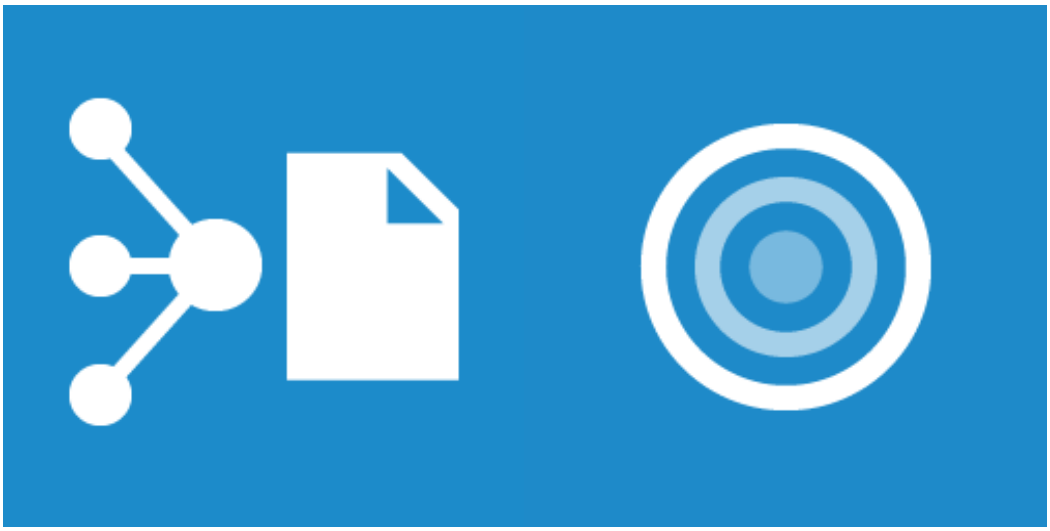
RENISHAW
apply innovation™

InfiniAM and DataHUB software



Contents

1 Legal notices

1.1 Terms and conditions and warranty

Unless you and Renishaw have agreed and signed a separate written agreement, the equipment and/or software are sold subject to the Renishaw Standard Terms and Conditions supplied with such equipment and/or software, or available on request from your local Renishaw office.

Renishaw warrants its equipment and software for a limited period (as set out in the Standard Terms and Conditions), provided that they are installed and used exactly as defined in associated Renishaw documentation. You should consult these Standard Terms and Conditions to find out the full details of your warranty.

Equipment and/or software purchased by you from a third-party supplier is subject to separate terms and conditions supplied with such equipment and/or software. You should contact your third-party supplier for details.

1.2 Patents

Features of Renishaw's additive manufacturing systems, and other similar systems, are the subject of one or more of the following patents and/or patent applications:

1.2.1 RenAM 500 series

CA 2738618	EP 2331232	IN WO2014/125258	US 10335901
CA 2738619	EP 2875855	IN WO2014/125280	US 10493562
	EP 2956261	IN WO2014/199134	US 10500641
CN 102186554	EP 2956262		US 10639879
CN 105102160	EP 3007879	JP 6482476	US 10933620
CN 105228775	EP 3221073	JP 6571638	US 10974184
CN 105492188	EP 3221075		US 11033968
CN 107107193	EP 3299110		US 11040414
CN 107206494	EP 3323534		US 11104121
CN 107921659	EP 3325240		US 11267052
CN 108189390	EP 3357606		US 11305354
CN 108349005	EP 3377252		US 11478856
CN 108515182	EP 3377253		US 11565346
CN 109177153	EP 3566798		US 8753105
	EP 3689507		US 8794263
	EP 4023387		US 9114478
			US 9669583
			US 9849543
			US 2020-0023463
			US 2021-0354197
			US 2022-0203451
			US 2023-0122273

1.2.2 DataHUB

CN 109937101	EP 3482855	US 11167497	WO 2020/099852
CN 111315512	EP 3538295	US 2020-0276669	
CN 112996615	EP 3880391	US 2021-0394272	

1.2.3 InfiniAM Spectral

CN 105745060	EP 3049235	US 10850326	WO 2020/099852
CN 108349005	EP 3377252	US 11305354	WO 2020/174240
CN 109937101	EP 3482855	US 11040414	
CN 110026554	EP 3482909	US 2020-0276669	
CN 111315512	EP 3538295	US 2021-0039167	
CN 111491777	EP 3880391	US 2021-0394272	
CN 112996615	EP 3930999	US 2022-0168813	
CN 115943048	EP 2020-174240	US 2022-0203451	

1.3 REACH

Information required by Article 33(1) of Regulation (EC) No. 1907/2006 (“REACH”) relating to products containing substances of very high concern (SVHCs) is available at:
Product Environmental Compliance – Additive manufacturing (renishaw.com)

1.4 Control of pollution, applicable in the People’s Republic of China

Renishaw has prepared a table in accordance with the provisions of SJ/T 11364. This is available on request from Renishaw.

1.5 China RoHS

For more information on China RoHS, visit:
Product compliance – Additive manufacturing (renishaw.com)

1.6 Changes to equipment

Renishaw reserves the right to change equipment specifications without notice.

2 Introduction

The InfiniAM® suite allows you to collect and monitor build performance data from sensors in the RenAM 500 series additive manufacturing (AM) system. This sensor data is stored on the AM system's hard drive and sent over a network to a Data Collection PC. The Data Collection PC uses Renishaw DataHUB® software to convert the raw sensor data into data volumes. You can view and analyse these volumes using the InfiniAM software installed on a viewing PC. The size of the raw data volumes depends on the hardware used.

The data captured can also be processed through the DataHUB plug-in system. These plug-ins, developed by users in C#, adhere to the DataHUB API. Upon installation, DataHUB will recognise the plug-in and attempt to transmit data for processing. In addition to receiving data, plug-ins have the optional capability to return results to DataHUB, which can then be uploaded to Renishaw Central.

The objective of this installation guide is to make sure that the IT infrastructure and InfiniAM hardware have been acquired and properly configured in preparation for the installation of InfiniAM and DataHUB software. This guide will assist you with the following procedures:

- Installing the InfiniAM software on a viewing PC and ensuring it is networked to access the Data Collection PC.
- Installing the DataHUB software on the Data Collection PC.
- Configuring a shared folder on the Data Collection PC for FTP access by the RenAM system.
- Testing the system for connectivity.

NOTE: The Renishaw AM system operates using the Renishaw RenAMP software. A service engineer must set up and configure it utilising the IP address of the Data Collection PC. Please note that this process is beyond the scope of this installation guide.

2.1 Intended use

InfiniAM provides a robust platform for monitoring and analysing the Renishaw additive manufacturing processes. It facilitates real-time data collection and visualisation, enabling you to observe and optimise the performance of your 3D printing operations. By integrating with the Data Collection PC and other components of the IT infrastructure, InfiniAM ensures that critical process data is captured accurately and can be reviewed for quality assurance and process improvement.

DataHUB software, on the other hand, serves as a centralised data management system that collects, stores, and organises the data generated during the Renishaw additive manufacturing process. It provides a secure and efficient means for users to access and retrieve data, supporting the seamless transfer of information between the RenAM system and the viewing PC.

2.2 Applicability

InfiniAM supports the RenAM 500 series models: 500, 500 Ultra, and 500 Flex. Earlier Renishaw AM platforms are not supported. For further information regarding the suitability of your system, contact Renishaw.

NOTE: InfiniAM does not provide support for the RenAM 500M additive manufacturing system.

2.3 Reference documentation

In addition to this installation guide, refer to the following documents for additional information about other aspects of the InfiniAM system, DataHUB and the RenAM 500 series.

- RenAM 500 series additive manufacturing system installation guide (Renishaw part no. H-5800-3692)
- RenAM 500 series additive manufacturing system user guide (Renishaw part no. H-5800-3693)
- InfiniAM Spectral user guide (Renishaw part no. H-5800-3919)
- InfiniAM Camera user guide (Renishaw part no. H-5800-4675)
- DataHUB user guide (Renishaw part no. H-5800-4761)
- DataHUB developer manual (Renishaw part no. H-5800-4762)

2.4 Critical information in this guide

Within this user guide additional information that is important to read and understand is presented as a warning, caution or note. The definition of each of these and an example of each is given below.

2.4.1 Warning

An example of a warning is as follows:

WARNING: A warning is to tell the end user that there is a possibility of injury to themselves or other people in the vicinity if the described course of action is not followed.

2.4.2 Caution

An example of a caution is as follows:

CAUTION: A caution is to tell the end user that there is a possibility of damage to the equipment if the described course of action is not followed.

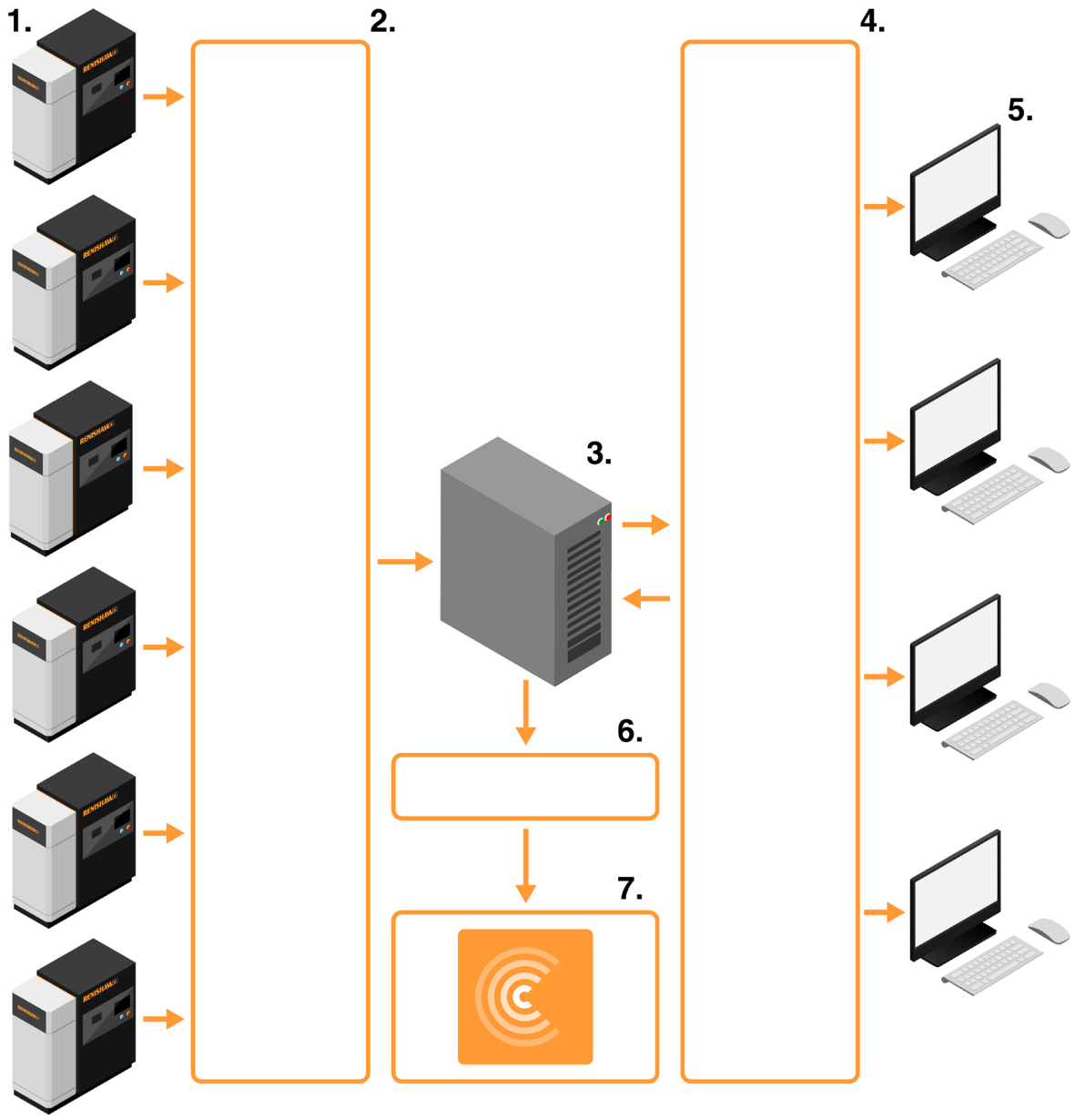
2.4.3 Note

An example of a note is as follows:

NOTE: A note is to advise the end user of important information that is related to, or will assist them in the task or activity they are carrying out.

3 System diagram

The following diagram illustrates that a single Data Collection PC can support multiple Renishaw AM systems. Similarly, several viewing PCs can simultaneously access the data volumes on the Data Collection PC.



1	RenAM 500 AM system
2	Ethernet
3	Data Collection PC with DataHUB software
4	Ethernet

5	Viewing PCs with InfiniAM software
6	1 Gigabit Ethernet connection
7	Renishaw Central

4 Spare parts

Our equipment is sold subject to the terms and conditions of sale supplied with your purchase of the system, or available on request from your local Renishaw office: **www.renishaw.com/contact.**

All components and sub-assemblies are subject to rigorous quality control. Components purchased from sub-suppliers, such as ball bearings, electric motors or hydraulic cylinders, are supplied in accordance with Renishaw specifications. Renishaw will not honour any warranty claims where faults arise due to non-OEM replacement parts being fitted.

When ordering spare parts, quote the following:

- Description of the spare part and its part number, if known
- Equipment name and model
- Serial number
- Year of manufacture

Details of your Renishaw AM system can be found on the serial plate on the rear of the AM system. Details of the MeltVIEW module can be found on the serial plate which is visible when InfiniAM is installed on the Renishaw AM system. Details of the CameraVIEW hardware can be found on the sticker situated on the rear of the camera. The CameraVIEW hardware can be found behind a cover above the chamber.

