

# Administrator Operating Instructions

## Raman data library 2.0



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# 1 About this document

This document gives instructions related to administrative operating instructions for Raman data library. This document explains technical tasks performed by a user with elevated permissions. For general user instructions including navigation, field explanation, data manipulation, and more, refer to the *Raman data library User Operating Instructions* (BA02367C).

## 1.1 Safety symbols

Structure of Information	Meaning
<p><b>⚠ WARNING</b></p> <p><b>Causes (/consequences)</b> Consequences of noncompliance (if applicable) ▶ Corrective action</p>	This symbol alerts you to a dangerous situation. Failure to avoid the dangerous situation can result in a fatal or serious injury.
<p><b>⚠ CAUTION</b></p> <p><b>Causes (/consequences)</b> Consequences of noncompliance (if applicable) ▶ Corrective action</p>	This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or more serious injuries.
<p><b>NOTICE</b></p> <p><b>Causes/situation</b> Consequences of noncompliance (if applicable) ▶ Action/note</p>	This symbol alerts you to situations which may result in damage to property.

## 1.2 Glossary

Term	Description
Audit Trail	Independent computer-generated record of changes to electronic records indicating time, operator, action, content and if needed, reason.
Authorized User	End user who has completed the required training and been granted access to the application.
BCA	Background Correction Accuracy
°C	Degrees Celsius
Cfm	Cubic feet per minute
CFL	The new CFL file format defined in "Galactic Industries Corp. Universal Data Format Specification", dated September 4, 1997
CFR	Code of federal regulation
cGMP	Current good manufacturing practices
cGxP	Current good clinical, laboratory, and/or manufacturing practices
CMMS	Computerized maintenance management system: a computer-based database that contains all of the maintenance work orders and is utilized for scheduling activities.
COTS	Configurable off-the-shelf
CTQ	Critical to quality
Critical requirement	A requirement that, if not met, has an adverse impact on any of the regulatory agency requirements, data integrity or security.
Data Analysis	Any work process with the goal of obtaining useful information from the raw data supplied by the spectrometer.
Electronic Record	Any combination of records represented in digital form that is created, modified, maintained, archived, retrieved, or distributed by a computer system and used for a cGxP regulated activity.

Term	Description
Electronic Signature	Authorization of the electronic record by an individual in the form of digital confirmation that is legally binding and equivalent to the individual's handwritten signature.
Final Report	A document summarizing all results derived from the execution of a validation document.
GAML	Generalized analytical markup language
GDP	Good documentation practices
GCC	Global change control
GHz	Gigahertz
Graphical Data	Key data, information, attributes that can be represented in a graphical format.
Hz	Hertz
IAPP	Information asset protection policy
In Situ	In its original place
IQ	Installation qualification
LAN	Local area network
Nm	nanometers
Non-Critical requirement	A requirement that, if not met, does not have an adverse impact on any of the regulatory agency requirements, data integrity or security.
OQ	Operational qualification
OS	Operating system
Password	The unique, private code input by the user for identification purposes.
PAT	Process analytical technology
PC	Personal computer
ppb	Parts per billion
ppm	Parts per million
psig	pounds per square inch gage
Savitzky-Golay filter	A digital filter that can be applied to a set of digital data points for the purpose of smoothing the data, that is, to increase the precision of the data without distorting the signal tendency.
SPC	File form defined by developer.
Spectra	The raw data from the Raman spectrometer after processing into SPC (GRAMS) format.
QC	Quality control
Raman Rxn4 analyzer	An integrated spectroscopy system designed to accommodate fiber optic probes for the purpose of sample analysis.
RAM	Random access memory
UPS	Uninterruptable power supply
URS	User requirements specification

### 1.3 Documentation

All documentation is available:

- On the media device supplied (not included in the delivery for all device versions)
- On the Endress+Hauser mobile app: [www.endress.com/supporting-tools](http://www.endress.com/supporting-tools)
- In the Downloads area of the Endress+Hauser website: [www.endress.com/downloads](http://www.endress.com/downloads)

This document is an integral part of the document package, which includes:

Part Number	Document Type	Description
BA02367C	Raman data library User Operating Instructions	A complete overview of the software features and functionality for spectral data collection, storage, and analysis in Raman data library.
KA01717C	Raman data library Brief Operating Instructions	A quick start guide for running Raman data library after installation.
TI01802C	Raman data library Technical Information	Planning aid for your Raman data analysis system. The document contains all the technical data for the software.

## 1.4 Safety

For information about the safe operation of Raman Rxn analyzers and the Raman RunTime Software, view the *Raman RunTime v6.5 Operating Instructions* (BA02180C). It is recommended that the *Raman RunTime v6.5 Operating Instructions* be read fully before using the Raman data library.

### 1.4.1 IT safety


IT security measures, which provide additional protection for the device and associated data transfer, must be implemented by the operators in line with their security standards.

### 1.4.2 Application security in Raman data library for cGxP installations

In cGxP environments, Raman data library is designed to be a secure system. All actions requiring authorization must be made by an authenticated user, which is facilitated by the user and user rights management in the cGxP version. In Raman data library core version, information is secured in encrypted form. However, access to the software and its functionality is not managed by user rights.

Authentication for cGxP applications can be managed by:

- **Raman data library.** When system authentication is selected, a salted hash of the user's password is stored in the Raman data library database.
- **Local Windows operating system.** When local authentication is selected, password information is not stored within Raman data library. The corresponding Windows user login must be added to Raman data library and assigned a role within the software.
- **Active Directory.** When domain authentication is selected, password information is also not stored within Raman data library. The corresponding Active Directory qualified login must be added to Raman data library and assigned a role within the software.

The Raman data library Service authenticates as a reserved user named "System" that is not permitted to login interactively. The password for the "System" user is randomly generated upon database creation and stored reversibly encrypted via the Windows Data Protection API in the **appSettings.config** file. Refer to *User security and management* →  for more information.

