



VWorks Plus

Version 14.4

## Configuration and Administration Guide

# Notices

## Manual Part Number

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## Software Revision

This guide is valid for VWorks software 14.1.1 or later, until superseded.

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## Safety Notices

### WARNING

A **WARNING** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a **WARNING** notice until the indicated conditions are fully understood and met.

### CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

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## Preface

This preface contains the following topics:

- [“What this guide covers” on page vi](#)
- [“Accessing the user guides” on page viii](#)

# What this guide covers

## What is covered

This guide provides administrator instructions for VWorks Plus. The guide describes the software architecture, compliance features and workflow, and provides instructions for the following:

- Generating and installing the license
- Configuring and managing the user access
- Backing up and restoring data and software
- Viewing the content in the Content Browser

**Table** Terms used in this guide

Term	Description
VWorks Automation Control	VWorks software component that you use to create the protocols that run your automation devices.
VWorks Plus	The compliance-enabled <i>workstation</i> edition of the VWorks software. This edition includes VWorks and OpenLab Control Panel, Shared Services, Secure Storage, and Content Browser installed on a single computer.
VWorks Standard	The <i>workstation</i> edition of the VWorks software that is not compliance enabled. This edition includes VWorks and OpenLab Control Panel and Shared Services installed on a single computer.
Secure Storage (OpenLab component)	The secure data storage repository for VWorks compliance-enabled editions.
Control Panel (OpenLab component)	The user interface for Shared Services.
Microsoft Control Panel	Part of the Microsoft Windows operating system.
Shared Services (OpenLab component)	Set of administrative services that control VWorks user access and file storage. Shared Services are accessed via the Control Panel.

## What is new in this edition

Feature and description	See...
Replaced the term Content Management with Secure Storage.	<ul style="list-style-type: none"> <li>• <a href="#">“Terms used in this guide” on page vi</a></li> <li>• <a href="#">“Software architecture and components” on page 2</a></li> </ul>
Updated information about how to use the Content Browser to reflect changes in the new version of OpenLab for VWorks 2.8.	<a href="#">“Using Content Browser” on page 45</a>
Added a procedure on how to restore a system with a different hostname.	<a href="#">“Restoring a system with a different hostname as the one backed up” on page 67</a>
Updated document to reflect new version of VWorks (14.4).	-

## Related guides

For information about the following VWorks-related topics, see the corresponding Agilent guide.

For information about ...	See...
Computer requirements	<a href="#">VWorks Automation Control Site Preparation Checklist</a>
Software installation	<a href="#">VWorks Automation Control Installation Guide</a>
Quick reference for the software	<a href="#">VWorks Plus Quick Reference</a>
<ul style="list-style-type: none"> <li>• Managing audit trails and record states</li> <li>• Setting up labware definitions and liquid classes</li> <li>• Setting up an Experiments database, if applicable</li> <li>• Setting up an Inventory database, if applicable</li> <li>• Migrating protocols from previous versions of the VWorks software</li> </ul>	<a href="#">VWorks Automation Control Setup Guide</a>
<ul style="list-style-type: none"> <li>• Setting up devices</li> <li>• Writing protocols and creating forms</li> <li>• Running protocols</li> <li>• Troubleshooting protocols</li> </ul>	<a href="#">VWorks Automation Control User Guide</a> <a href="#">VWorks Protocol Authors Quick Guide</a>
Setting up a specific device and operating the device using VWorks and device diagnostics software	Relevant Agilent device user guide, for example, <a href="#">Bravo Platform User Guide</a>

For information about ...	See...
General safety information and potential safety hazards that you might encounter when using Automation Solutions products	<a href="#">Automation Solutions Products General Safety Guide</a>

## Software version

This guide documents VWorks Plus 14.1.1 and later editions.


# Accessing the user guides

## About this topic

This topic describes the different formats of user information and explains how to access it for the Agilent Automation Solutions products.

## Where to find user information

The user information is available in the following locations:

- *Knowledge base*. The help system for the Automation Solutions products is available from:
  - Help menu within the VWorks software: Select **Help > Knowledge Base** or press F1.
  - From the Windows desktop: Select **Start (  ) > All Apps > Agilent Technologies > VWorks Knowledge Base**.

For guidelines on using the VWorks context-sensitive help and knowledge base features, see *Using the knowledge base*, below.

- *PDF files*. The PDF files of the user guides are installed with the VWorks software (C:\Program Files (x86)\Agilent Technologies\VWorks\UserGuides) and are available in the VWorks Knowledge Base.
- *Website*. You can search the online VWorks Knowledge Base or download the latest version of any PDF file from the Agilent website at <https://automation.help.agilent.com>.