There are no user-serviceable parts within the InfiniAM system. In the event that the InfiniAM system fails, repair is by exchange of the affected module with a serviceable module from Renishaw. The replacement module will be installed by a Renishaw Service engineer. Following installation, it will be commissioned and tested by a Renishaw Service engineer.

NOTE: For the contact details of your local Renishaw office or to arrange a service visit, see section 14, “Customer support”.

The InfiniAM and DataHUB software will be periodically updated. All subscription users will be entitled to download the latest software release from their **MyRenishaw** account.

5 Software set-up

To make sure that your Renishaw InfiniAM suite works correctly, you must follow the installation steps in the given order and verify your installation. The Renishaw InfiniAM suite is downloaded as a zip file archive, which consists of the following components:

- InfiniAM (InfiniAM.exe)
- Processing unit (DataHUB.exe)

NOTE: For optimal performance, it is recommended that you install DataHUB on the Data Collection PC and InfiniAM on the viewing PC. This set-up ensures reliable data collection and visualisation. Alternatively, you can install both software packages on each client PC, which allows for localised data management which can be beneficial in decentralised environments.

5.1 Ordering InfiniAM and DataHUB software

When you order the InfiniAM and DataHUB software, your sales representative will request an email address. Entitlement IDs for the InfiniAM and DataHUB software will be sent to this email address.

The software is delivered using the MyRenishaw website: **www.renishaw.com/my.**

5.2 Minimum system requirements

5.2.1 Data Collection PC hardware specification (customer-supplied)

NOTE: Both the Data Collection PC and viewing PC must be equipped with NVIDIA GPU hardware.

Processor	Minimum	Intel i7 quad core (or equivalent)
Graphics card	Minimum	NVIDIA card with: At least 10 GB RAM At least 3500 CUDA cores Compute capability 6.1 or higher (e.g. GeForce GTX 1080 Ti, GeForce RTX 3080)
RAM	32 GB DDR4	
Solid state drive	Minimum	N/A
	Recommended	4 TB
Hard disk drive	10 TB	
Network	1 × 10 GB Ethernet port	

5.2.2 Viewing PC hardware specification (customer-supplied)

NOTE: Both the Data Collection PC and viewing PC must be equipped with NVIDIA GPU hardware.

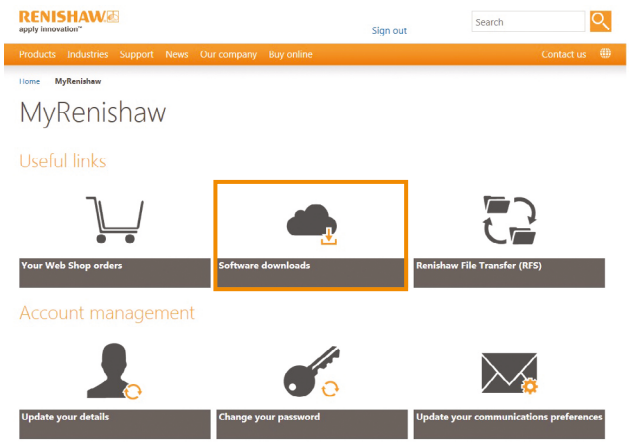
Processor	Minimum	Intel i7 quad core (or equivalent)
Graphics card	Minimum	NVIDIA card with at least 4 GB RAM (e.g. GeForce GTX 1050 Ti, GeForce GTX 1650)
	Recommended	NVIDIA card with at least 8 GB RAM (e.g. GeForce GTX 1080, GeForce RTX 3070)
RAM	32 GB DDR4	
Solid state drive	Minimum	0.5 TB
	Recommended	> 1 TB
Hard disk drive	Minimum	4 TB
	Recommended	> 10 TB

5.2.3 Data storage (customer-supplied)

Storage memory	> 80 TB

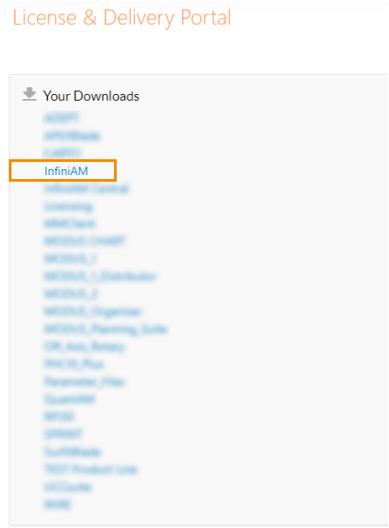
5.3 Downloading InfiniAM and DataHUB software

1. Log in to the MyRenishaw (**www.renishaw.com/my)** website to download your software.
2. Log in using the email address that received the entitlement IDs during the InfiniAM and DataHUB software ordering process.
3. Select ‘Software downloads’.

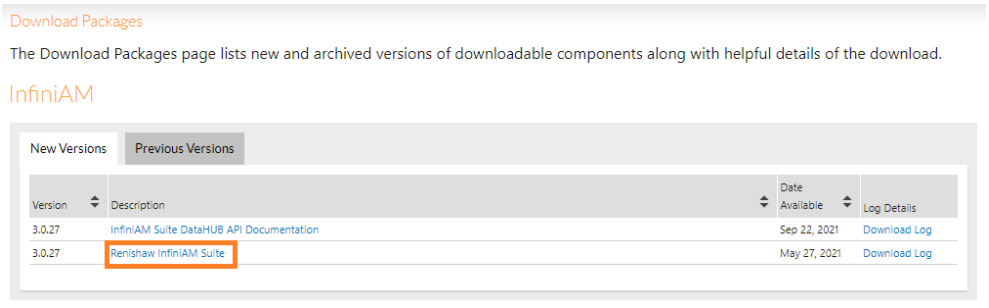


4. Navigate to the ‘InfiniAM Suite’ link within the ‘Additive manufacturing’ section and click it.

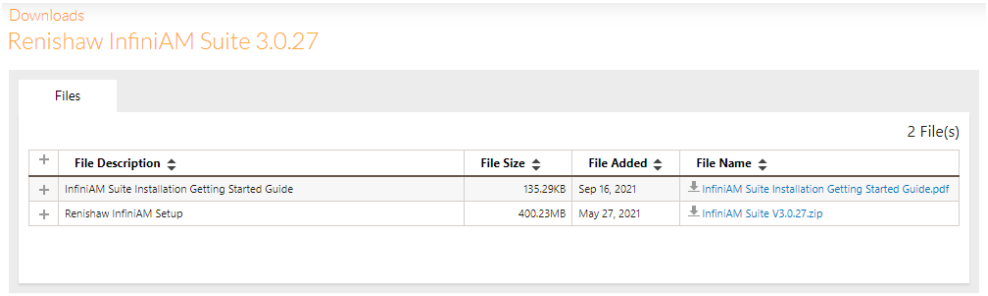
5. Navigate to the ‘Your Downloads’ section and click ‘InfiniAM’.



6. Click on ‘Renishaw InfiniAM Suite’.



7. Click the file name to download the Renishaw InfiniAM suite zip file archive and save it on the PC.



8. Extract and save the components of the downloaded zip file archive.

6 Licensing

The InfiniAM suite uses a floating licence model, where all licences for the software are stored on a single computer within your network which acts as a floating licence server. Users of the InfiniAM suite across your network will automatically check out a licence from this server when they use the software. If a licence is available, the licence server allows the application to run. When they finish using the application, or when the allowed licence period expires, the licence is reclaimed by the floating licence server and made available to other authorised users. The following licence check out processes occur automatically:

- DataHUB checks out a licence when the system starts up.
- InfiniAM checks out a licence when you open the application.

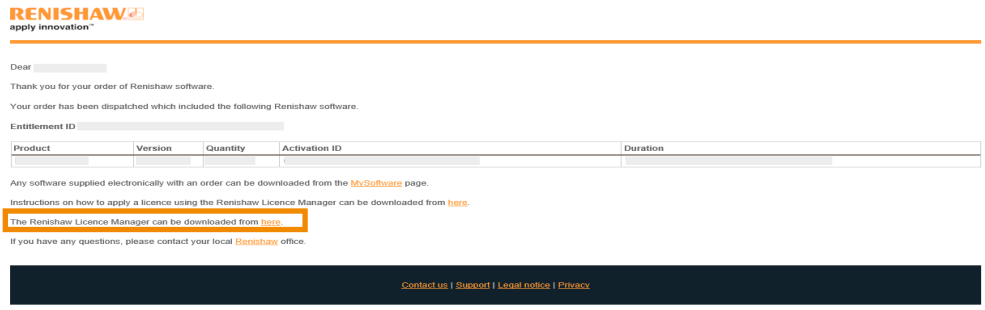
6.1 Installing and configuring the licence server

It is recommended that you install the floating licence server on a centrally accessible location, such as the Data Collection PC. However, if you prefer not to use network-based floating licences on the floating licence server, InfiniAM and DataHUB software can be installed on each client PC, allowing the licences to be managed locally within that PC.

NOTE: An internet connection is initially required on any client PC running the floating licence server to activate the licences. In the case of no internet connection, contact Renishaw. For more information see, section 14, “Customer support”.

To install a floating licence server:

1. Download the ‘Renishaw Licence Manager’ installer from the link provided in the entitlement email.


RENISHAW
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Dear

Thank you for your order of Renishaw software.

Your order has been dispatched which included the following Renishaw software.

Entitlement ID

Product	Version	Quantity	Activation ID	Duration

Any software supplied electronically with an order can be downloaded from the MySoftware page.

Instructions on how to apply a licence using the Renishaw Licence Manager can be downloaded from here.

The Renishaw Licence Manager can be downloaded from here.

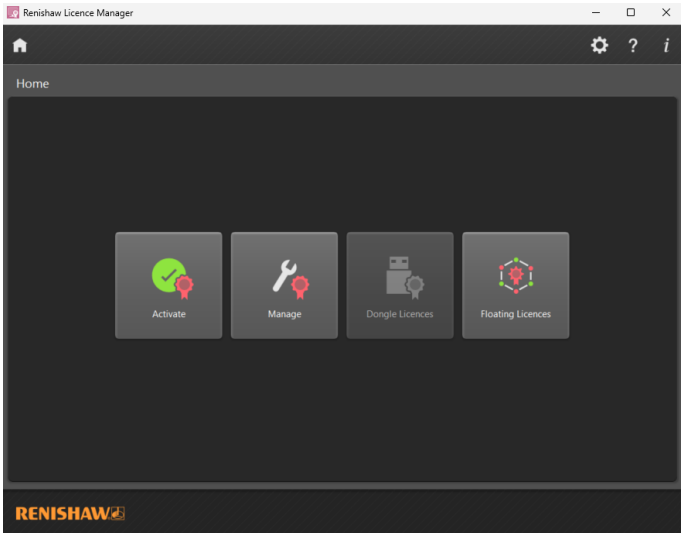
If you have any questions, please contact your local Renishaw office.

Contact us | Support | Legal notice | Privacy

2. Install ‘Renishaw Licence Manager’ on the machine designated to host the licence server.

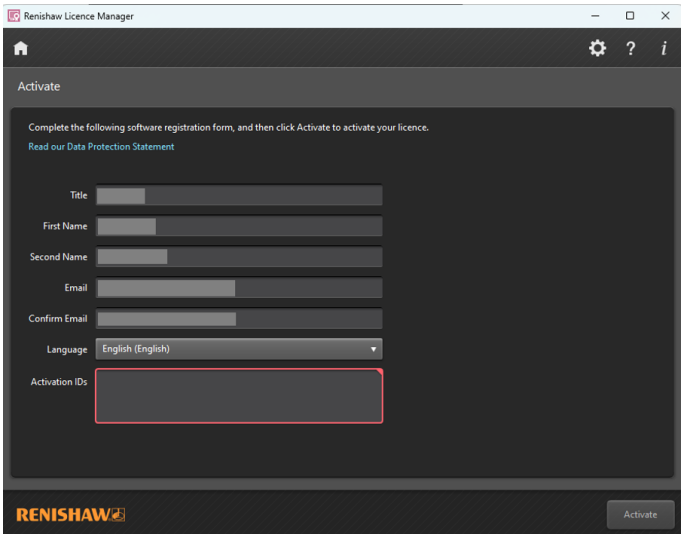
6.1.1 Configuring the local licence

1. Open the ‘Renishaw Licence Manager’ application by clicking on its icon on the desktop or by navigating through the Windows start menu.



2. Click the ‘Activate’ button on the home screen to open the ‘Activate’ screen.

3. Enter your details and the ’Activation ID’ received in the entitlement email, then click ‘Activate’.



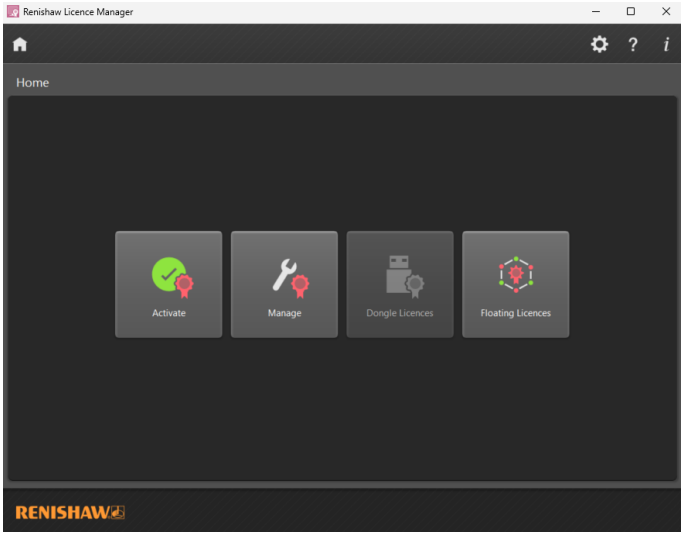
NOTE: A user can provide a single activation ID to activate a single product, or multiple activation IDs to activate multiple products simultaneously. Multiple IDs can be separated by single key space, comma (,) semicolon (;) or new line.