### 1.4.3 Data integrity

To protect unauthorized altering of data, each row in each object table (as opposed to linking tables) in the database has a hash-based message authentication code (HMAC) stored with it. This is an encrypted hash based on the contents of the row. The row is deterministically serialized to binary form, a salted hash is generated based on that binary data, and that hash is then encrypted using the key specified in the Windows **service.exe.config** file. Each time a row is accessed, the contents of the row are checked against the hash and, in the case of a mismatch, an error is displayed and the application exits.

## 2 Product description

Endress+Hauser's Raman data library is a software program designed to organize, visualize, analyze, and report on Raman Rxn spectral data. Raman data library complements the Endress+Hauser Raman Rxn embedded Raman RunTime by providing spectra storage, organization, analysis, and multi-analyzer data collection from lab-to-cGxP.

Raman data library was created for users who need to visualize Raman spectra, associate it with reference data, and create univariate peak models. With this software, prepared data can be exported for external multivariate modeling.

Raman data library features:

- **Data organization.** Matches spectra to reference values, prepares data prior to chemometric modeling, provides searchable data storage, and ensures data integrity.
- **Data analysis.** Gives enhanced spectra visualization and simple analysis such as peak trending and univariate modeling.
- **cGxP option.** Meets industry standards for spectral data traceability, storage, and archival.

Raman data library stores spectral data in a secure, embedded SQLite database, performs calculations on the spectral data, and displays spectral data and its associated metadata in reports and on-screen. This functionality allows Raman spectra to act as reference data for quantitative Raman method development and support the needs of 21 CFR Part 11 as part of a validated analytical solution.

Raman data library can be implemented to be 21 CFR Part 11 compliant when installed with the cGxP Setup installer and qualified through IQ/OQ with Endress+Hauser, and PQ with the customer. When installed in cGxP mode, the program facilitates collection, storage, and organization of Raman spectra so that spectra may:

- Act as calibration set data for quantitative Raman model development as part of a validated analytical solution, or
- Act as data input into validated models used for predictions of process or sample properties

### 2.1 User security and management (cGxP version only)

This section applies to cGxP installations of Raman data library only. In cGxP environments, Raman data library utilizes user authentication to ensure traceability and logging of all events. The standard version of Raman data library does not offer user management and authentication at the software level. User management is instead handled through Windows user accounts.

The Users window allows managers to add, update, and delete user accounts. It also allows managers to view events by a specified user or all events by all users.

#### 2.1.1 Security settings

In cGxP environments, Raman data library utilizes user authentication to ensure traceability and logging of all events. In Raman data library core environments, user management and authentication are not utilized.

From the Settings window, you can modify system security settings. To make changes to system security settings, you must be logged in with a System Settings Manager role.

##### Authentication modes

Raman data library supports system, local, and domain-based user authentication. The modes of user authentication can be changed in the Security window, as described below. Users are authenticated through:

- **System.** Raman data library stores and manages all user accounts and passwords for the system. This is the default mode of operation.
- **Local.** Users are authenticated using usernames and passwords existing on the local Windows operating system. Each user that can be authenticated against the local Windows security is granted read-only privileges to Raman data library. A user account with a matching username must be created in Raman data library to assign additional roles.
- **Domain.** Users are authenticated using usernames and passwords existing on a specified domain. Each user that can be authenticated against the specified domain security is granted read-only privileges to Raman data library. A user account with a matching username (login name) must be created in Raman data library to be able to authenticate properly and assign additional roles.

The Endress+Hauser Raman data library Windows Service must be restarted when a change to the authentication mode is made. Endress+Hauser Raman data library Windows Service can be restarted through the tray service manager or by restarting the Raman data library PC.

When local Windows or domain authentication is selected, only the system timeout period (Timeout Seconds) is configurable. The remainder of password rules are managed at the domain level. Changing those settings requires valid credentials for the new authentication source.

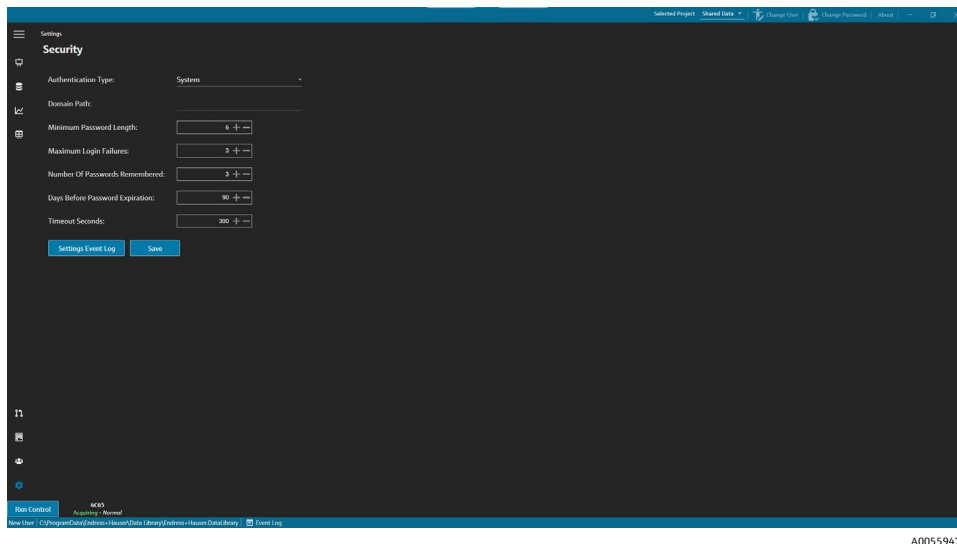


Figure 1. Security window

Raman data library configurable security options are:

- **Authentication type.** The authentication type for the application. For a complete description refer to *Authentication modes*, above. Authentication can be managed by:
  - **System.** Raman data library stores and manages all user accounts and passwords for the system.
  - **Local.** Users are authenticated using usernames and passwords existing on the local Windows operating system.
  - **Domain.** Users are authenticated using usernames and passwords existing on a specified domain.
- **Domain path.** The domain path utilized for domain authentication. Use the fully qualified domain path. A leading backslash (\) is not required.
- **Minimum password length.** The minimum length a password can be for Raman data library. Acceptable values are from 6 to 30. The default value is 6.
- **Maximum login failures.** The maximum number of times a login can consecutively fail for a given user before that user's account is automatically disabled. The default value is 3.
- **Number of passwords remembered.** The number of previously defined passwords kept in the database for a user to prevent password reuse. Acceptable values are from 0 to 10. The default value is 3.
- **Days before password expiration.** The number of days before a user's password will expire and require change on the first login after this period. Acceptable values are from 0 to 365 days. A value of 0 means passwords will never expire. The default value is 90 days.
- **Timeout seconds.** The number of seconds before a session of Raman data library idles and requires credentials to continue the session. This behavior can be disabled or be assigned a value of 1 second to 60 minutes. The default value is 3600 seconds (5 minutes). If Timeout Seconds is set to 0, the system timeout is disabled.