## Accessing safety information

Safety information for the Agilent Automation Solutions devices appears in the [Automation Solutions Products General Safety Guide](#) and in the corresponding device safety guide or user guide.

You can also search the knowledge base or the PDF files for safety information.

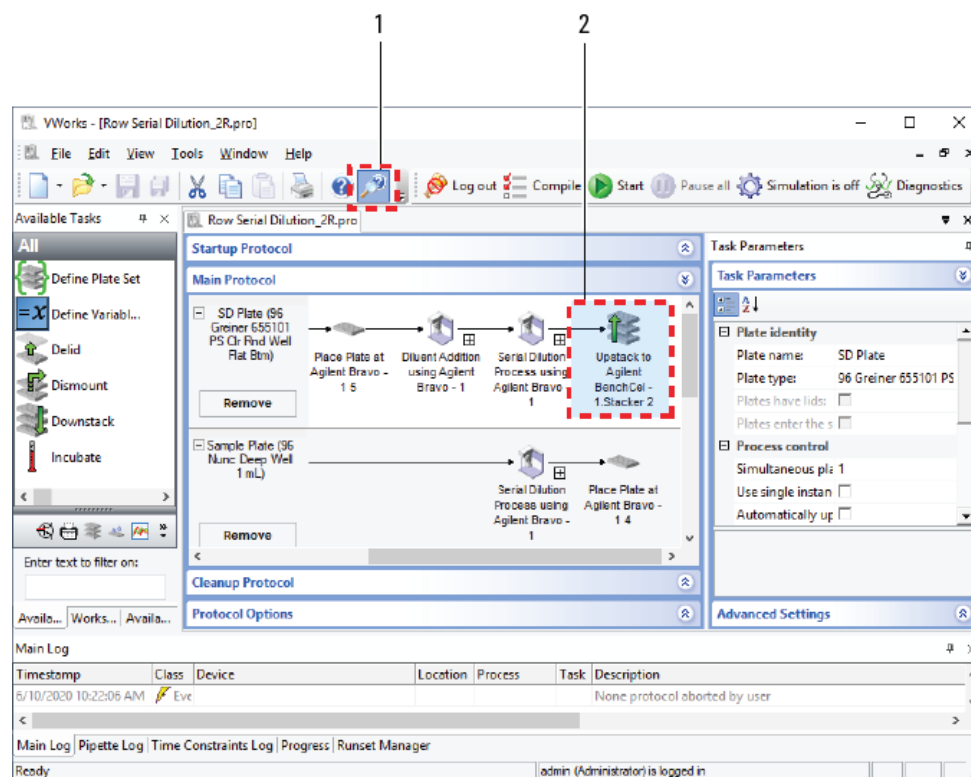
## Using the knowledge base

Knowledge base topics are displayed using web browser software such as Microsoft Edge.





Note: If you want to use Microsoft Internet Explorer to display the topics, you might have to allow local files to run active content (scripts and ActiveX controls). For instructions, see the Microsoft user documentation.