NOTE: For more information on activating a local licence, refer to the Renishaw Licence Manager User Manual by clicking the help button (“?”) in the top right of Renishaw Licence Manager.

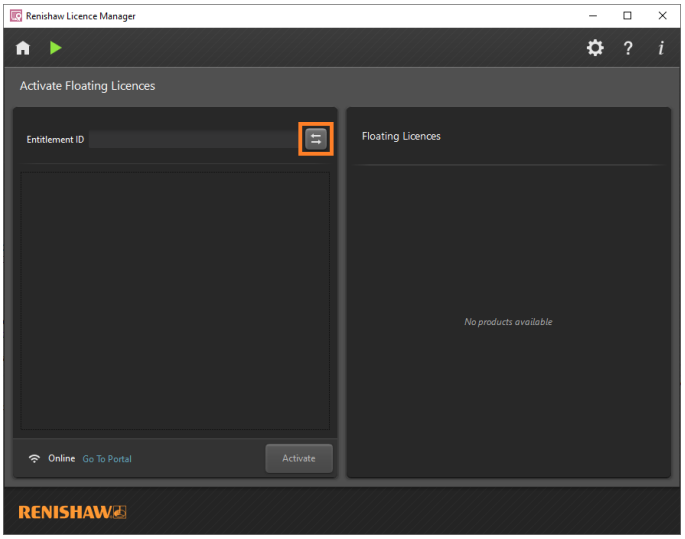
6.1.2 Configuring the floating licence server

1. Open the ‘Renishaw Licence Manager’ application by clicking on its icon on the desktop or by navigating through the Windows start menu.

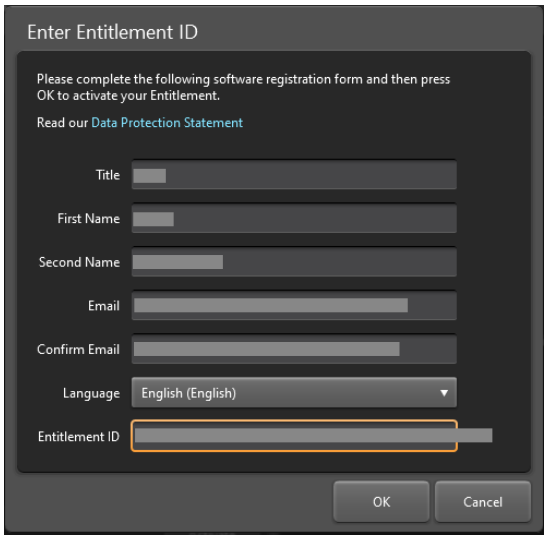
2. Click the ‘Floating Licences’ button on the home screen to open the ‘Activate Floating Licences’ screen.



3. Click the ‘Load new entitlement’ button.



4. Enter your details and the entitlement ID received in the entitlement email, then click ‘OK’.



5. The application displays all available licences for the given entitlement ID on the left pane.

6. Select the licence you want to activate and click ‘Activate’.

NOTE: You must make sure that at least one licence is activated before proceeding. If the licence server is installed without activating any licences in the Renishaw Licence Manager application, the server will not be configured correctly. This issue can be resolved by re-installing the licence server using the steps outlined below, after activating the licences.

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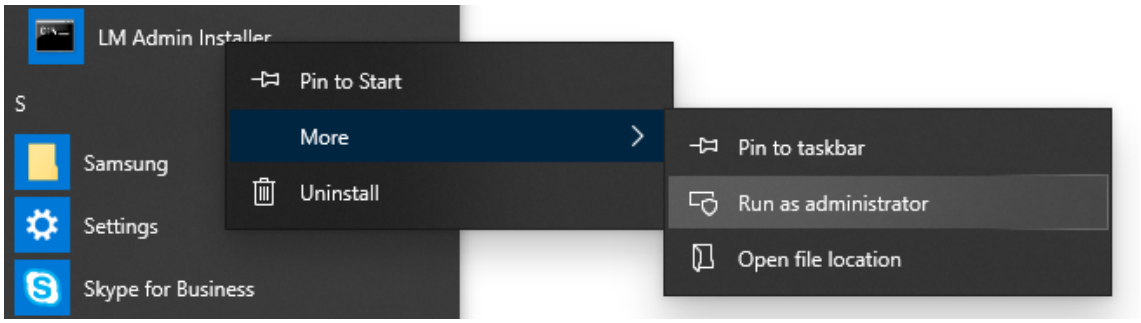
7. Open the Start menu, navigate to ‘LM Admin Installer’, right-click on it, and select ‘Run as administrator’.



8. The installation process will start and install the service.

NOTE: The installer console will automatically close once the installation is successful. This process may take a few minutes.

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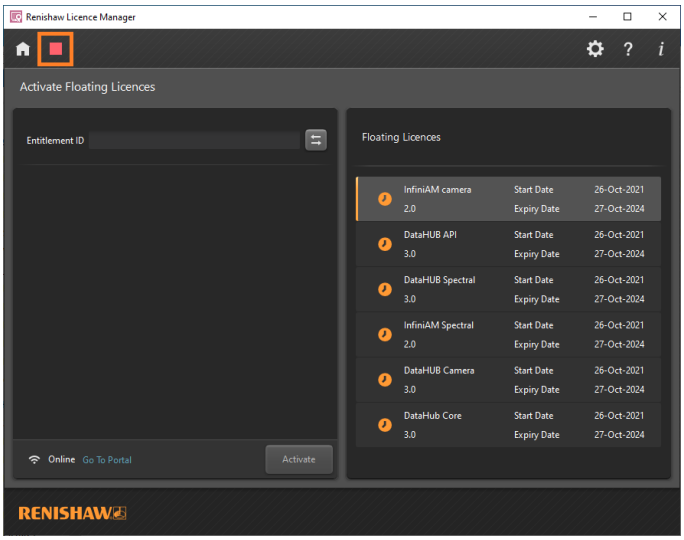
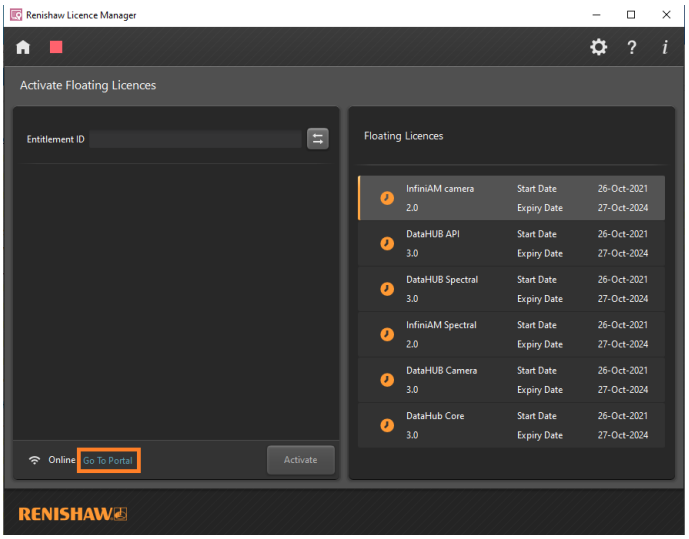
9. To verify that the licence server is configured correctly, navigate back to the ‘Floating Licences’ screen in Renishaw Licence Manager. The ‘Start/Stop licence manager service’ button on the top bar should display a red ‘Stop’ button.

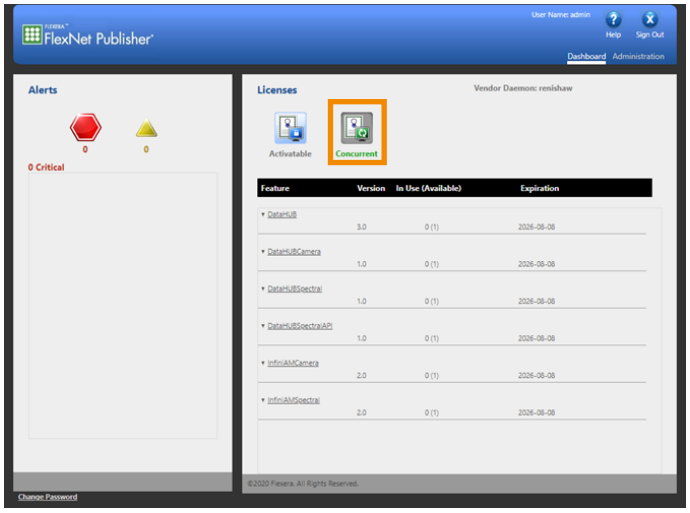


10. Click the ‘Go To Portal’ link on the left bottom corner to open the Licence Manager Server portal in your default web browser.



11. Click the ‘Concurrent’ button on the ‘Dashboard’ tab of the Licence Manager Server portal to view all the available licences and the count available for the corresponding licences.

NOTE: The client PC may sometimes fail to check out a floating licence if the PC port is occupied by another process or if a firewall is blocking access. In this case, you must change the port configuration (Server and Vendor Daemon) to allow access through the firewall of the network. For more information, see section 6.1.3, “Configuring the licence server port”.



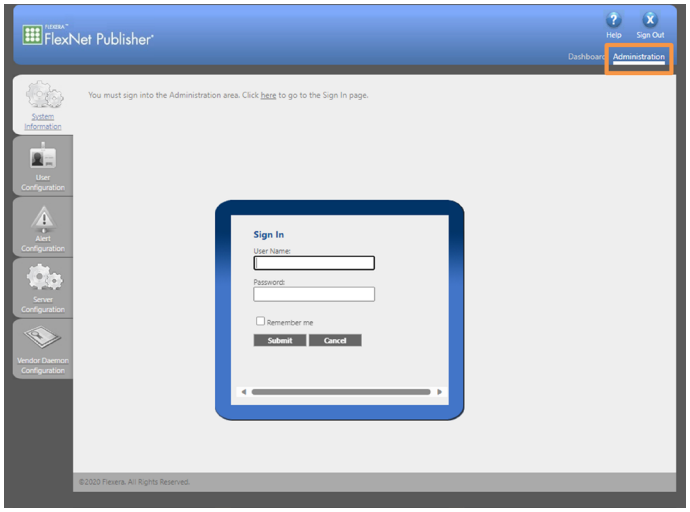
6.1.3 Configuring the licence server port

The following steps outline the procedure to verify and configure the licence server port:

1. Make sure that the Licence Manager Server portal is open in your default web browser. For more information, see section 6.1, “Installing and configuring the licence server”.

2. Select the ‘Administration’ tab in the Licence Manager Server portal.

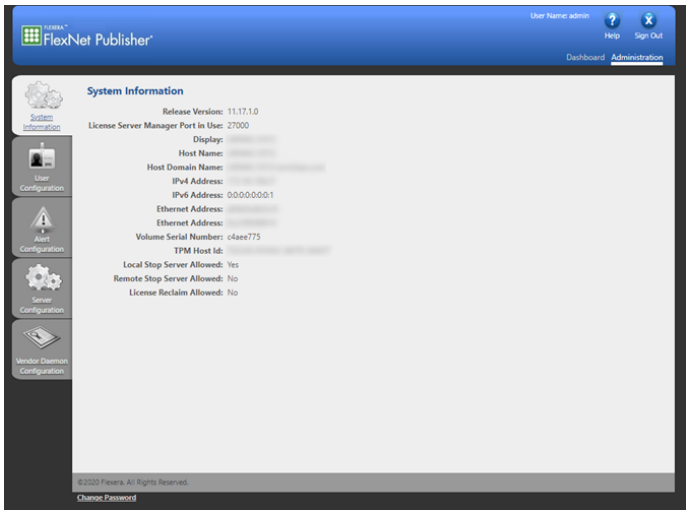
3. Use the default username (‘admin’) and password (‘admin’) to sign in for the first time.



4. Change the password if prompted during the initial log-in.

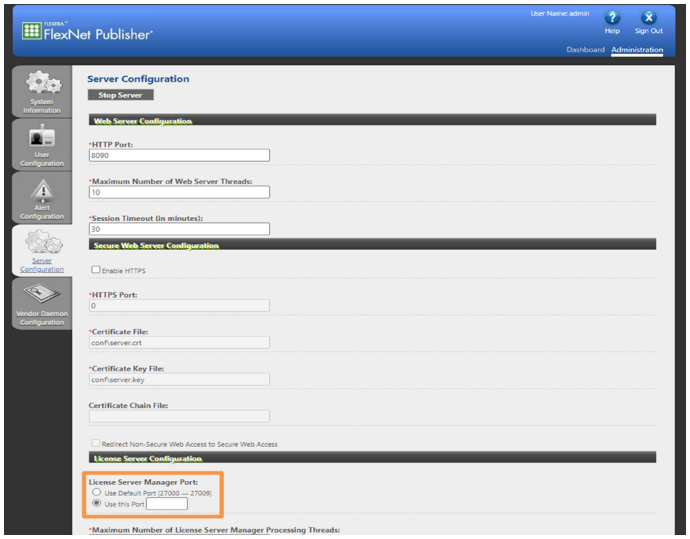
5. The ‘System Information’ tab displays details about the machine running the licence manager server, including the ‘Licence Server Manager Port in Use’.

NOTE: Knowing the licence server manager port and the IP address is essential for the installation of DataHUB and InfiniAM suite.