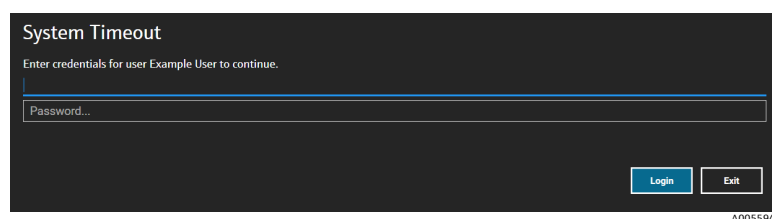


Figure 2. System timeout

### 2.1.2 User management

In cGxP environments, Raman data library authenticates users to ensure traceability and logging of all events. The standard version of Raman data library does not offer user management and authentication at the software level. User management is instead handled through Windows user accounts.

The Users window allows managers to add, update and delete user accounts. It also allows managers to view events by a specified user or all events by all users. To manage users, you must be logged in to an account with the Users Manager role.

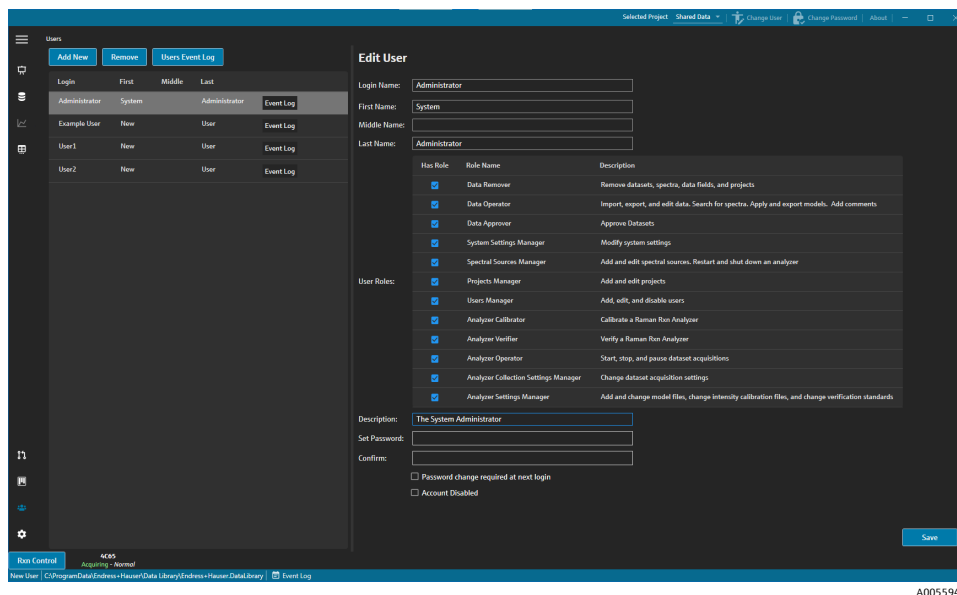


Figure 3. Users window

New users are added with the **Add New** button.

When Windows local or domain authentication is selected, the password fields are not present and a **Populate** button appears on user dialogs. Clicking **Populate** will attempt to auto-populate the name fields from the authentication source, based on the login name entered.

Users have the following properties:

- **Login name.** The name used to login to the system. Each login name must be unique and from 1 to 100 characters in length.
- **First name.** The user’s first name. It may be from 0 to 100 characters in length.
- **Middle name.** The user’s middle name. It may be from 0 to 100 characters in length.
- **Last name.** The user’s last name. It may be from 0 to 100 characters in length.
- **User roles.** The roles the user is granted in Raman data library. Any combination of roles may be assigned to a given user, from all roles to no roles.
- **Account disabled.** Indicates whether a user is disabled in the system. A disabled user cannot login.
- **Description.** A description of the user.

### 2.1.3 User roles

Within the user roles functionality, a user manager can create users with privileges that follow the organizational structure determined by the customer. As such, fixed user groups are not present. Instead, there are many options for structuring privileges by assigning a combination of user roles.

User roles can be utilized to limit user functionality. Any combination of roles may be assigned to a given user, from all roles to no roles.

Role	Actions allowed
Data Remover	<ul style="list-style-type: none"> <li>▪ Remove datasets</li> </ul>



Role	Actions allowed
	<ul style="list-style-type: none"> <li>▪ Remove spectra</li> <li>▪ Remove data fields</li> <li>▪ Remove projects</li> </ul>
Data Operator	<ul style="list-style-type: none"> <li>▪ Import, export, and edit data</li> <li>▪ Search for spectra</li> <li>▪ Apply and export models</li> <li>▪ Add comments</li> </ul>
Data Approver	Approve datasets
System Settings Manager	Modify system settings
Spectral Sources Manager	<ul style="list-style-type: none"> <li>▪ Add and edit Spectral sources</li> <li>▪ Restart and shut down an analyzer</li> </ul>
Projects Manager	<ul style="list-style-type: none"> <li>▪ Add projects</li> <li>▪ Edit projects</li> </ul>
Users Manager	<ul style="list-style-type: none"> <li>▪ Add users</li> <li>▪ Edit users</li> <li>▪ Disable users</li> </ul>
Analyzer Calibrator	Calibrate a Raman Rxn analyzer
Analyzer Verifier	Verify a Raman Rxn analyzer
Analyzer Operator	<ul style="list-style-type: none"> <li>▪ Start dataset acquisitions</li> <li>▪ Stop dataset acquisitions</li> <li>▪ Pause dataset acquisitions</li> </ul>
Analyzer Collection Settings Manager	Change dataset acquisition settings
Analyzer Settings Manager	<ul style="list-style-type: none"> <li>▪ Add and change model files</li> <li>▪ Change intensity calibration files</li> <li>▪ Change verification standards</li> </ul>

User roles can be restricted to one set of privileges or combined into sets related to the user's responsibilities. The following table gives examples of role sets that could be assigned to typical users, supervisors, and administrators.

