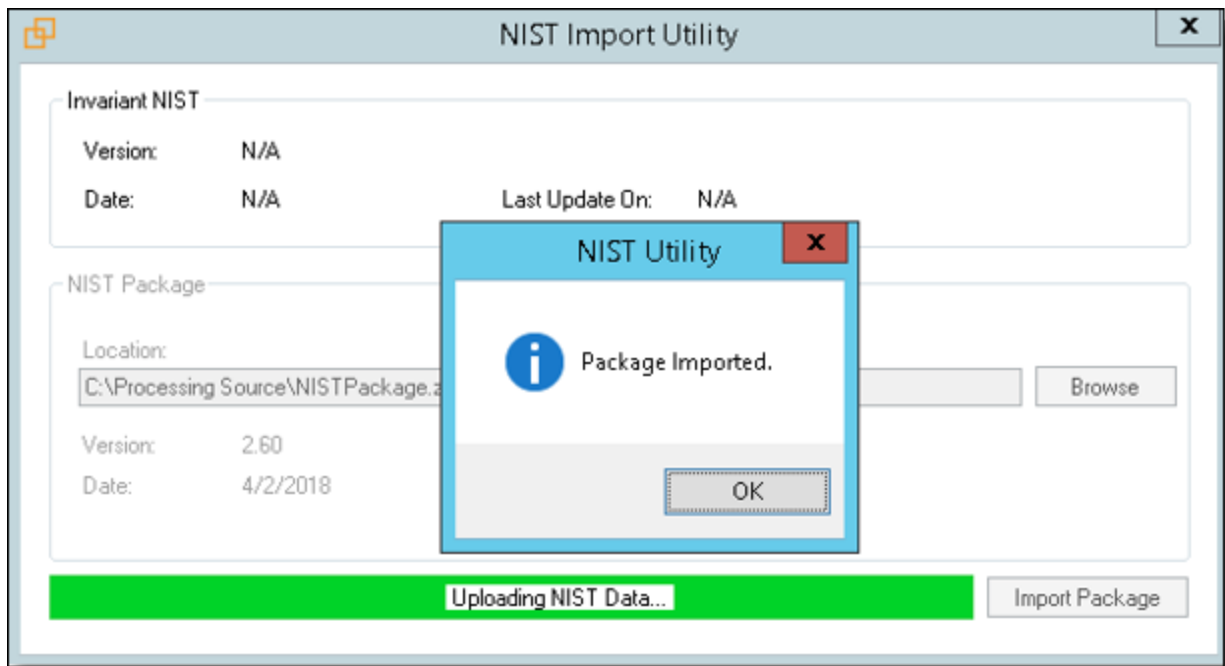
5. Paste the **LocalSettings** folder (and its contents) into the folder where you extracted the NIST installer.



6. Run the NIST installer by double-clicking the **Invariant.Nist.InstallUtility.exe** file. The utility displays information about the currently installed NIST package, when available, in the Invariant NIST section. This information includes the NIST release version, the release date, and the last date and time the NIST database was installed.
7. Click **Browse** and select the **nist-package-<version>.zip** file downloaded in the previous steps. If the file is valid, the release version and release date display in the NIST Package section.
8. Click **Import Package**. The package import process begins. This process may take a while due to the size of the NIST packages. Note that if you already have imported a file of the same version or with a more recent release date, the Import Package button is disabled.



- As the NIST package decompresses, the decompressing progress displays in the progress bar below the NIST package section. After decompressing, the utility uploads the NIST data into the Invariant database and updates the version, date, and last updated date.
9. Once the import process is complete, a confirmation message displays. Click **OK** on the confirmation message. The Invariant NIST section is updated with the version, date, and last updated date information. The Import Package button is disabled since the Invariant NIST data and NIST package file have the same version and date.



If an error occurs during this procedure, a short error message appears, and the full error stack is written to the Windows Application Event Logs for both applications.

## 4 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, do not attempt to upgrade Invariant independent of Relativity, as doing so will result in significant issues. For example, do not 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:

Invariant version	Relativity version
Invariant 3.0	Relativity 7.5
Invariant 3.1	Relativity 8.0
Invariant 3.2	Relativity 8.1
Invariant 3.3	Relativity 8.2
Invariant 4.0	Relativity 9.0/9.1
Invariant 4.2	Relativity 9.2
Invariant 4.3	Relativity 9.3
Invariant 4.4	Relativity 9.4
Invariant 4.5	Relativity 9.5
Invariant 4.6	Relativity 9.6
Invariant 5.0	Relativity 10.0
Invariant 5.1	Relativity 10.1
Invariant 5.2	Relativity 10.2
Invariant 5.3	Relativity 10.3