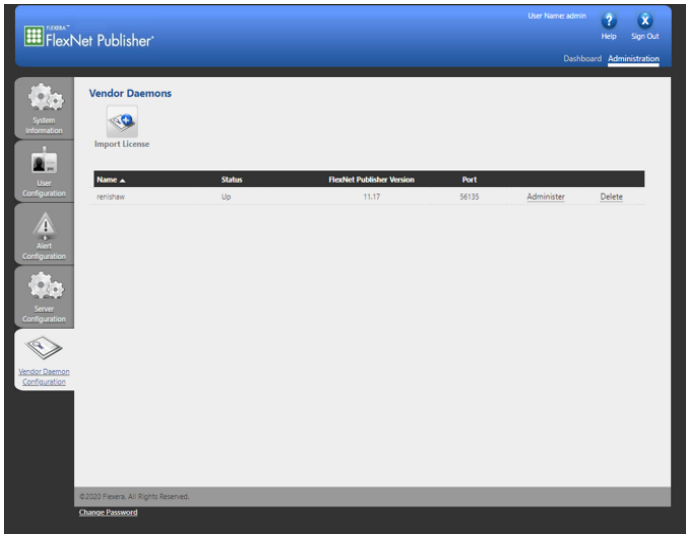
6. Select the ‘Server Configuration’ tab and navigate to the ‘Licence Server Configuration’ section.

7. Use the radio buttons to choose the default port or select a specific port.



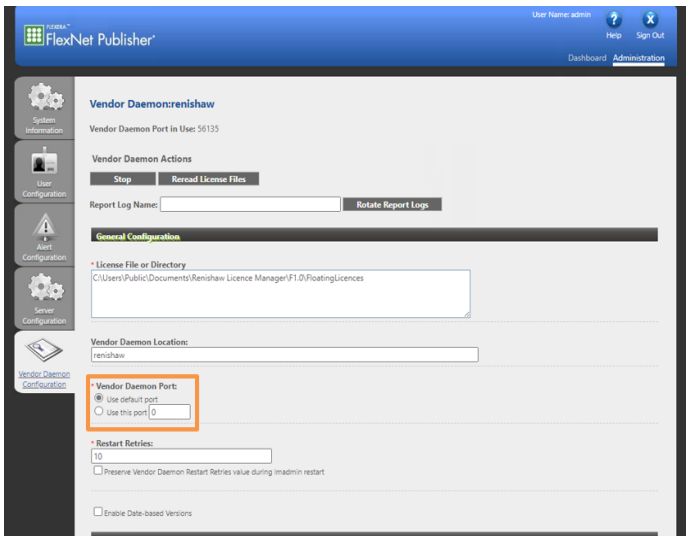
8. Click the ‘Save’ button at the bottom of the page to finalise your changes.

9. Select the ‘Vendor Daemon Configuration’ tab. Check that the Daemon port is available and accessible if a firewall is present in the network.



10. To modify the Daemon port, click on ‘Administer’ and navigate to the ‘Vendor Daemon Port’ section.

11. Use the radio buttons to choose the default port or select a specific port.



12. Click the ‘Save’ button at the bottom of the page to finalise your changes.

NOTE: If there is a firewall in the network, it is essential to add rules that give access to the licence server and Vendor Daemon ports.

NOTE: For more information about using Renishaw Licence Manager, you can access the Renishaw Licence Manager User Manual by clicking the help button (“?”) in the top right of Renishaw Licence Manager.

7 Configuring the Data Collection PC

This section explains how to install the DataHUB software and configure the Data Collection PC. The steps involved are:

a. Installing the Renishaw DataHUB software (see section 7.1)

b. Making sure the floating licence server has been set up (see section 6)

c. Configuring the FTP server (see section 7.2)

d. Making sure your PC has up-to-date GPU drivers (see section 9)

e. Restarting the PC.

7.1 Installing DataHUB

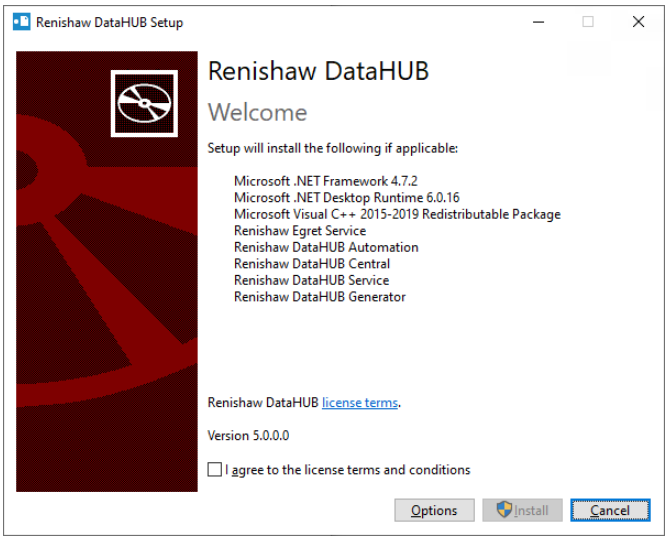
The steps below outline the procedure to install DataHUB on the Data Collection PC.

NOTE: Make sure that Renishaw DataHUB Setup.exe is saved on the Data Collection PC. This component is a part of the downloaded InfiniAM suite.

1. Double-click the installer (Renishaw DataHUB Setup.exe).

2. The 'Renishaw DataHUB Setup' installer window opens and displays the list of software components that will be installed on your system.

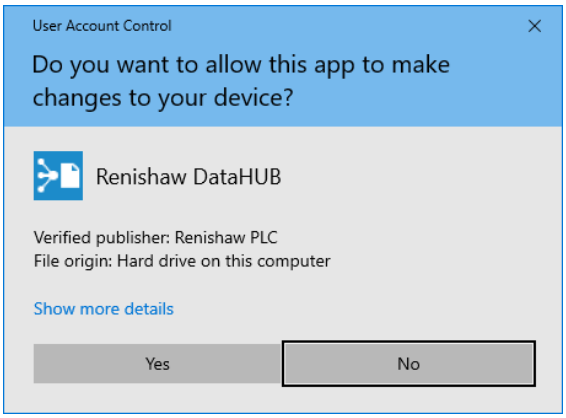
NOTE: If these software components do not already exist on the PC, their installers will run as part of the overall process.



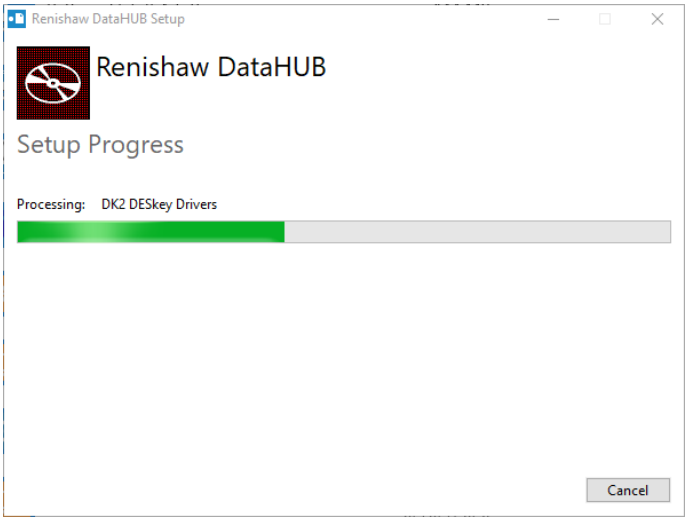
3. Accept the licence agreement and click 'Install'.

NOTE: To create a desktop shortcut, click 'Options' and select the relevant check boxes.

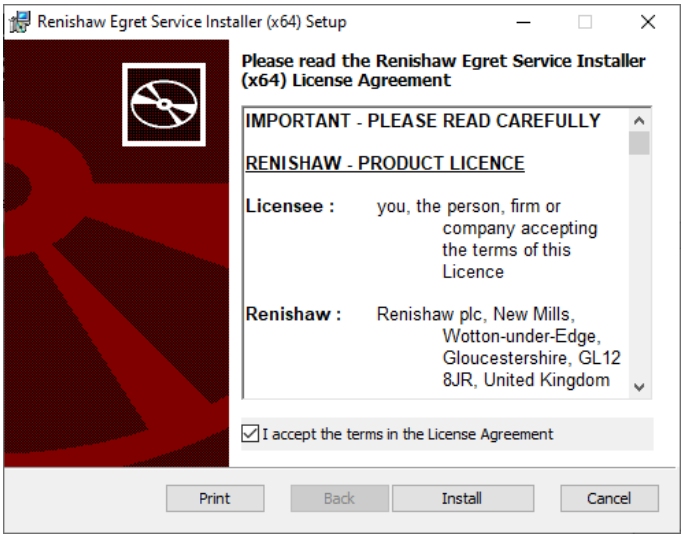
4. Select ‘Yes’ on the ‘User Account Control’ prompt.



5. The ‘Renishaw DataHUB Setup’ installer window displays a progress bar to indicate the installation status.

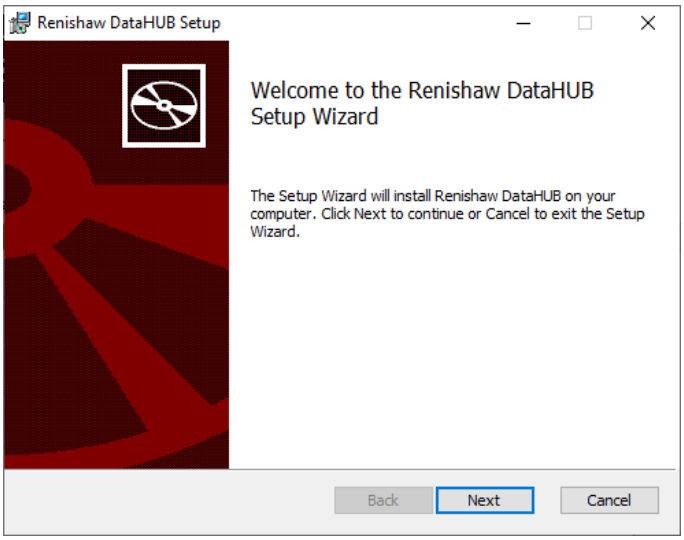


6. Once the installation is complete, the ‘Renishaw Egret Service Installer’ window is displayed.



7. Accept the licence agreement and click ‘Install’.

8. Click ‘Next’ on the ‘Renishaw DataHUB Setup’ installer window.

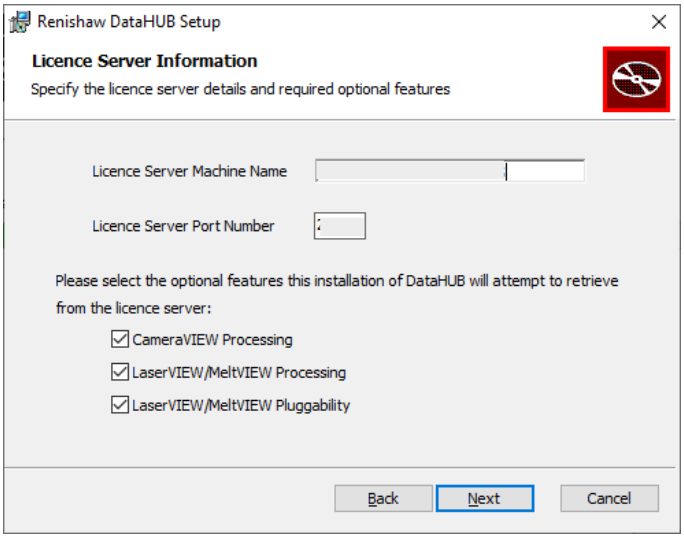


9. Enter the ‘Licence Server Machine Name’ and ‘Licence Server Port Number’, then select the additional licences DataHUB should retrieve based on your purchases, and click ‘Next’.

NOTE: Retrieve the licence server details from the ‘Administration’ tab in the Licence Manager Server portal, or contact your IT administration team if they configured the floating licence server. For more information, see section 6.1.3, “Configuring the licence server port”.

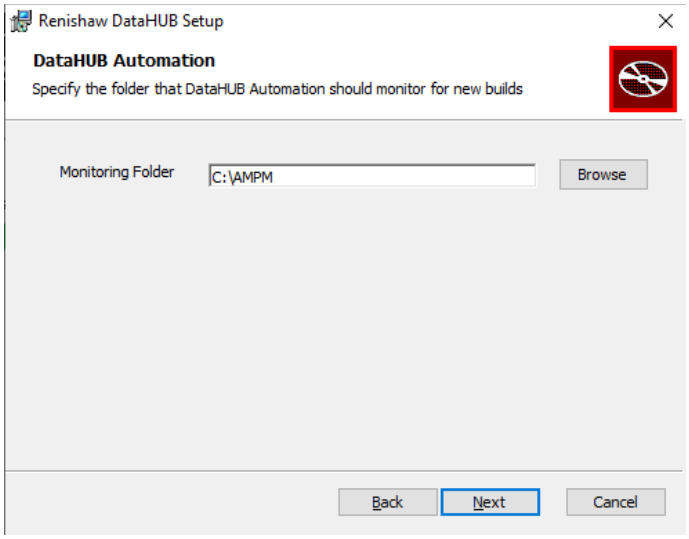
NOTE: If licences are activated locally, set the ‘Licence Server Machine Name’ to “localhost” and the ‘Licence Server Port Number’ to “00000”.

NOTE: If DataHUB is installed on the same machine as the floating licence server, specify the ‘Licence Server Machine Name’ as “localhost”.



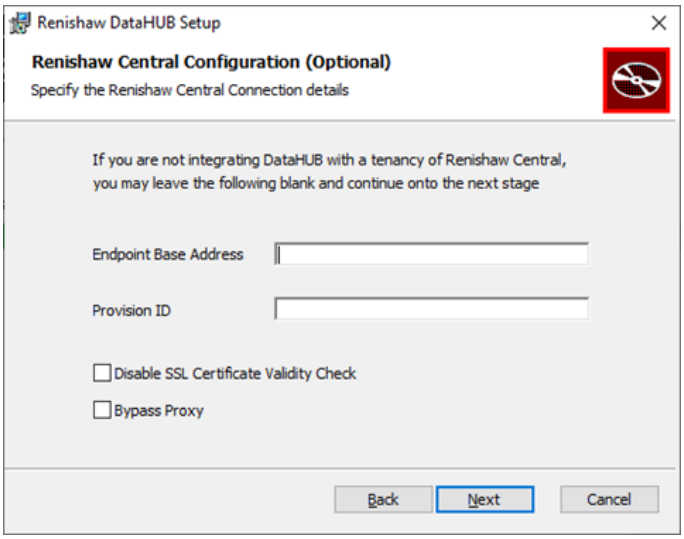
10. Specify the path for the ‘Monitoring Folder’ where DataHUB Automation will monitor for builds on the Data Collection PC and click ‘Next’.