User Level	Roles applied
User	<ul style="list-style-type: none"> <li>▪ Data operator</li> <li>▪ Spectral Sources Manager</li> <li>▪ Analyzer Calibrator</li> <li>▪ Analyzer Verifier</li> <li>▪ Analyzer Operator</li> <li>▪ Analyzer Collection Settings Manager</li> <li>▪ Analyzer Settings Manager</li> </ul>
Supervisor	<ul style="list-style-type: none"> <li>▪ Data Remover</li> <li>▪ Data Approver</li> <li>▪ System Settings Manager</li> <li>▪ Projects Manager</li> </ul>
Administrator	<ul style="list-style-type: none"> <li>▪ Users Manager</li> </ul>

### 2.1.4 Creating a new user

#### To create a new user

1. From the Users window, click **Add New**.

Create new Raman data library user accounts for all new system users. While Raman data library can rename users, only use this functionality to upgrade a user's name because of a name change. Do not rename a user account to reassign the account to a new individual.

A new Edit User pane displays.

The 'Edit User' pane is a dark-themed window with the following elements:

- Form Fields:** Login Name (User1), First Name (New), Middle Name, Last Name (User).
- User Roles Table:**

Has Role	Role Name	Description
<input checked="" type="checkbox"/>	Data Remover	Remove datasets, spectra, data fields, and projects
<input checked="" type="checkbox"/>	Data Operator	Import, export, and edit data. Search for spectra. Apply and export models. Add comments
<input checked="" type="checkbox"/>	Data Approver	Approve Datasets
<input checked="" type="checkbox"/>	System Settings Manager	Modify system settings
<input checked="" type="checkbox"/>	Spectral Sources Manager	Add and edit spectral sources. Restart and shut down an analyzer
<input checked="" type="checkbox"/>	Projects Manager	Add and edit projects
<input checked="" type="checkbox"/>	Users Manager	Add, edit, and disable users
<input checked="" type="checkbox"/>	Analyzer Calibrator	Calibrate a Raman Rtn Analyzer
<input checked="" type="checkbox"/>	Analyzer Verifier	Verify a Raman Rtn Analyzer
<input checked="" type="checkbox"/>	Analyzer Operator	Start, stop, and pause dataset acquisitions
<input checked="" type="checkbox"/>	Analyzer Collection Settings Manager	Change dataset acquisition settings
<input checked="" type="checkbox"/>	Analyzer Settings Manager	Add and change model files, change intensity calibration files, and change verification standards
- Additional Fields:** Description, Set Password, Confirm.
- Checkboxes:** Password change required at next login, Account Disabled.
- Buttons:** Save.

Figure 4. Edit User pane

## 2. Enter the user properties:

- **Login Name.** The name used to login to the system. Each login name must be unique and from 1 to 100 characters in length.
- **First Name.** The user's first name. It may be from 0 to 100 characters in length.
- **Middle Name.** The user's middle name. It may be from 0 to 100 characters in length.
- **Last Name.** The user's last name. It may be from 0 to 100 characters in length.
- **User Roles.** The roles the user is granted in Raman data library. User roles can be added or removed by selecting or deselecting the **Include** checkbox for each role. See *User Roles* →
- **Account Disabled.** Indicates whether a user is disabled in the system. A disabled user may not login.
- **Description.** A description of the user.

## 3. Enter a valid password in the **Set Password** and **Confirm Password** boxes.

A password must meet the following minimum password requirements:

- Must contain at least one special character
- Must contain a mixture of uppercase and lowercase letters
- Must meet the minimum password length which is set on the Settings window

## 4. (Optional) Select **Password change required at next login** when adding a new user.

## 5. Click **Save**.

### 2.1.5 Disabling a user

Inactive Raman data library user accounts can be disabled but should always be retained in Raman data library for historical and audit trail purposes. A disabled user may not login.

#### To disable a user


1. From the Users window, select the user account to disable.
2. Select **Account Disabled**.
3. Click **Save**.

## 2.1.6 Using domain-based authentication

Domain-based user authentication utilizes Windows Active Directory to import user credentials into Raman data library. Under domain-based authentication, password policies are controlled by the domain, not through Raman data library.

User roles must be assigned and maintained within Raman data library. Management of user roles through Active Directory is not supported. The Active Directory domain is only utilized for user credential authentication purposes.

### To use domain-based authentication

1. From the Users window, click **Add New**.  
A new Edit User pane displays.
2. Add user account information that matches a corresponding user on the domain. The username (login name) and password must be the same.
3. In the Security window, select the authentication type **Domain**.
4. Enter the **Domain path** utilized for domain authentication. Use the fully qualified domain path. A leading backslash (\) is not required.
5. Click **Save**.  
The new authentication source is authenticated using the initial user credentials.
6. Add subsequent users utilizing their login name and first, middle (if any), and last name. A password is not required.  
Each user is validated against the domain automatically.
7. Restart the Raman data library Windows Service using Raman data library service manager. Refer to *Starting and stopping the service* → .

## 3 Installation

Raman data library is designed to be installed on a standalone workstation. Raman data library contains functionality to export data from each instance of the application and import the data into a centralized location.

### 3.1 System requirements

Raman data library requires:

- Intel Core i5 or equivalent processor
- A minimum of 16 GB of memory (RAM)
- Microsoft Windows 10 Professional 64-bit
- Display with a resolution of 1920 x 1080 or greater, and:
  - 24" or more (desktops)
  - 13" or more (laptops)
  - Display set to an aspect ratio of 100 %
- Microsoft .NET Framework version 4.7.2

### 3.2 Installing Raman data library

To install Endress+Hauser Raman data library, you must be logged on as an administrator. Installing Raman data library without the proper privileges can lead to unintended behavior.