---

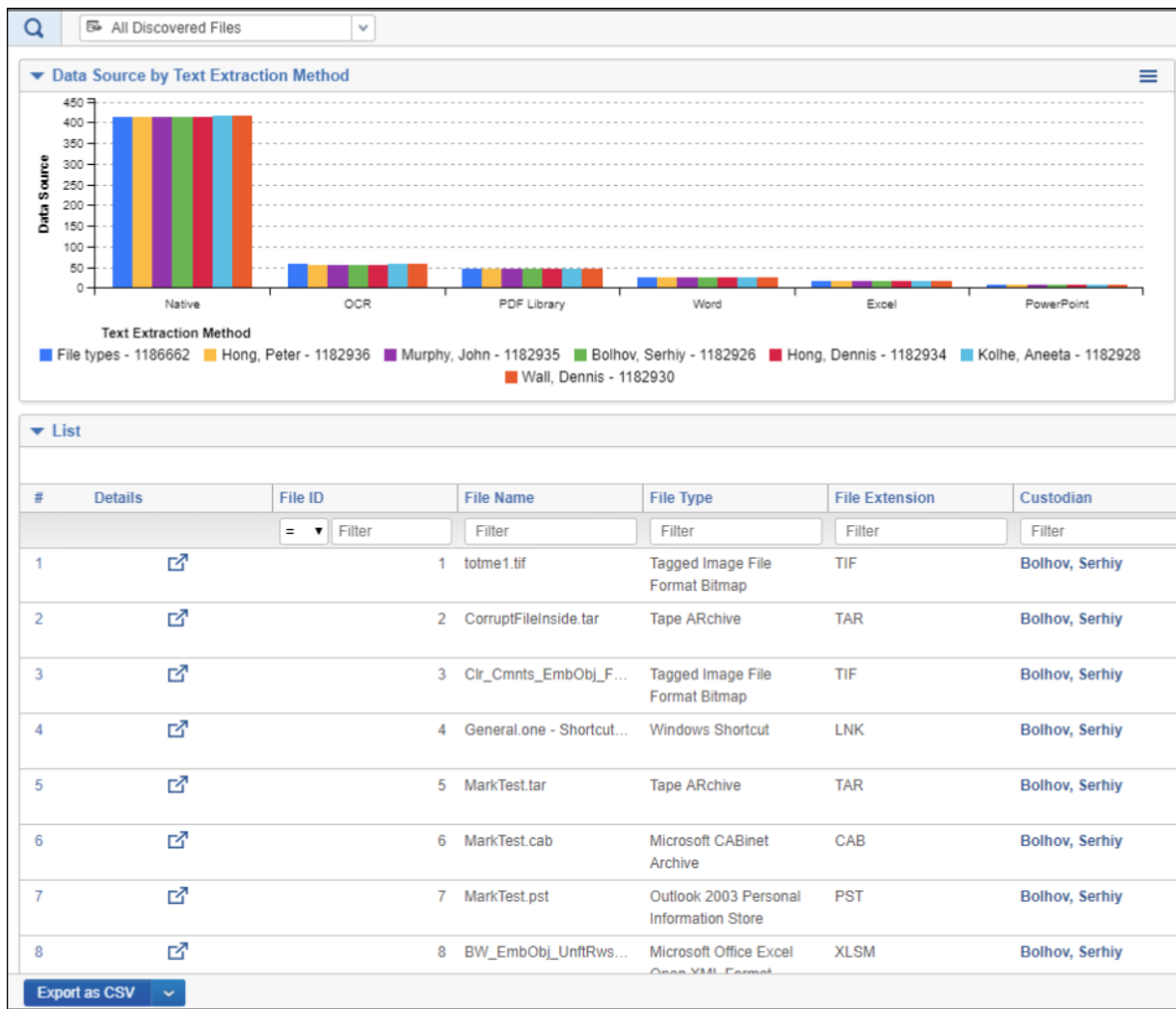
**Note:** When you apply a new Processing license in your Relativity environment, all jobs in the processing queue must complete before Relativity identifies any additional worker manager servers that you may have purchased as licensed.

---

### 4.1 Upgrade considerations for Relativity Goatsbeard

Consider the following items when upgrading to Goatsbeard:

- The Discovered Files View now supports pivots and dashboards, as well as the ability to export from the page.



- The processing profile now includes a new text extraction failover method for Excel, Word, and PowerPoint files. When you select the new Native, failover to dtSearch, method, Relativity uses the native program to extract text from the file with dtSearch as a backup text extraction method if the native program fails. For more information see Processing profiles in the Processing User Guide.
- Invariant container handlers will now run in 64-bit to enhance processing speeds and prevent stuck jobs.

## 4.2 Upgrade exceptions

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

The 3.2 and above installers only validate whether .NET 4.5 is installed; they do not 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; such as 2.1, 3.0, 3.1, 3.2, or 3.3; before you upgrade to Invariant 4.0.