NOTE: The ‘Monitoring Folder’ path must match the physical path selected when creating the FTP server. For more information, see 7.3, “FTP server configuration requirements”.

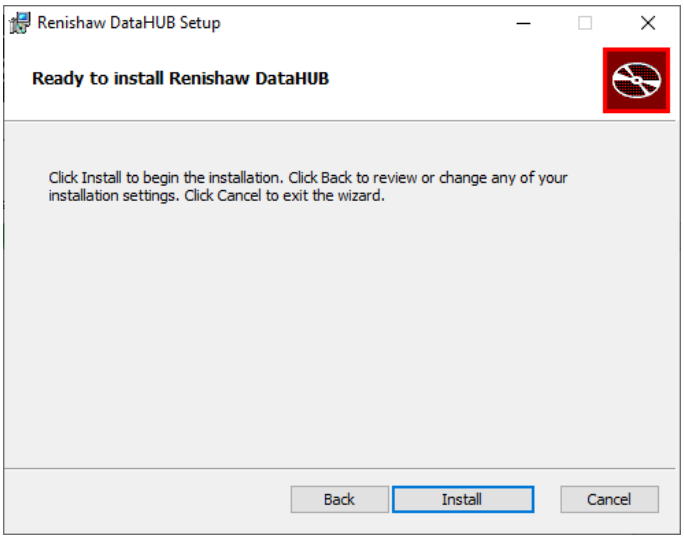


11. Specify the Renishaw Central connection details if you wish to integrate DataHUB with Renishaw Central. Otherwise, ignore this stage and click ‘Next’. For more information, see section 10.1, “Connecting DataHUB to Renishaw Central”.

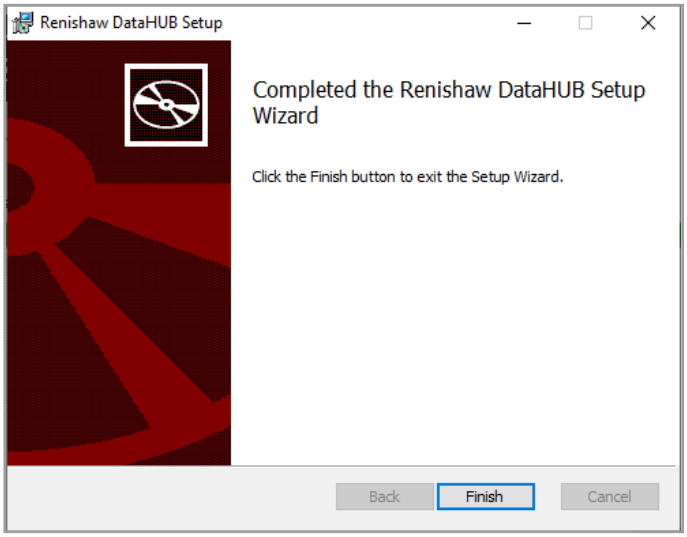
NOTE: For more information on the address of the Renishaw Central endpoint and its provision ID, see section 10.1, “Connecting DataHUB to Renishaw Central”.



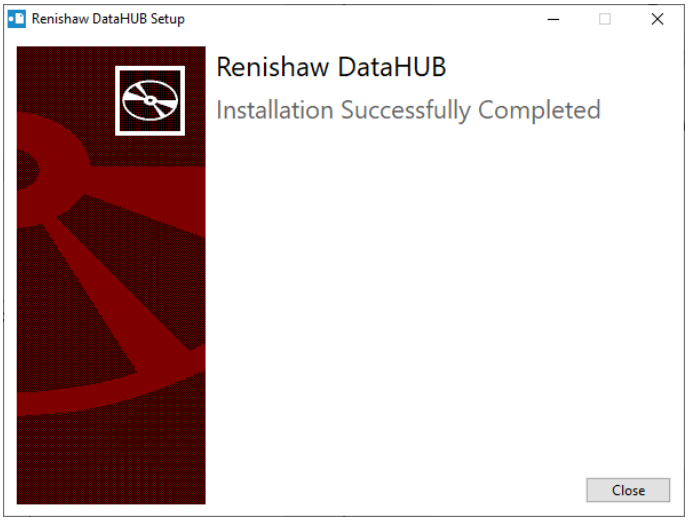
12. If required, review your installation settings using the ‘Back’ button, then click ‘Install’.



13. Click ‘Finish’ to complete the installation.



14. Click ‘Close’ to exit the ‘Renishaw DataHUB Setup’ installer window.



7.2 Configuring the FTP server

This section explains how to create and configure an FTP server on the Data Collection PC. The steps involved are:

a. Installing Internet Information Services (IIS) (see section 7.2.1)

b. Creating the FTP server (see section 7.2.2)

c. Configuring Windows permissions (see section 7.2.3)

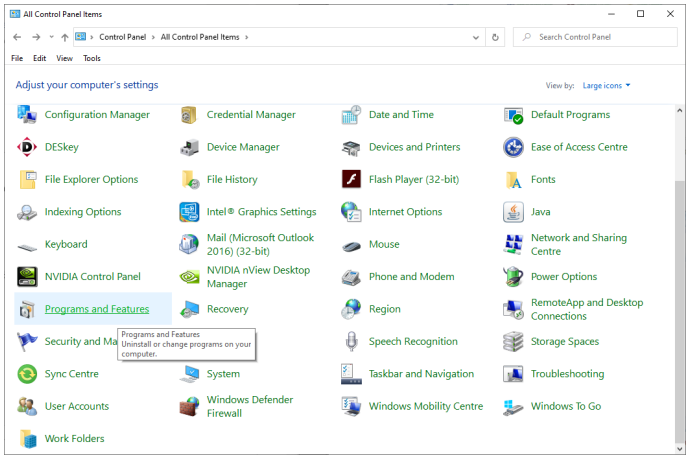
7.2.1 Installing Internet Information Services

The steps below outline the procedure to install IIS on the Data Collection PC.

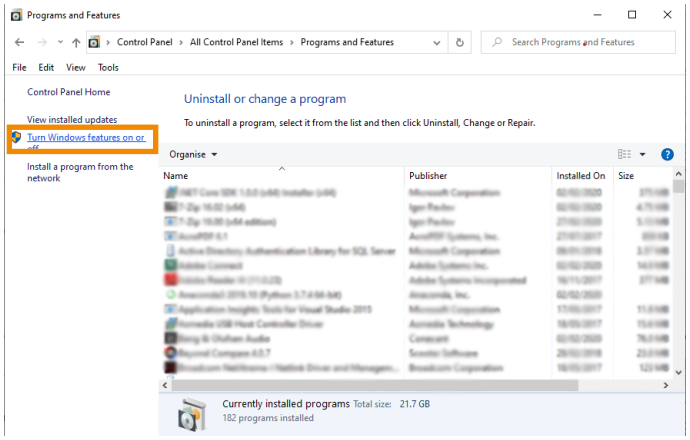
NOTE: Make sure that third-party antivirus or firewall applications, if present, are configured to allow FTP access to the Data Collection PC.

---

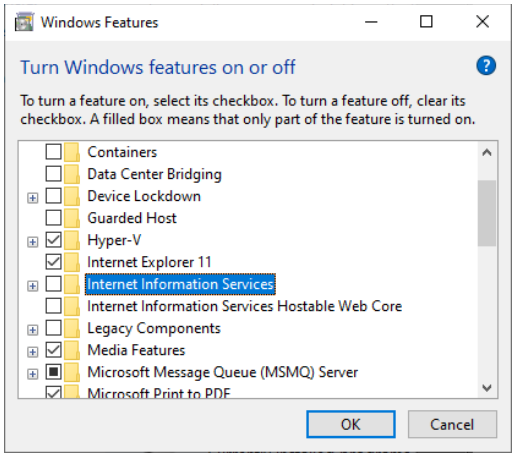
1. Navigate to Windows 'Control Panel' using the Start menu and select 'Programs and Features'.



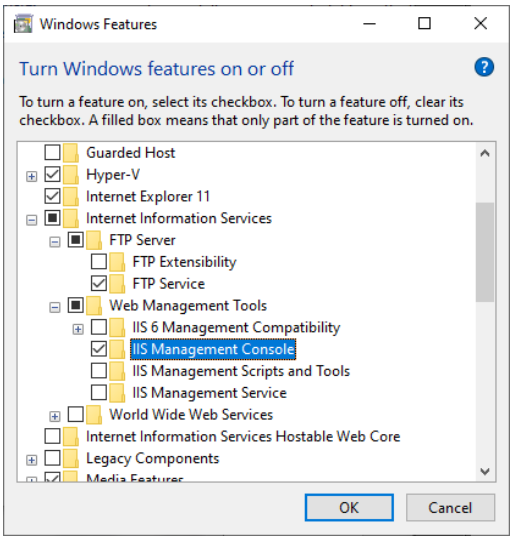
2. Select 'Turn Windows features on or off'.



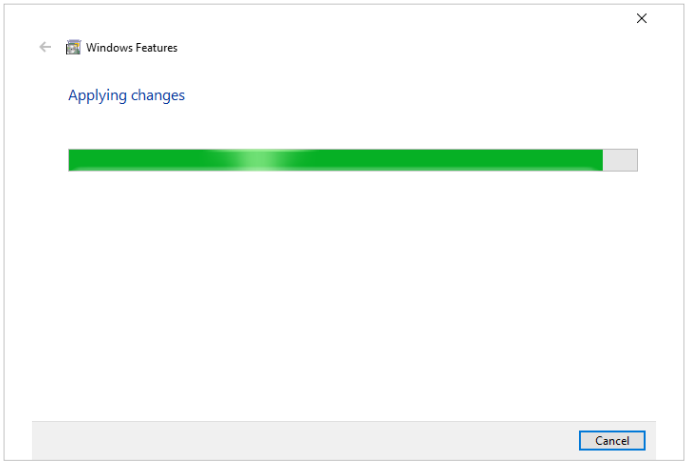
3. In the ‘Windows Features’ window, navigate to ‘Internet Information Services’ and expand it to display the sub-menu.



4. Expand the ‘FTP Server’ and ‘Web Management Tools’ sub-menus, then enable the check boxes for ‘FTP Service’ and ‘IIS Management Console’ and click ‘OK’.

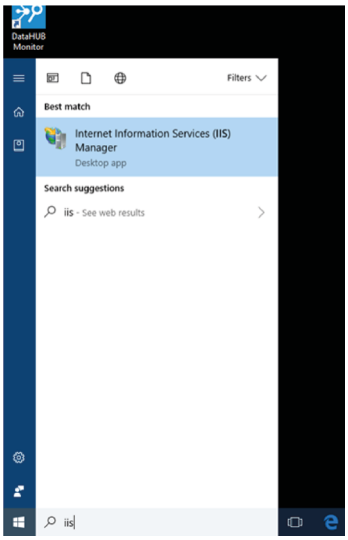


5. Wait for Windows to apply the changes.

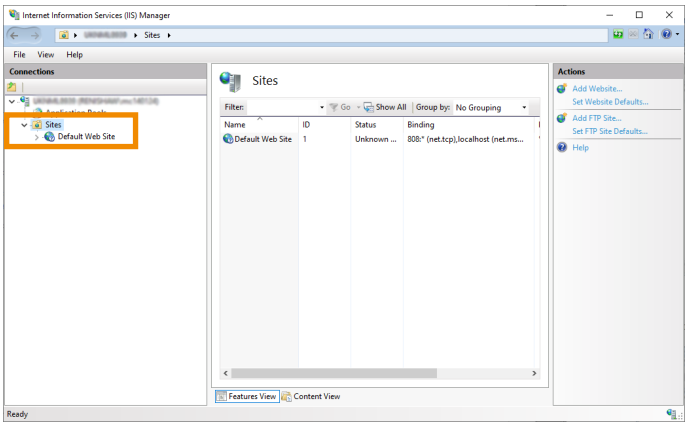


7.2.2 Creating the FTP server

1. Open IIS from the Windows Start menu by searching for 'IIS' and selecting 'Internet Information Services (IIS) Manager'.

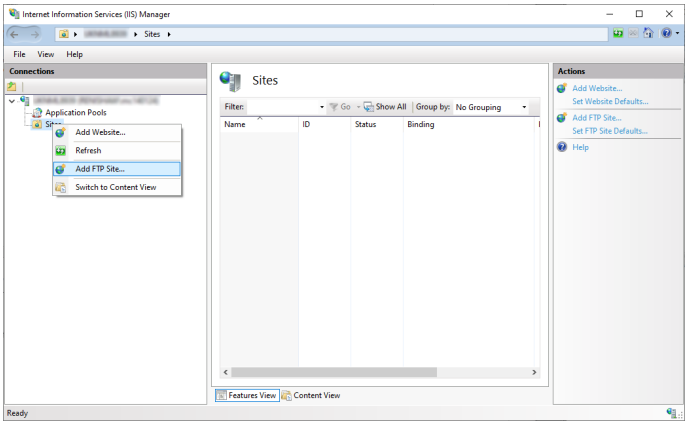


2. In the 'Internet Information (IIS) Manager' window, expand 'Sites' in the left-hand 'Connections' pane.



3. Right-click on the 'Default Web Site' and select 'Remove'.

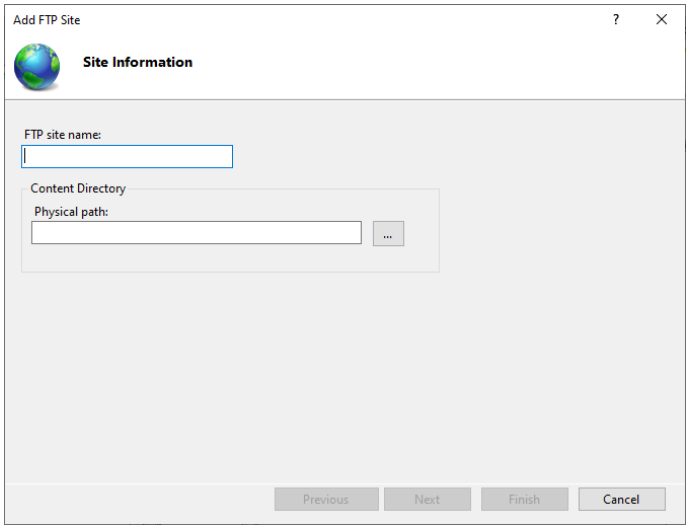
4. Right-click 'Sites' and select 'Add FTP Site'.