#### To install Raman data library

1. With administrator privileges, run the Raman data library setup program Setup.exe from the installation media. Setup.exe checks for system prerequisites and administrative privileges. The Raman data library Setup Wizard welcome screen displays.

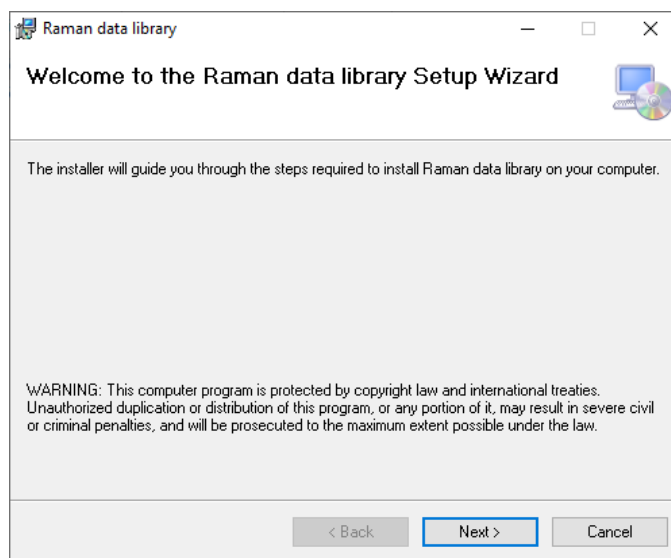


Figure 5. Raman data library setup wizard

2. Follow the on-screen instructions.
  - Read and accept the end-user license agreement.
  - Select the installation directory.

Default settings are recommended for most installations.

After the installation completes, a shortcut on your desktop called Raman data library appears.



Figure 6. Raman data library desktop icon

3. Double-click the Raman data library shortcut.
4. (cGxP version only) Log in to Raman data library with the first-time login information:
  - The username is **Administrator**.
  - The password is **Administrator1**.

You are required to change the password. Make note of the new administrator password.

When using Raman data library cGxP version with user authentication, start by creating an additional user. Adding one user in addition to the default administrator allows the administrator password to be reset if needed. Refer to *Creating a new user* → .

Upon successful installation, an Endress+Hauser\Raman data Library folder is present in the Common ProgramData folder. That folder includes the files Endress+Hauser.RamanDataLibrary and Endress+Hauser.RamanDataLibrary.key, which are the database files for the software. Refer to *Database management* → for details.

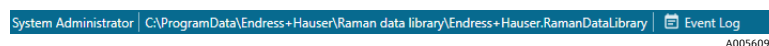


Figure 7. Database path for Raman data library shown at bottom of application window

### 3.3 Updating the software

If you have previously installed versions of Raman data library or Kaiser Data Library v1.0, you must remove old versions of the software, before installing Raman data library 2.0+. Refer to *Removing the software* below, then continue with *Installing Raman data library* → .

### 3.4 Removing the software


The following instructions outline how to remove Raman data library completely for the purpose of a clean re-installation. If performing a simple uninstall, follow the wizard in the Windows Add or Remove Program.

Removing Raman data library requires Windows Administrator privileges.

#### To remove Raman data library

1. Start **Task Manager**.
2. End all tasks associated with **Endress+Hauser** and **Raman data library**, including **Raman data library (RDL) service** and **TrayServiceManager**, if present.
3. Uninstall the application using **Add or Remove Program** in **System Settings** or **Control Panel**.
4. Restart the computer.
 

This ensures the RDL service stops and gets removed. If the RDL Service is still present in Services.msc after a restart, proceed to Step 5.
5. If removing RDL service is unsuccessful, do the following:
  - a. Open a command prompt as Admin. Enter the command **sc delete "Endress+Hauser Raman data library"**. This manually deletes the service if Step 3 is not successful.
  - b. Open **Run** and enter **Services.msc**. Ensure that the Endress+Hauser Raman data library service does not exist, not even in a stopped state.
  - c. In **Run**, open **certlm.msc**. Under **Manage Computer Certificates': Personal | Certificates**, delete the certificate **localhost** issued by Root Agency.
6. Ensure all Endress+Hauser and Raman data library folders are removed from C:\Program Files\Endress+ Hauser.
7. Under **C:\ProgramData\Endress+Hauser**, ensure the **Raman data library** folder is deleted. ProgramData may be a hidden folder. This contains the database file and should only be done when performing a clean install.

After uninstalling, if you are installing a new version of Raman data library refer to *Installing Raman data library* →  for instructions.

## 4 Service management

The Raman data library service runs in the background to monitor OPC connections to RunTime analyzers and folders for the addition of SPC files. When Raman data library detects an addition of an SPC file or a new spectrum from RunTime, the new file or spectrum is imported to the Raman data library database and old SPC files are placed in an output folder for archival.

By default, Raman data library service runs automatically on system startup as the Local System account and takes no action on failures, as shown in the images below.