### 4.3 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 are required to install each version of Microsoft Visual C++ only if you are upgrading to the Relativity/Invariant version listed and not if you are installing it for the first time.

Relativity/Invariant version	Required Microsoft Visual C++ version (Redistributable x86 and x64)			
	2010	2012	2013	2015
10.3.287.3/5.3.282.2 ✓		✓	✓	✓
Server 2021/ 6.1.1798 ✓		✓	✓	✓
Server 2022/7.1.431.1 ✓		✓	✓	✓
12.3.805.2/7.3.804.12 ✓		✓	✓	✓

### 4.4 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 to uninstall and reinstall the Invariant Queue Manager.

## 5 Using the handlers installer

You have the option of using the Invariant.Handlers installer to update only the file handlers in your Invariant instance without having run the entire Invariant installer. The handlers installer is relevant for upgrades only.

The Handlers Installer:

- Can be executed without the need for a maintenance period.
- Ensures compatibility with the rest of the system, which makes it less error-prone than .dll drops for File Handlers.
- Enables regular file handler updates without updating other infrastructure components.
- Eliminates the need for manual intervention with workers, since it stops and restarts workers automatically during file synchronization.

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**Note:** Handler-specific fixes will be delivered along with full Invariant installers. To decide whether the handlers installer contains the fixes you need, please consult the [release notes](#) that accompany each monthly product update and major Relativity release. To locate these items in the release notes table, search for "file handlers" in the search box.

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### 5.1 Requirements for running the handlers installer

In order to run the handlers installer, you must have the following components installed and configured. Ensure that:

- The Invariant.QueueManager and Invariant.Handlers are installed. You can verify that these components are installed by opening the Control Panel on the Invariant database machine, go to Programs and Features, and search for "Invariant."
- The response file contains a configured WorkerNetworkPath. This should already be in place because you're using the same response file that you used to initially install the Invariant database.
- A compatible Invariant.Core.dll is present on the worker network share. Check the compatibility using the handler compatibility matrix below.

### 5.2 Compatibility matrix

The following table breaks down which versions of Invariant are compatible with which versions of the Invariant.Handlers installer.

Invariant core version	Core HandlerAPIVersion	Supported handler version	Handlers' HandlerAPIVersion
4.5.126.16	1.0.0	4.5.132.8	1.0.0
4.5.132.8	1.0.0	4.5.132.8	1.0.0
4.5.188.20	2.0.2122	4.5.188.20	2.0.2122
4.5.189.29	3.0.407	4.5.189.29	3.0.407
4.5.245.54	4.0.2202	4.5.245.54	4.0.2202
4.5.257.22	5.0.432	4.5.257.22	5.0.432

Invariant core version	Core HandlerAPIVersion	Supported handler version	Handlers' HandlerAPIVersion
4.5.306.12	6.0.1589	4.5.306.12	6.0.1589
4.5.341.6	7.0.736	4.5.341.6	7.0.736
4.5.356.67	8.0.1109	4.5.356.67	8.0.1109
4.5.404.1	9.0.344	4.5.404.1	9.0.344
4.6.48.34	10.0.2147	4.6.48.34	10.0.2147
4.6.161.23	11.0.1396	4.6.161.23 4.6.202.3	11.0.1396 11.0.2129
4.6.202.3	11.0.2129	4.6.202.3	11.0.2129
9.7.229.5	12.0.3302	9.7.229.5	12.0.3302
5.0.267.2	15.0.01201	5.0.267.2	15.0.01201

**Note:** Not every set of handlers is compatible with every version of Invariant. As updates to Invariant are made available, those updates might break compatibility with previous versions of Invariant core. Make sure to confirm with the compatibility matrix whenever choosing to independently upgrade file handlers. A compatibility check will execute during install time and stop the installation if the handlers are found to be incompatible with the existing installation of Invariant.

## 5.3 Running the handlers installer

To run the Invariant.Handlers installer, perform the following steps:

1. Download the **Invariant.Handlers.exe** installer and **Install.Handlers.bat** runner script, and copy them to the location of the Invariant Database response file.
2. Double click on the Invariant.Handlers.bat script to kick it off. Note how the system operates during installation:
  - The installer places a lock file in the Invariant Worker network share folder to prevent file syncing during installation. When the worker starts again, it drops another lock file on the network share to prevent the handlers installer from running. Lock files are deleted from the network share upon successful completion of the installation. If the installation fails, the lock file remains.
  - Workers are stopped and started automatically. The queue manager periodically checks the network share for updated assemblies. If any are found, the queue manager stops the workers and lets outstanding jobs finish. Then the worker is shut off and resynchronized with the network share to ensure that it's running on the most recent assemblies.
3. Once the output of the Invariant.Handlers.bat script reports success, go to the Invariant Worker network share and verify that it contains updated handlers in the **Plugins/Handlers/x86** and **Plugins/Handlersx64** folders.



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