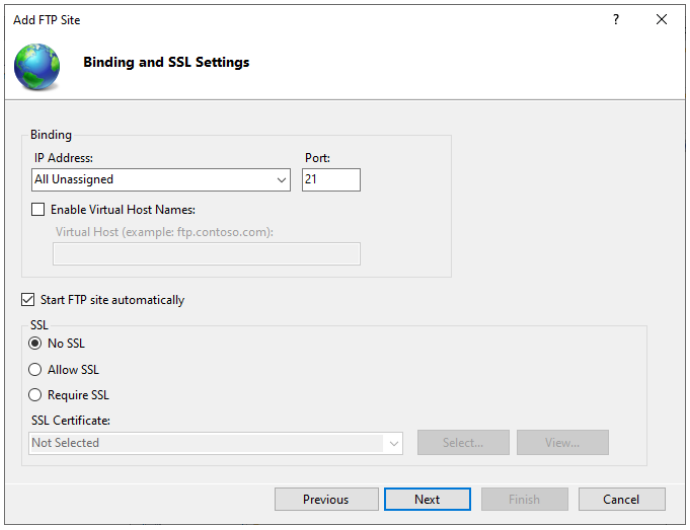
5. In the ‘Add FTP Site’ window, enter a ‘Site Name’ and choose the ‘Physical path’ folder where FTP files will be stored.

NOTE: The recommended ‘Site Name’ is “AMPM Data”, and the ‘Physical path’ folder must be mapped to **C:\AMPM**.

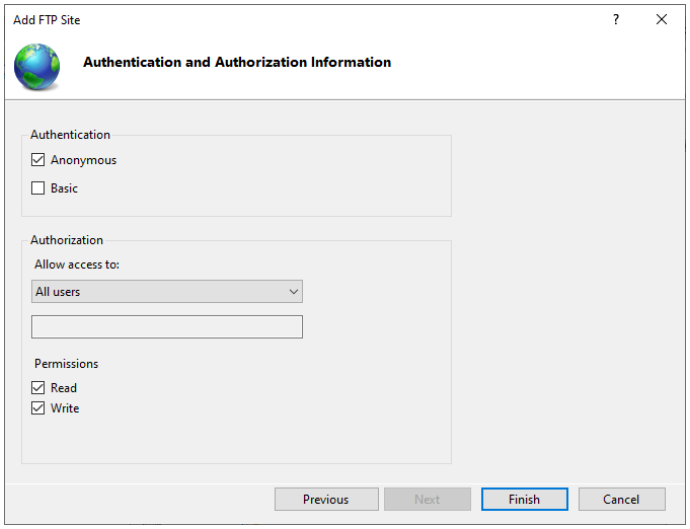
NOTE: The **C:\AMPM** folder is designated for establishing a connection to the RenAM 500 series system. AMPM data files generated by the RenAM 500 series system are directed to this folder.



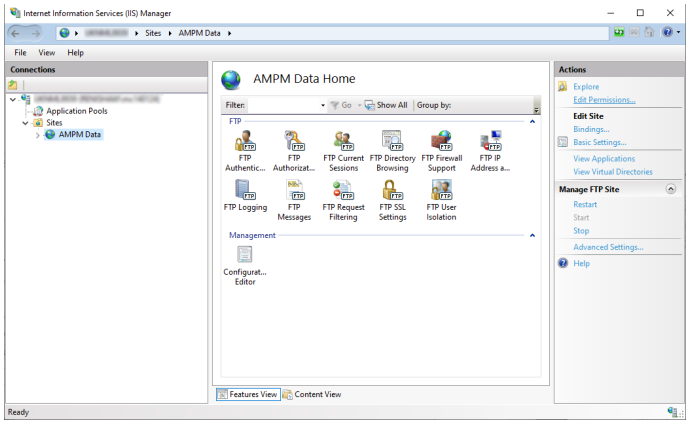
6. Click ‘Next’ and select the ‘No SSL’ radio button.



7. Click ‘Next’, select ‘Authentication’ as ‘Anonymous’, enable read/write permissions for all users, and click ‘Finish’.



8. Verify the new site, then close the ‘Internet Information (IIS) Manager’ window.

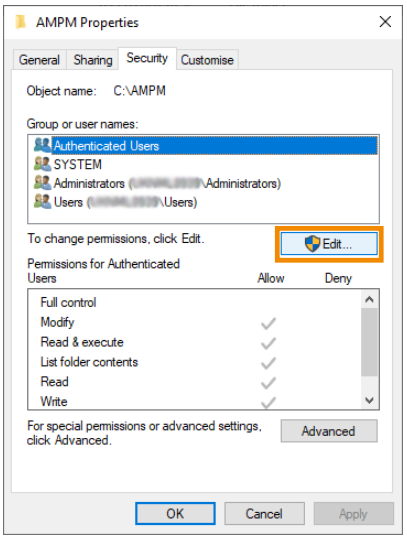


7.2.3 Configuring Windows permissions

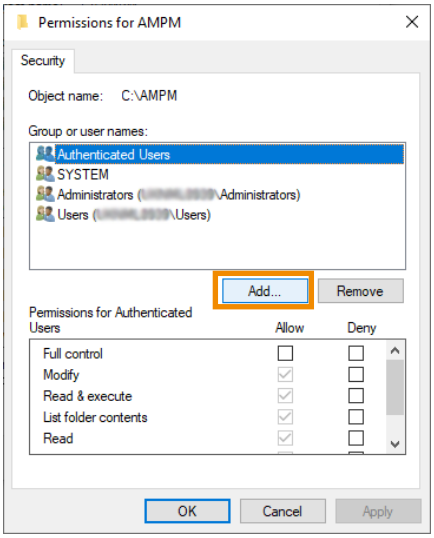
Configuring Windows permissions is important for managing access to the AMPM data folder. The steps below outline the procedure to configure the necessary permissions.

1. Navigate to the AMPM data folder (**C:\AMPM)** on the Data Collection PC, right-click, and select 'Properties'.

2. Select the 'Security' tab and click 'Edit'.

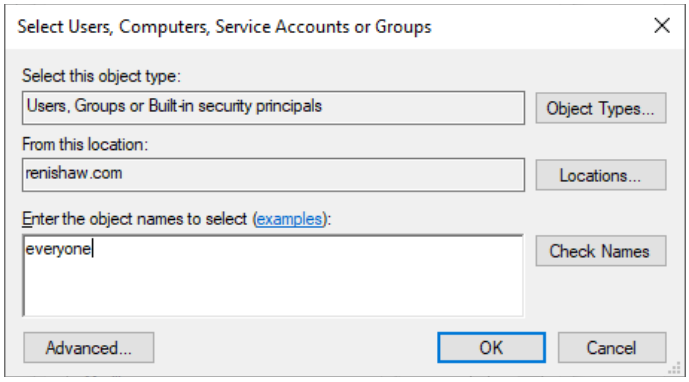


3. Select 'Add' to create a new user.

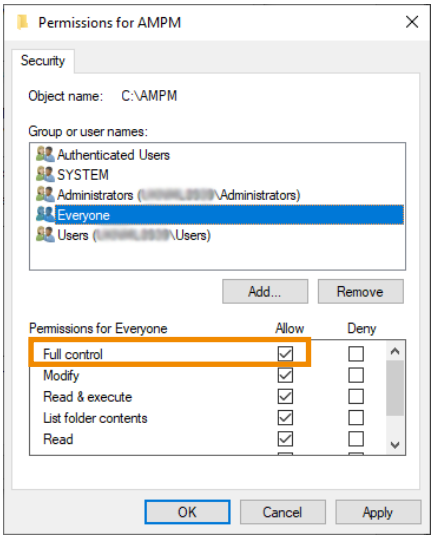


4. Create a user named ‘everyone’ and click ‘OK’.

NOTE: If the specified language is not English, Microsoft terminology search can be used to find the correct localised term for ‘everyone’.



5. Select ‘Everyone’ and set the permissions to ‘Full control’, then click ‘OK’.

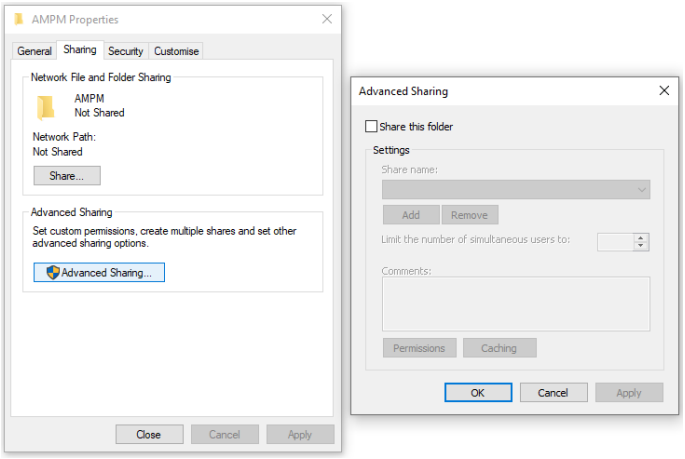


7.2.4 Configuring Windows file sharing

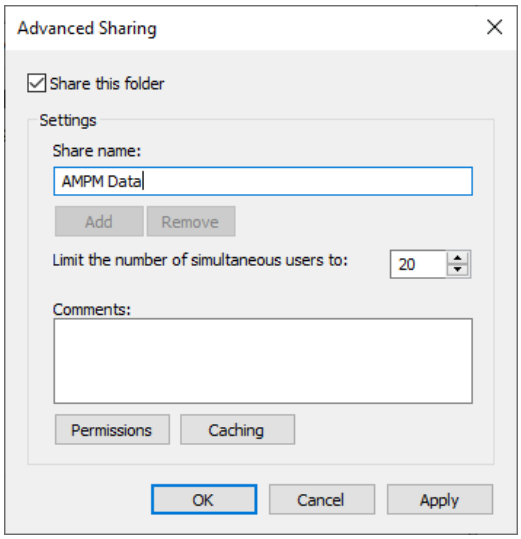
Configuring Windows file sharing is important to store and access AMPM data easily. The steps below outline the procedure to configure the Windows file sharing permissions.

1. Navigate to the AMPM data folder (**C:\AMPM**) on the Data Collection PC, right-click, and select 'Properties'.

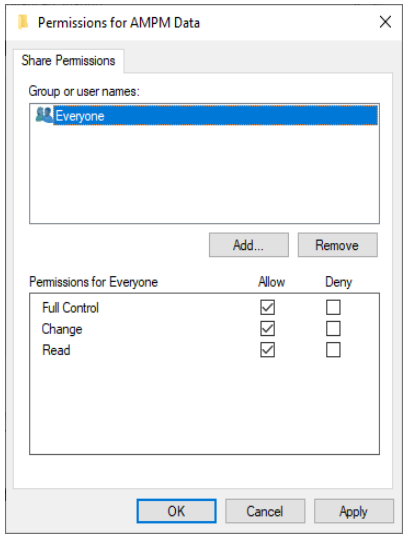
2. Select the 'Sharing' tab and click 'Advanced Sharing'.



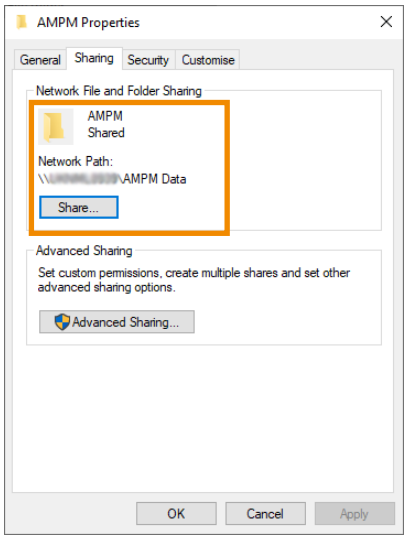
3. Select the 'Share this folder' check box to enable folder sharing and enter the 'Share name' as 'AMPM Data'.



4. Click the ‘Permissions’ button, choose ‘Everyone’ and set the permissions to ‘Full control’, then click ‘OK’.



5. Make sure that the folder is shared and click ‘OK’.



7.3 FTP server configuration requirements

The following are the requirements for configuring an FTP server on the Data Collection PC:

NOTE: This set-up must be completed before the Renishaw service team visits your site.

1. The FTP server must meet the minimum FTP standards; the latest update of this standard is RFC 2428. Renishaw recommends Microsoft Internet Information Services FTPSite, but other options like FileZilla Server are acceptable.
2. The FTP server must be accessible from the network port to which the AM system is connected.
3. The FTP server must be accessible from the IP settings assigned for the AM system by the customer.
4. The FTP server must be accessible from a network device that is not a Domain Member.
5. The FTP server must be accessible from a network device that may not meet the normal security requirements of your organisation's network.
6. The FTP server can have authentication enabled, but it is generally recommended to avoid this as it may complicate the set-up process. If enabled, authentication credentials need to be provided to the Renishaw Service team.
7. The IP address (or server name and DNS server addresses) of the server must be provided to the Renishaw service team.
8. By default, the data will be placed in a folder on the server with a name that matches the AM system serial number. If needed, this can be configured to a different name, but this must be provided to the Renishaw service team in advance.