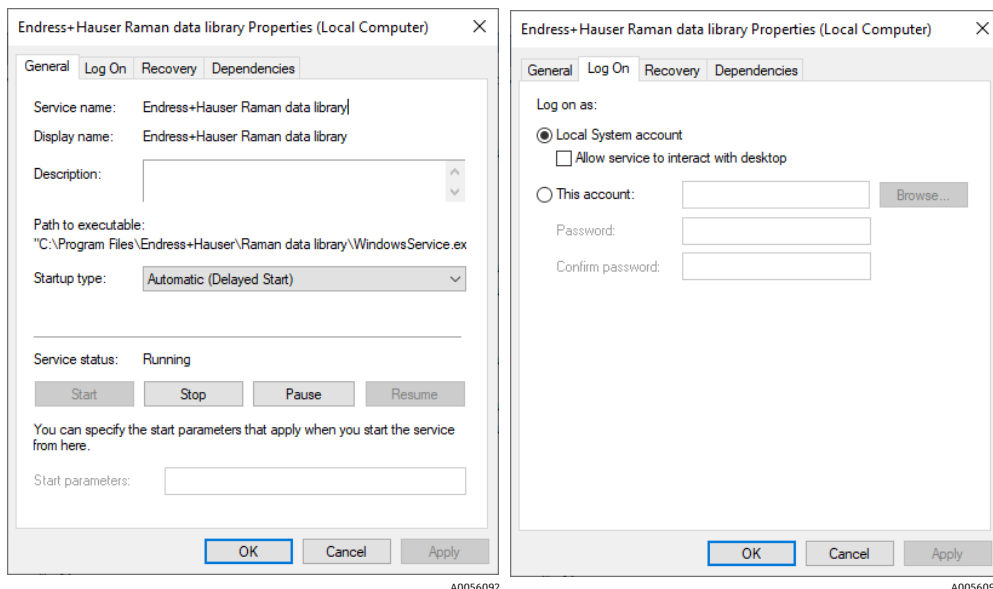


Figure 8. Service general properties and log on properties

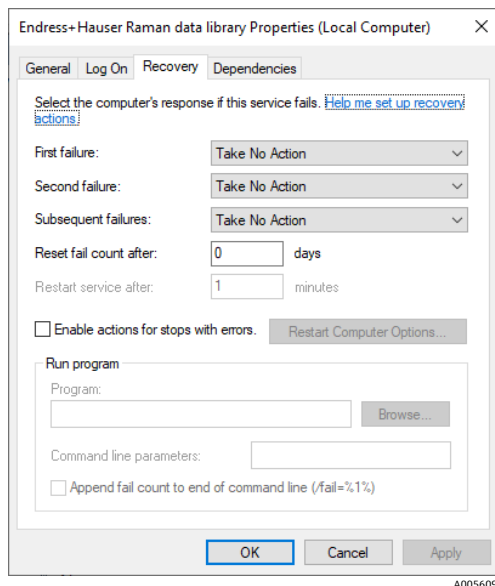
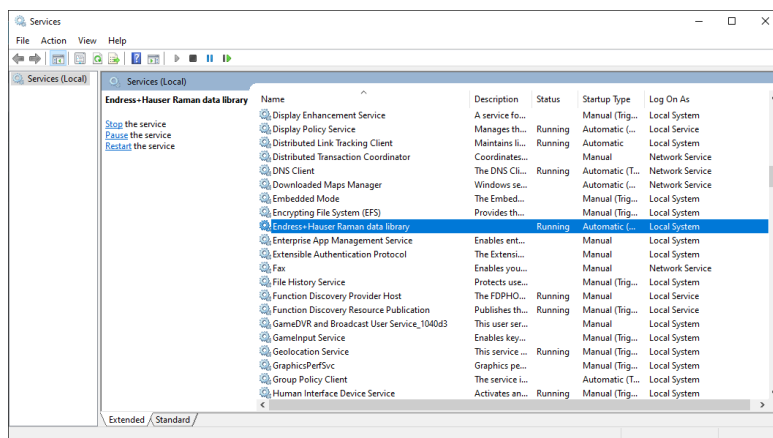


Figure 9. Service recovery properties

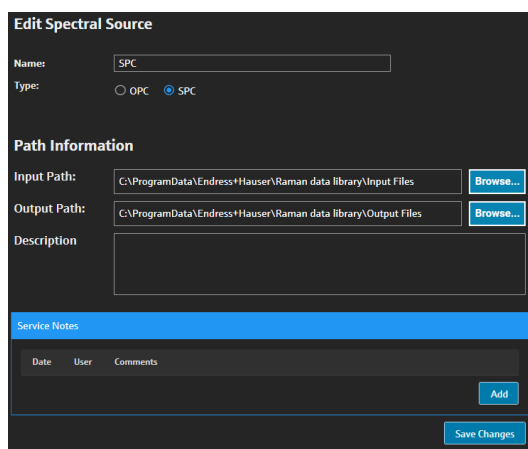
### 4.1 Service configuration

The configuration of Raman data library service may need to be changed to suit the environment. This can be done through the Windows Services dialog (services.msc) shown below. The default input and output folders for spectra can be specified in Spectral Sources, as shown below.



A0056095

Figure 10. Windows Services management



A0055981

Figure 11. Spectral Sources window: default input and output paths

## 4.2 Starting and stopping the service

The Raman data library Service status can be determined with the Raman data library Tray Service Manager that runs in the system tray, by looking in the Windows Service manager, or via a command line statement.

### To determine the status of the Raman data library Service

1. Open a command line prompt with Administrator privileges.
2. Enter the command `sc query "Endress+Hauser Raman data library"`.

The service can be started or stopped via the Windows Service Manager, an instance of Raman data library, or a command line statement.

### To start or stop the Raman data library service from the Raman data library Tray Service Manager

1. Right-click the **Raman data library Tray Service Manager**  in the system tray.
2. Select **Show Window**.

The Raman data library service status dialog box displays.



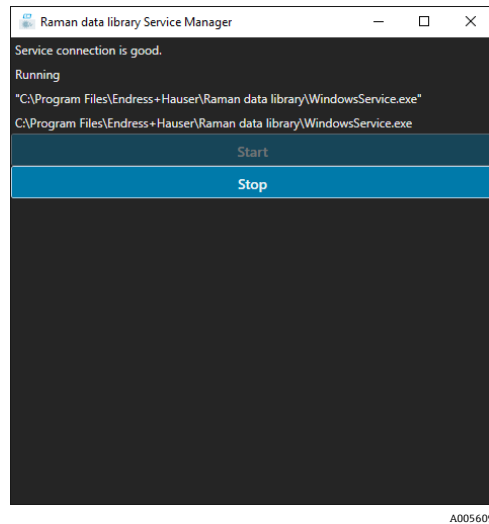


Figure 12. Raman data library service status dialog

3. Click **Start** or **Stop** to start or stop the service.

#### To start the Raman data library Service from the command line

1. Open a command line prompt with Administrator privileges.
2. Enter the command **sc start "Endress+Hauser Raman data library"**.