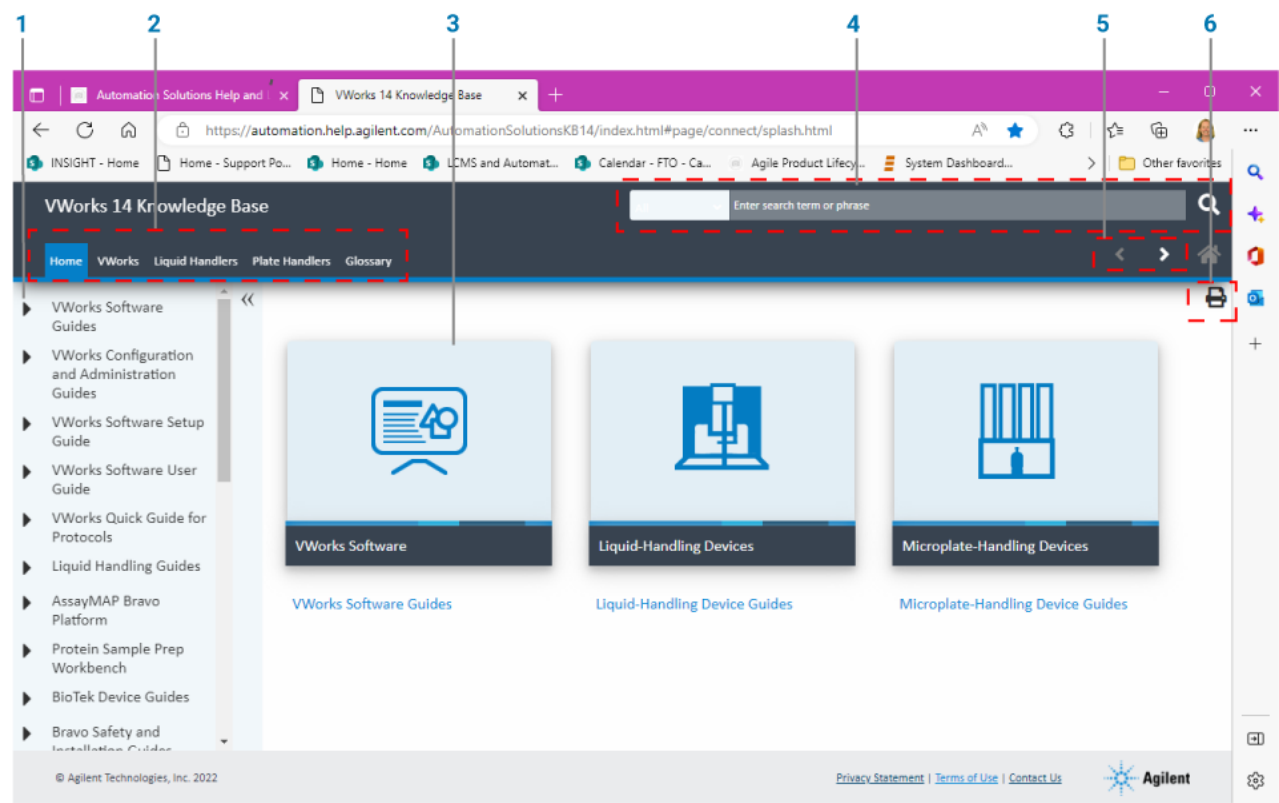
## Opening the help topic for an area in the VWorks window



### To access the context-sensitive help feature:

- 1 In the main window of the VWorks software, click the help button . The pointer changes to . Notice that the different icons or areas are highlighted as you move the pointer over them.
- 2 Click an icon or area of interest. The relevant topic or document opens.

Features in the Knowledge Base window



Item	Description
1	Contents pane. Lists all the books and the table of contents of the books.
2	Tabs. Allows you to search the Knowledge Base by product type.
3	Topic area. Displays content of selected tab or topic. In the above example, the content of the Home tab is displayed in the topic area.
4	Search bar. Enables you to search the entire knowledge base for a word or term.
5	Navigation buttons. Enable you to navigate through the next or previous topics listed in the Contents pane.
6	Print button. Enables you to print the information in the topic area.

# 1 About VWorks Plus

This chapter provides an overview of the VWorks Plus software. The topics are:

- [“Software architecture and components” on page 2](#)
- [“21 CFR Part 11 Compliance” on page 3](#)
- [“Workflow for VWorks Plus” on page 4](#)
- [“Logging in to Control Panel” on page 5](#)

## Software architecture and components

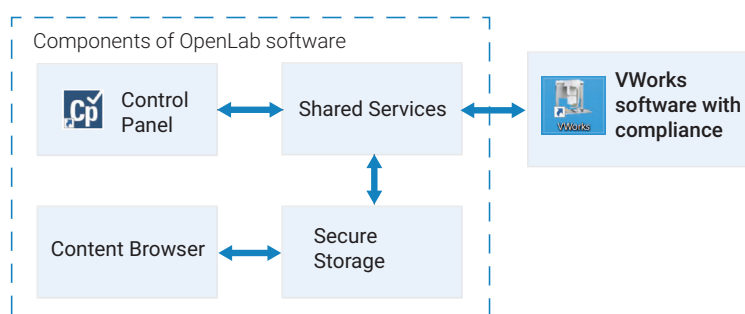
VWorks Plus consists of components of Agilent OpenLab software and VWorks software. All the required software components are installed on a single computer that connects to an Agilent automation device or workstation.

VWorks Plus is compliance-enabled software that consists of the following primary components:

- Agilent OpenLab for VWorks
- Agilent VWorks

The following figure shows the relationships between these components.

**Figure** VWorks Plus architecture



### OpenLab for VWorks components

VWorks Plus uses the following components of the OpenLab software:

- **Control Panel** and **Shared Services**. Control Panel is the user interface for Shared Services, which are set of administrative services. A software administrator uses the Control Panel tools to configure the following:
  - User access management
  - Software licenses
  - Storage
  - Instrument and project settings, including electronic signature levels
- **Secure Storage** and **Content Browser**. Shared Services uses a secure storage repository, Secure Storage, to store VWorks files and audit trails. By default, the files are stored at:

`/VWorks Projects/VWorks`

*Note:* Unlike previous VWorks versions, the Windows Registry is not used for storing any records, such as labware definitions and device profiles.