The simplest architecture to meet these requirements is described below:

1. The PC hosting the FTP server must have one network port on the same subnet as the AM system.

NOTE: Renishaw AM systems have a static IP address.

2. The PC hosting the FTP server must have its network port configured with a static IP address.

NOTE: A dynamic IP address can be used on the PC hosting the FTP server if DNS servers are accessible from the AM system. The IP addresses of the DNS servers need to be configured on the network settings page of RenAMP on the AM system.

3. The PC hosting the FTP server must not have firewalls between it and the AM system.

4. The PC hosting the FTP server must not have routers or gateways between it and the AM system.

5. The FTP server must be configured for anonymous authentication and access.

NOTE: The customer is fully responsible for configuring the FTP server. If a more complex architecture is desired, IT support should be available during the Renishaw service engineer's installation of the remaining system to resolve any configuration issues.

8 Configuring the viewing PC

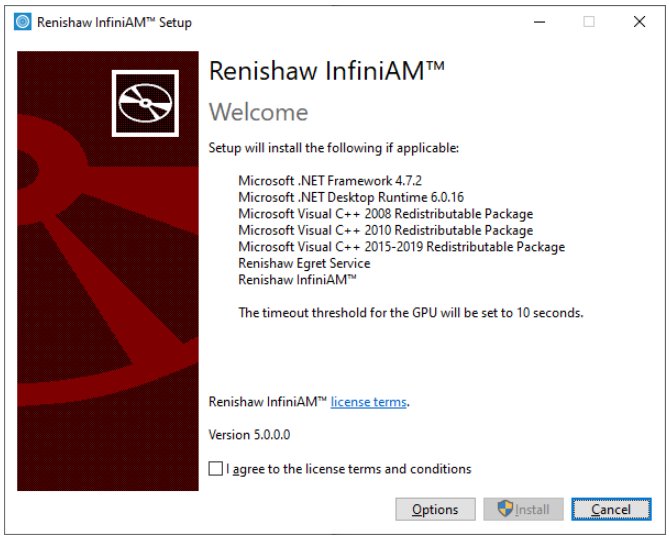
This section explains how to install the InfiniAM software on the viewing PC.

8.1 Installing InfiniAM software

NOTE: Make sure that the installer (InfiniAM.exe) is saved on the viewing PC. This component is a part of the downloaded InfiniAM suite.

1. Double-click the installer (InfiniAM.exe).
2. The ‘Renishaw InfiniAM Setup’ installer window opens and displays the list of software components that will be installed on your system.

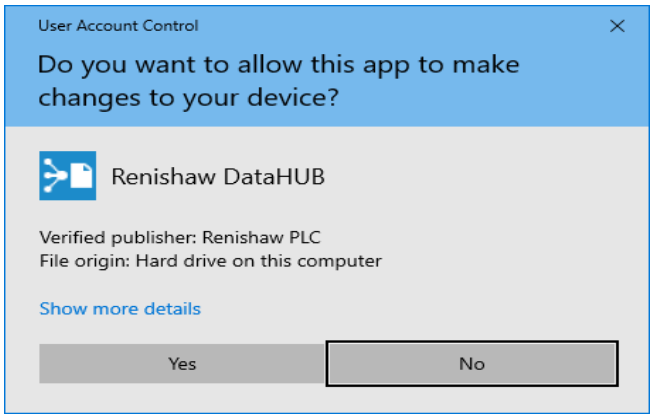
NOTE: If the software components do not already exist on the PC, their installers will run as part of the overall process.



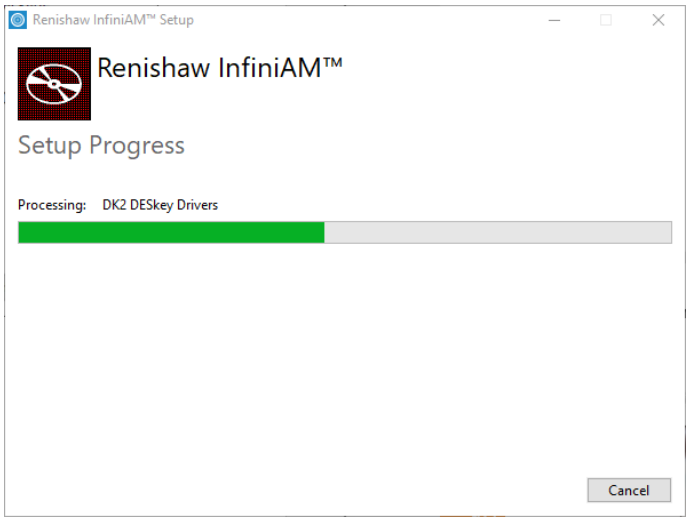
3. Accept the licence agreement and click ‘Install’.

NOTE: To create a desktop shortcut, click ‘Options’ and select the relevant check boxes.

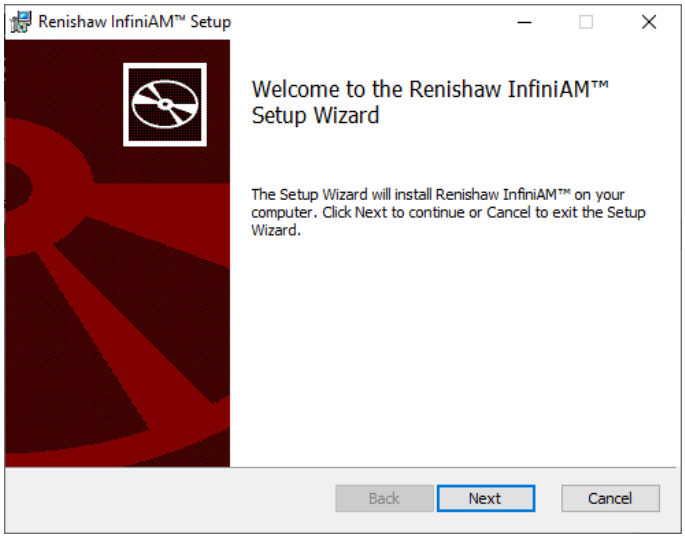
4. Select ‘Yes’ on the ‘User Account Control’ prompt.



5. The ‘Renishaw InfiniAM Setup’ installer window displays a progress bar to indicate the installation status.



6. Once the set-up progress is complete, click ‘Next’ on the ‘Renishaw InfiniAM Setup’ installer window.

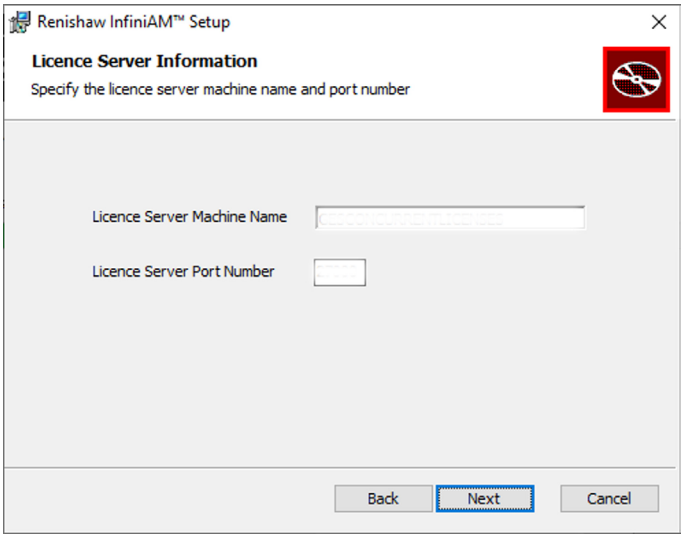


7. Enter the ‘Licence Server Machine Name’ and ‘Licence Server Port Number’, then select the additional licences that InfiniAM should retrieve based on your purchases, and click ‘Next’.

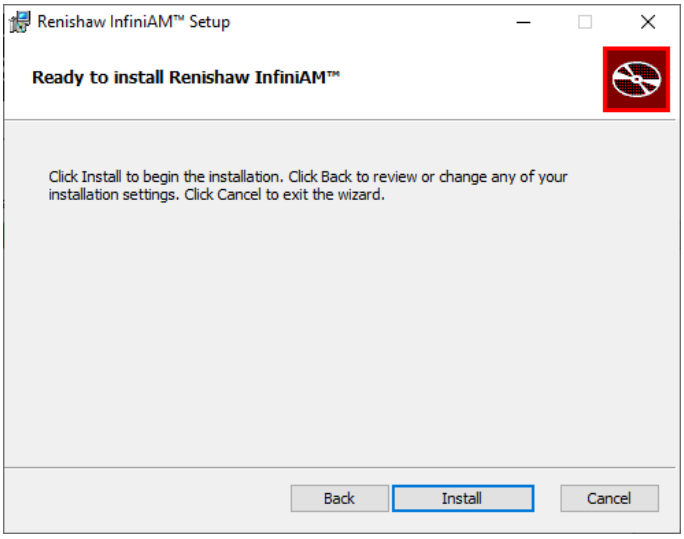
NOTE: Retrieve the licence server details from the ‘Administration’ tab in the Licence Manager Server portal, or contact your IT administration team if they configured the floating licence server.

NOTE: If the InfiniAM software is installed on the same machine as the floating licence server, specify the ‘Licence Server Machine Name’ as “localhost”.

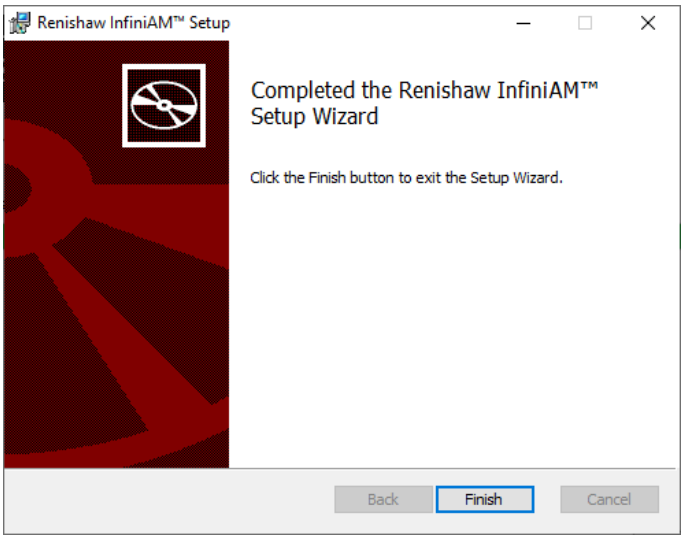
NOTE: If licences are activated locally, set the ‘Licence Server Machine Name’ to “localhost” and the ‘Licence Server Port Number’ to “00000”.



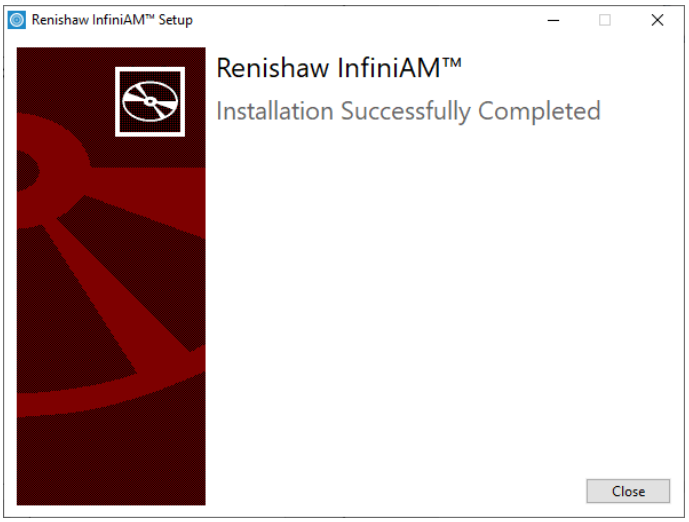
8. If required, review your installation settings using the ‘Back’ button, then click ‘Install’.



9. Click ‘Finish’ to complete the installation.



10. Click ‘Close’ to exit the ‘Renishaw InfiniAM Setup’ installer window.



9 Optimising GPU performance

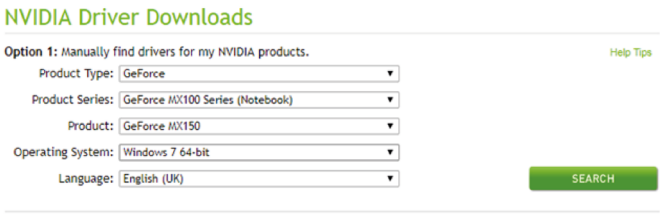
This section outlines the steps for updating and accelerating GPU drivers, which are essential for improving the performance of applications such as DataHUB and InfiniAM. These configurations facilitate the enhanced processing power of GPU drivers to achieve better scalability, efficiency, and precision in data management and monitoring.

9.1 Installing the latest GPU drivers

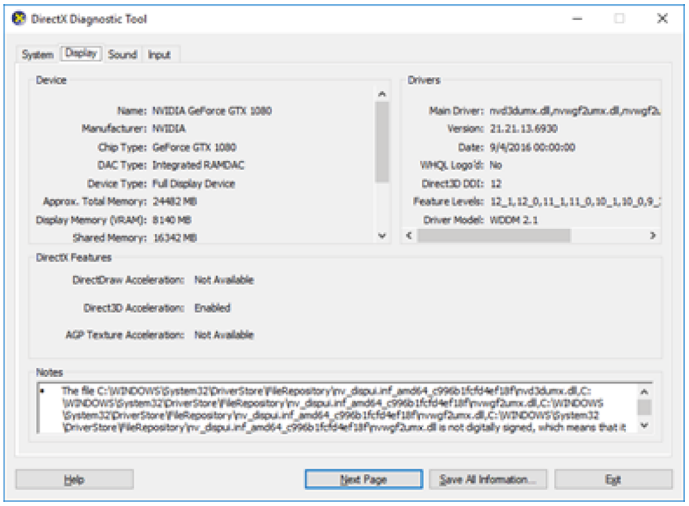
NOTE: It may be necessary to update the GPU drivers on both the Data Collection PC and viewing PC. Make sure the Data Collection PC has an NVIDIA GPU with over 4 GB of memory.