#### To stop the Raman data library Service from the command line

1. Open a command line prompt with Administrator privileges.
2. Enter the command **sc stop "Endress+Hauser Raman data library"**.

## 5 Database management

Raman data library can be backed up and restored by managing the embedded SQLite database and its corresponding configuration files. The file-based nature of the Raman data library database and config files allows for any standard file-based management solution.


The default path for the software database files is C:\ProgramData\Endress+Hauser\Raman data library\. This path is non-configurable.

A routine backup of the software database folder is recommended. The Windows backup feature or a third-party backup solution may be utilized for this purpose.

### 5.1 Backing up the database

1. Navigate to C:\ProgramData\Endress+Hauser\Raman data library\.
2. Copy the files Endress+Hauser.RamanDataLibrary and Endress\_Hauser.RamanDataLibrary.Key.
3. Paste the copied files to a secured backup location.
4. Navigate to C:\Program Files\Endress+Hauser\Raman data library.
5. Copy the files WindowsService.exe.config and WpfPresentation.exe.Config.
6. Paste the copied files to a secured backup location.

### 5.2 Restoring the database

1. Remove all versions of Raman data library by uninstalling the Raman data library app through Windows Add and remove programs.
2. Delete all files in the C:\ProgramData\Endress+Hauser folder.
3. Install a new instance of Raman data library. Refer to *Installing Raman data library* →  for instructions.
4. If open, close Raman data library.
5. Click the Windows start button and enter Services. Open Services.
6. Right click the Raman data library service and click Stop.
7. Copy the files Endress+Hauser.RamanDataLibrary and Endress\_Hauser.RamanDataLibrary.Key from the secured backup location to C:\ProgramData\Endress+Hauser\Raman data library.
8. Copy the files WindowsService.exe.config and WpfPresentation.exe.Config from the secured backup location to C:\Program Files\Endress+Hauser\Raman data library. If prompted, replace any existing files.
9. Right-click the **Raman data library** service and click **Start**.


## 6 Troubleshooting

### 6.1 Spectra are not being collected

If spectra are acquired using the Rxn Control window but the spectra are not added to a dataset, this indicates that the Windows Service has disconnected from the Raman RunTime analyzer and the connection needs to be reestablished.

The Windows Service can disconnect from the Raman RunTime analyzer for various reasons, including:

- Shutting down the analyzer for extended periods of time
- Changing network settings in the Raman RunTime software
- Changing network settings on the computer running Raman data library.

To reconnect the Windows Service connection, stop and then start the service using the tray service manager (refer to *Starting and stopping the service* → ) or restart the Raman data library computer.

### 6.2 Rxn Control state does not match RunTime or is unresponsive

If the status of RunTime and Raman data library become out of sync, restart Raman data library to reestablish connection. If you encounter this, contact Endress+Hauser Optical Analysis to document this issue.

### 6.3 Resetting the administrator password through SystemTool.exe

This section applies to the cGxP version of Raman data library only. If the password for the Administrator user is forgotten, it can be reset through a command line utility using the following steps. This procedure is only applicable when System authentication is utilized.

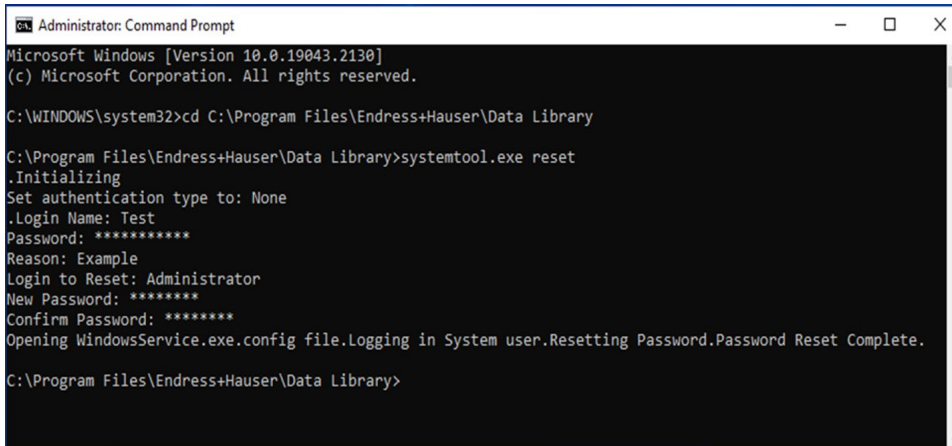
To reset the administrator password, at least 1 user in addition to the administrator must exist within Raman data library.

Resetting the administrator password is event-logged and the console session must be running with Windows Administrator privileges. The password encrypted in the Service.exe.config file and the hash stored in the database must match. The Service must be runnable for the following steps to work.

#### To reset the administrator password

1. Open a command prompt with Windows administrator privileges.
2. Change to the directory where Raman data library is installed.
3. Enter the command "**SystemTool.exe reset**".
4. When prompted, enter a valid user login and press enter.
5. Enter that user's password and press enter.
6. Supply a reason for the reset. This reason is required.
7. Enter the new password for the Administrator user.
8. Login as the Administrator and change the password.

The Administrator password requires change on the next login.



```

Administrator: Command Prompt
Microsoft Windows [Version 10.0.19043.2130]
(c) Microsoft Corporation. All rights reserved.

C:\WINDOWS\system32>cd C:\Program Files\Endress+Hauser\Data Library

C:\Program Files\Endress+Hauser\Data Library>systemtool.exe reset
.Initializing
Set authentication type to: None
.Login Name: Test
Password: *****
Reason: Example
Login to Reset: Administrator
New Password: *****
Confirm Password: *****
Opening WindowsService.exe.config file.Logging in System user.Resetting Password.Password Reset Complete.

C:\Program Files\Endress+Hauser\Data Library>