Content Browser is a user interface for Secure Storage. A software administrator can use Content Browser to view and edit the VWorks project structure and contents in the Secure Storage Repository. For example, if the current version of a VWorks file is corrupted or has been tampered, the administrator can restore a previous version of the file using the Content Browser.

### VWorks component

The VWorks component provides the instrument control for the automation devices. The software provides the tools to create labware definitions and liquid classes, set up your devices, create device profiles, and create and run protocols.

The VWorks software logs audit trails for records of interest, tracks records by record state (In Development, In Validation, and Released), and performs tamper detection on the records. The software enables electronic signatures to transition records from each record state.

## 21 CFR Part 11 Compliance

VWorks Plus provides the following features to enable compliance with the FDA rules and guidelines for compliant electronic records and computerized systems:

- *Data security.* Physical protection of data by limiting access to the system and preventing unauthorized access.
- *Data integrity.* Protecting raw data and metadata and preventing these from unauthorized modification, and linking raw data and results to reproduce the original results at any time, for example, in an audit situation, and document each new result copy.
- *Audit traceability.* Documenting who did what to the results and when.

The following table lists the specific features.

**Table** Features that support compliance with 21 CFR Part 11

Feature	Description	For details, see...
Authentication, security policy, and user management	Prevents unauthorized access and unauthorized modification of records of interest. The Control Panel enables management of user access.	<a href="#">"Configuring the software" on page 13</a>
Secure Storage	Securely stores records of interest and audit logs.	<a href="#">"Using Content Browser" on page 45</a>
Control Panel system activity log	Records events that occur during an OpenLab Control Panel session, for example, logging in, updates to users, groups or roles, updates to licenses, and so forth.	<a href="#">"System Activity Log" on page 56</a>
Backup and restore procedures	Required for disaster recovery planning to ensure data security.	<a href="#">"Disaster recovery planning" on page 59</a>
Audit trails and reports	Provides audit traceability for records of interest, documenting who did what and when. The VWorks software provides tracking based on record states.	<a href="#">"Editing project audit trail settings" on page 28</a> <a href="#">VWorks Automation Control Setup Guide</a>
Record state tracking and version control	Tracks records that transition through development, validation and released states to ensure record integrity and traceability.	<a href="#">VWorks Automation Control Setup Guide</a>

Feature	Description	For details, see...
Electronic signatures	Enables electronic signatures to transition records of interest through each state and to close experiment IDs.	<a href="#">“Editing project signature level settings” on page 29</a> <a href="#">VWorks Automation Control Setup Guide</a>
Tamper detection	Detects corrupted records and records that have been modified outside of the VWorks software.	<a href="#">VWorks Automation Control Setup Guide</a>
VWorks activity logs	Record events that occur during a VWorks session. The VWorks logs include the Main log, Pipette log, and Time Constraints log. The Diagnostics software for each device also provides logs of device profile activity.	<a href="#">VWorks Automation Control User Guide</a>

## Workflow for VWorks Plus

The following table provides an overall software workflow and shows which user roles may perform each task. The table has two sections:

- Tasks to initially configure the system after installation
- Ongoing tasks

Step	Task	Role	See ...
<b>Initial configuration and set up</b>			
1	In OpenLab Control Panel, do the following: <ul style="list-style-type: none"> <li>• Install and manage software licenses.</li> <li>• Configure and manage user access to the software.</li> <li>• Configure project settings, including audit trail comments and electronic signature levels.</li> <li>• Understand the <i>instrument</i> (VWorks computer) configuration.</li> </ul>	System Administrator (Everything role)  System Administrator  System Administrator or VWorks Administrator  System Administrator or VWorks Administrator	<a href="#">“Licensing the software” on page 7</a>  <a href="#">“Configuring the software” on page 13</a>  <a href="#">“Configuring VWorks project settings” on page 27</a>  <a href="#">“Understanding the instrument configuration” on page 38</a>
2	Set up the VWorks software: <ul style="list-style-type: none"> <li>• In VWorks, configure the compliance features, including, audit trail options and E-Signatures database setup.</li> <li>• If applicable, migrate protocols from earlier VWorks versions.</li> </ul>	VWorks Administrator	<a href="#">VWorks Automation Control Setup Guide</a>