NOTE: Both the Data Collection PC and viewing PC must be equipped with NVIDIA GPU hardware.

1. To update the drivers, visit **www.nvidia.com**.
2. Select the appropriate GPU for your PC and click ‘Search’. This will direct you to a page where you can download the latest driver.



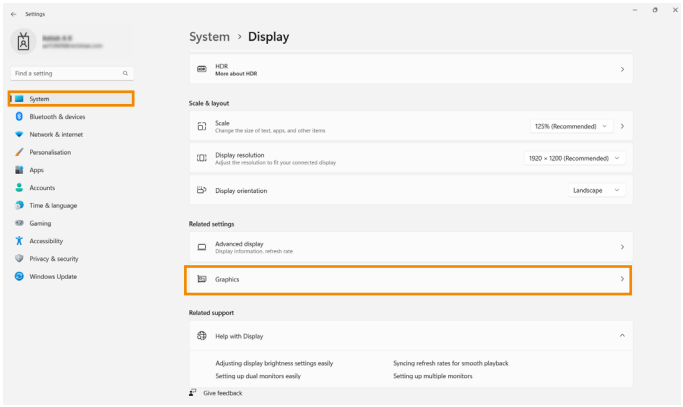
3. Download and install the required drivers.
4. Open the DirectX Diagnostic tool by typing ‘dxdiag’ in the Start menu to check GPU type and memory.
5. Navigate to the ‘Display’ tab, make sure that the manufacturer is listed as NVIDIA and that the ‘Display Memory (VRAM)’ is at least 4096 MB.



9.2 Activating the hardware-accelerated GPU

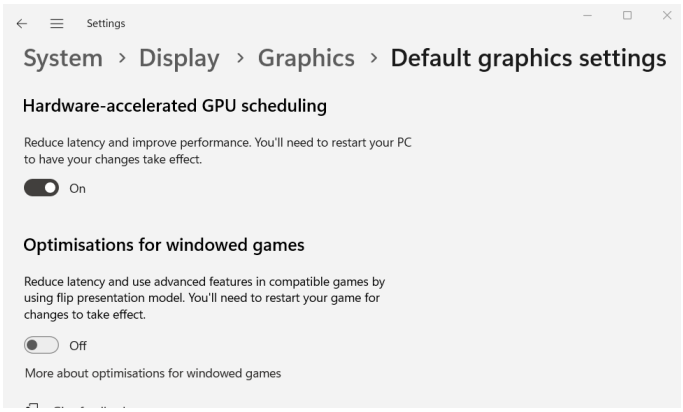
For optimal GPU performance when processing data, certain features must be enabled in Windows. Follow the steps outlined below to activate the hardware-accelerated GPU feature:

1. Open Windows settings, select the ‘System’ tab, and navigate to the ‘Display’ section.



2. Select ‘Graphics’ under the ‘Related Settings’ section.

3. Click ‘Change default graphics settings’ and toggle ‘Hardware-accelerated GPU scheduling’ to ‘On’.



4. Restart the PC for the changes to take effect.

10 Integration with Renishaw Central

If your organisation has purchased Renishaw Central, then DataHUB can be connected to it and used to send data in real time to devices that display the Renishaw Central network.

10.1 Connecting DataHUB to Renishaw Central

To connect DataHUB to Renishaw Central, two key pieces of information are required:

- The endpoint base address – the URL of the server hosting Renishaw Central, followed by "/api/v1/"
- The provision ID – a string that identifies the specific licence among those hosted on the server

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NOTE: Whoever is responsible for administering the licence of Renishaw Central should be able to provide both pieces of information.

When DataHUB is installed, both an endpoint and a provision ID must be entered. For advanced networking scenarios, you may also disable the SSL certificate validity check and bypass the proxy settings when communicating with Renishaw Central, if necessary.

10.2 Provisioning the connection between DataHUB and a machine

After installing DataHUB and connecting it to Renishaw Central, it is necessary to provision DataHUB for each machine to which it uploads data. This procedure is only required once per machine, but must be repeated for every new machine added.

NOTE: To perform this procedure, a Renishaw Central role with at least "Admin" privileges is required.

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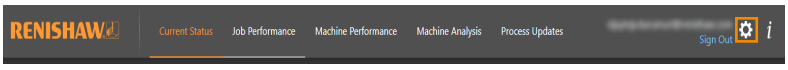
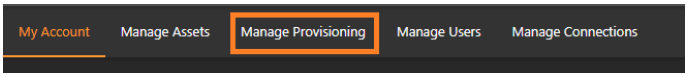
1. After DataHUB starts processing data from a machine, click the 'Manage' button in Renishaw Central.

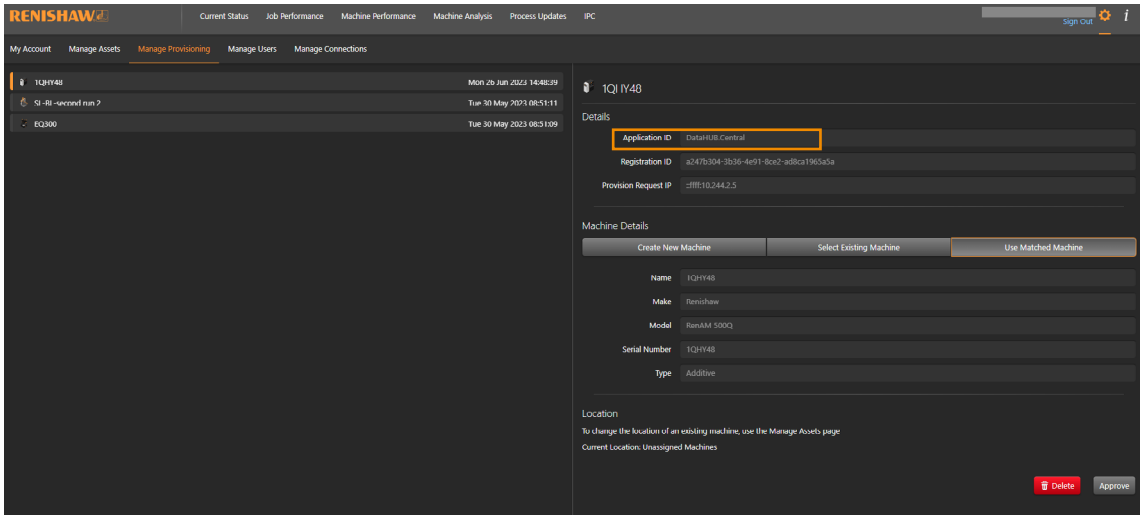


2. Select the 'Manage Provisioning' tab.



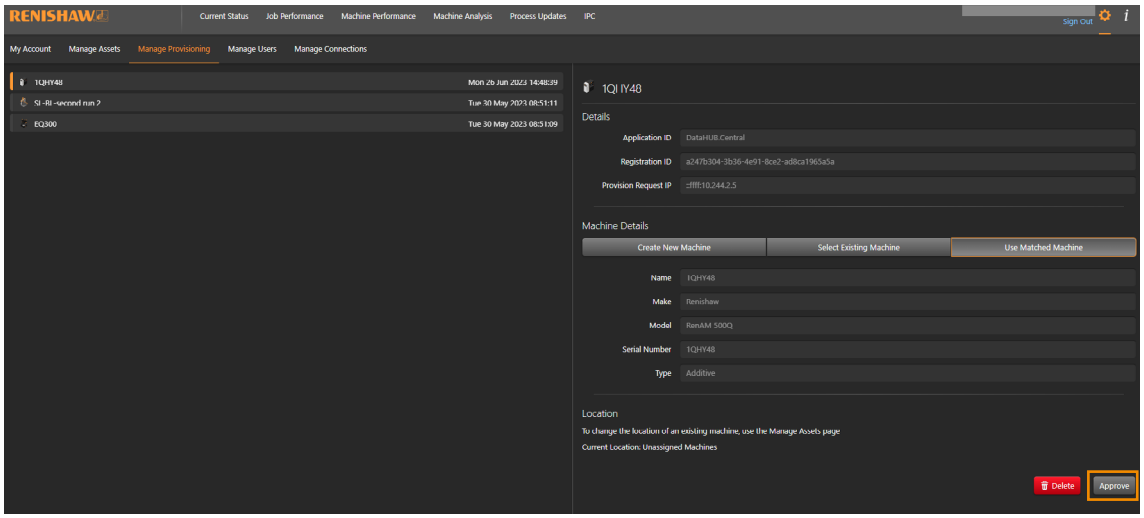
3. Locate the relevant machine in the list, which should appear around the time processing started.

4. Make sure the Application ID is “DataHUB.Central”. If not, check for another entry or wait for DataHUB to produce data for upload.



5. Renishaw Central will attempt to match an existing machine. If unsuccessful, it can create a new one or redirect uploads to a different machine as needed.

6. After selecting the correct machine, click ‘Approve’.



At this point data should start arriving in Renishaw Central from DataHUB for the selected machine.

11 Configuring the RenAM system

To complete the InfiniAM software installation, you must complete the questionnaire provided in this guide and return it to Renishaw. This will enable the Renishaw service engineer to configure the RenAM system accordingly. This process ensures that you have all the necessary resources, equipment, services, systems and processes for the successful installation of InfiniAM and DataHUB software. For more information, see section 13, “Pre-installation questionnaire”.

NOTE: You must email the completed questionnaire to **am.support@renishaw.com** or mail the completed form to the service address provided in section 14, “Customer support”.

NOTE: If the completed questionnaire is not returned to Renishaw on time, it may be necessary to either arrange for remote access to complete the system configuration or schedule a second service visit, which may incur additional charges.

12 Troubleshooting

12.1 Troubleshooting software

If you experience an issue with your system or software, or if you need advice, contact Renishaw. For more information, see section 14, “Customer support”.

12.2 Troubleshooting installation

Effect	Symptom	Cause	Validation	Action
Unable to send files	Unable to ping from system to Data Collection PC	Cable	Check hardware – cables and ports.	Make sure that the cabling is correct.
	Able to ping, but files will not transfer	Firewall	Check firewall settings. Check whether files can be transferred from another PC to the Data Collection PC.	If possible, turn off firewall or ask network administrator to allow access through port 21 and a set in the higher number range.

13 Pre-installation questionnaire

You must email the completed questionnaire to **am.support@renishaw.com** or mail the completed form to the service address provided in section 14, “Customer support”.

No.	Question	Response
1	Does the hardware for the Data Collection PC and viewing PC meet the specifications outlined in section 5.2, “Minimum system requirements”?	☐ Yes
2	Have you installed the latest NVIDIA drivers?	☐ Yes
3	Is the GPU hardware NVIDIA? (This is essential.)	☐ Yes
4	Is the network 1 × 10 GB?	☐ Yes
5	Have you tested the FTP server by sending a file to the Data Collection PC from another PC connected to the same network?	☐ Yes
6	Is Microsoft IIS or another FTP service, such a FileZilla, installed?	☐ Yes
7	What is the IP address of the Data Collection PC? (This will be required for the RenAM system configuration.)	
	IP address:	
8	As standard, we upload all build data in a folder in the FTP site that is named with the machine serial number – is this OK? If not, what folder name would you like the data to be saved under?	☐ Yes
	Alternative folder name/path (if required):	
9	Does your IT policy permit remote access?	☐ Yes ☐ No
10	If yes, can the AM system be configured remotely with the Data Collection PC network settings?	☐ Yes
11	The hardware and software must be set up in advance of the system installation, and the checklist returned to **am.support@renishaw.com**. The service engineer will complete the system configuration using the information provided. If this is not available in time, either remote access will be required to complete the system configuration, or a second service visit will be required, which may be chargeable.	☐ Yes

NOTE: If the Data Collection PC IP address changes, remote access to the RenAM system or a chargeable service visit will be required to update the configuration settings.

14 Customer support

If you experience an issue with your system or software, or if you need advice, contact Renishaw.

14.1 Contact details

Contact details for Renishaw are below:

Phone number:		**+44 (0) 1453 524524** Hours of work: Monday to Friday 08:00 to 1700 hr (UTC and DST)
Email:	**For quotes and orders related to consumables, parts, and contracts**	**ampd.sales@renishaw.com**
	For scheduled maintenance visits, machine breakdowns or any machine operating queries	**am.support@renishaw.com**
	For any guidance or issues related to build file preparation, general machine operation, machine training, post build testing and analysis	**am_applications@renishaw.com**
	For any QuantAM licence issues or queries	**quantam.support@renishaw.com**
Service address:		Renishaw plc New Mills Wotton-under-Edge Gloucestershire GL12 8JR United Kingdom

1. System type	
2. System serial number	

Please quote the details above.

The system serial number plate can be found on the rear of the system.

Additional support can be sought by contacting your local Renishaw office. See:
www.renishaw.com/contact

15 Abbreviations

The following abbreviations are used throughout this guide:

Term	Definition
AM	Additive Manufacturing
AMPM	Additive Manufacturing Process Monitoring
DNS	Domain Name System
FTP	File Transfer Protocol
GPU	Graphics Processing Unit
HMI	Human Machine Interface (touch screen)
IIS	Internet Information Services
IP	Internet Protocol
IT	Information Technology
OEM	Original Equipment Manufacturer
PC	Personal Computer
PLC	Programmable Logic Controller
SSL	Secure Sockets Layer

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