```

A0056097

Figure 13. Resetting the administrator password with SystemTool.exe

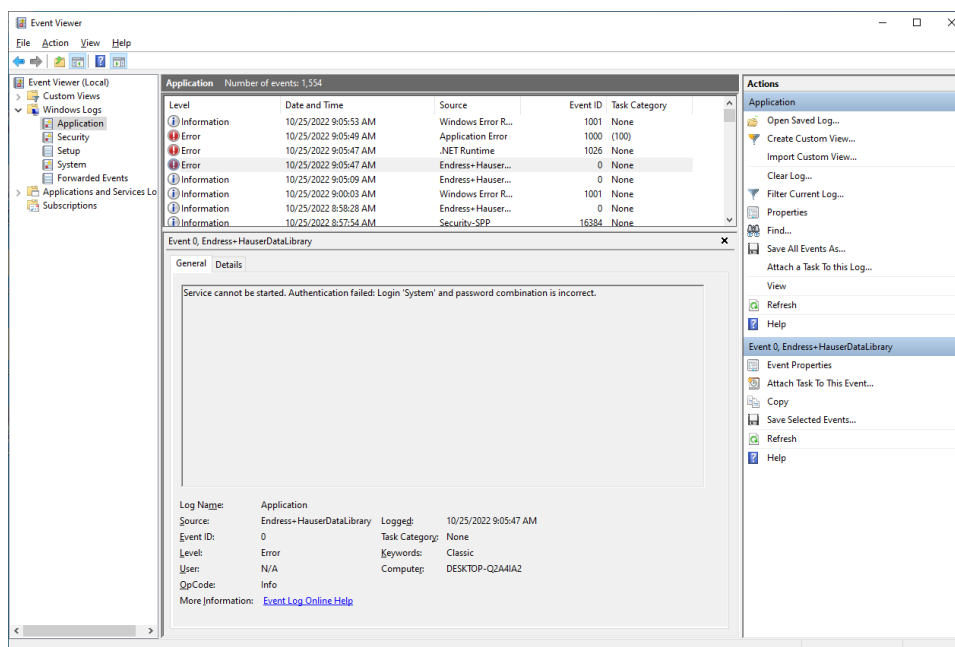
## 6.4 Reserved system user credentials

This section applies to the cGxP version of Raman data library only.

Raman data library has a reserved system user that the Raman data library service operates under. The password for this account is randomly generated. A hash of this password is stored in the database and a reversibly encrypted version stored in the appSettings.config file.

Upon Raman data library service startup, the service reads and decrypts the password in the appSettings.config file and supplies it for authentication.

If the database is replaced, a new database is created, or Service.exe.config is altered, the hash and encrypted password may not match. As a result, the Raman data library service does not start. Failures from Raman data library service are logged and can be seen in the Windows Event Viewer. In this case, an event noting the login failure is logged, as shown below.



A0056098

Figure 14. Login failure event

## 6.5 Support

### 6.5.1 About

Click on the **About** button in the top right corner to open the About Raman data library Window. This window allows the user to view the version number, installation ID, and Copyright information.

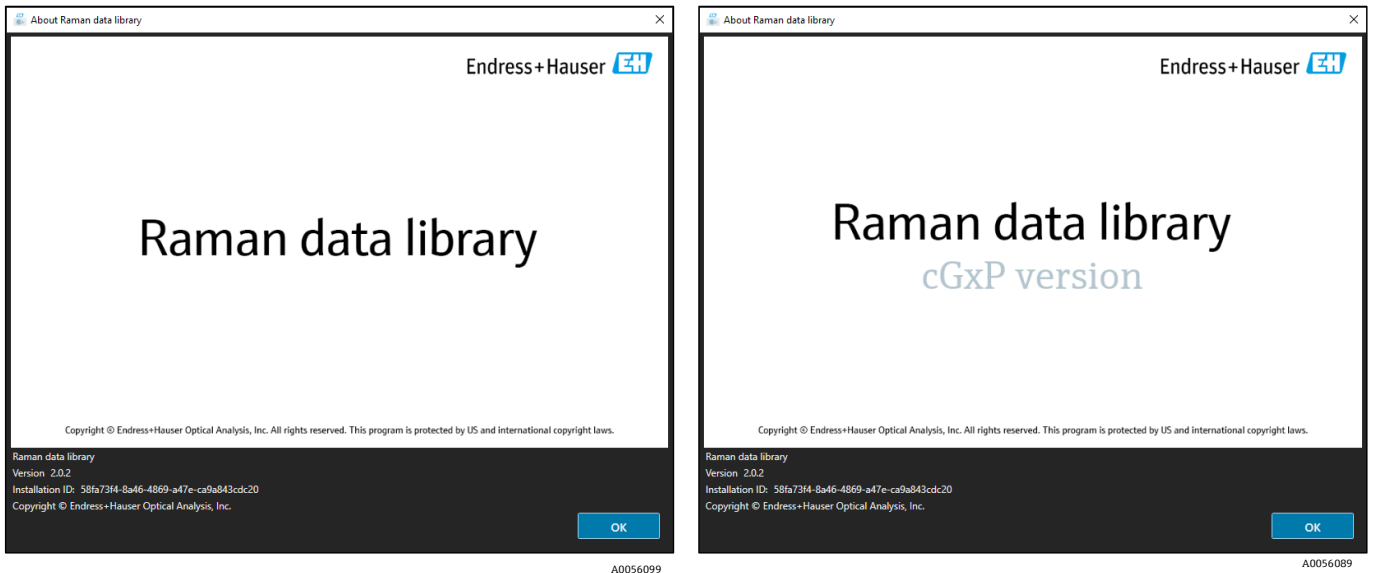


Figure 15. About windows: Raman data library and Raman data library cGxP version

### 6.5.2 Contact information

For service, refer to our website (<https://endress.com/contact>) for the list of local sales channels in your area.

## 7 Copyright information

### 7.1 End-user license agreement

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5.2. No modification of this Agreement shall be binding unless it is in writing and is signed by an authorized representative of the party against whom enforcement of the modification is sought.

5.3. Any notices required or permitted under this Agreement shall be in writing and delivered in person or sent by registered or certified mail, return receipt requested, with proper postage affixed.

5.4. In the event that any of the terms of this Agreement is or becomes or is declared to be invalid or void by any court or tribunal of competent jurisdiction, such term or terms shall be null and void and shall be deemed severed from this Agreement and all the remaining terms of this Agreement shall remain in full force and effect.

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