Step	Task	Role	See ...
	<ul style="list-style-type: none"> <li>Verify the VWorks labware definitions for any labware you plan to use.</li> <li>If you have a Bravo Platform, specify the pipetting speed and accuracy.</li> <li><i>Labware MiniHub</i>. Establish connection to the VWorks Inventory database for labware inventory management.</li> <li><i>If applicable</i>. Establish connection to the VWorks Experiments database.</li> </ul>	VWorks Administrator or Technician	<a href="#">VWorks Automation Control Setup Guide</a>
3	In the VWorks software, set up your automation devices.	VWorks Administrator or Technician	Device user guide, for example, <a href="#">Bravo Automated Liquid Handling Platform User Guide</a>
<b>Ongoing use</b>			
4	In the VWorks software, create protocols and forms to run your automation devices.	VWorks Administrator or Technician	<a href="#">VWorks Automation Control User Guide</a>
5	Run VWorks protocols.	VWorks Administrator, Technician, or Operator	<a href="#">VWorks Automation Control User Guide</a>
6	Generate audit trail reports.	VWorks Administrator or Technician	<a href="#">VWorks Automation Control Setup Guide</a>
7	Perform periodic software and data backups.	VWorks Administrator or Technician	"Disaster recovery planning" on page 59

## Logging in to Control Panel

### IMPORTANT

Ensure that the computer is connected to a LAN, otherwise the connection to the Secure Storage component will fail. A local network is sufficient, for example, if the computer is connected to an automation device.

#### To log in to the Control Panel:

- To start the Control Panel, click  on the Windows desktop.  
Alternatively, you can click **All apps > Agilent Technologies > Control Panel**.
- In the Login window, enter your Login (user name) and password.  
If this is the first time to log in to Control Panel after installing the software, enter the following:
  - Login: *admin*
  - Password: *openlab*

*Note:* After installing the software license, you will configure user accounts in Control Panel and change the password for this login.

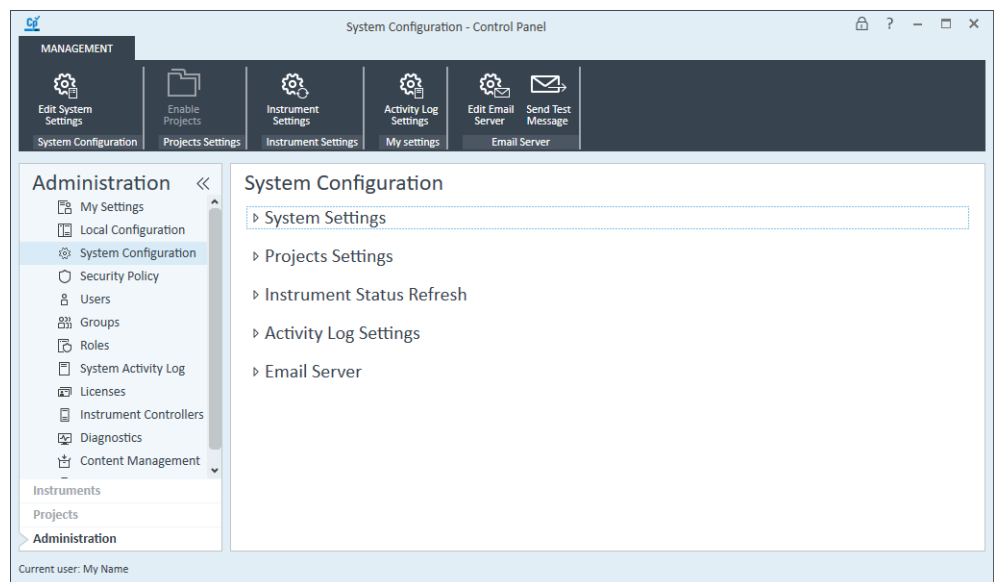
## 1 About VWorks Plus

### Logging in to Control Panel



The login window for the Agilent Control Panel. It features the Agilent logo and the text "Agilent Control Panel For OpenLab Software" on the left. On the right, there are input fields for "Username" and "Password", a "Connect to" dropdown menu currently showing "[Local] Local server", and "Log In" and "Cancel" buttons. An information icon is next to the "Connect to" dropdown. The Agilent logo is also in the bottom right corner.

The Control Panel window opens.





## 2 Licensing the software

This chapter describes how to obtain your software license. The topics are:

- [“About software licensing” on page 8](#)
- [“About the Control Panel Licenses page” on page 8](#)
- [“Workflow for software licensing” on page 9](#)
- [“Prerequisites for getting a license” on page 9](#)
- [“Getting a license” on page 10](#)
- [“Installing your license” on page 11](#)

## About software licensing

### About trial licenses

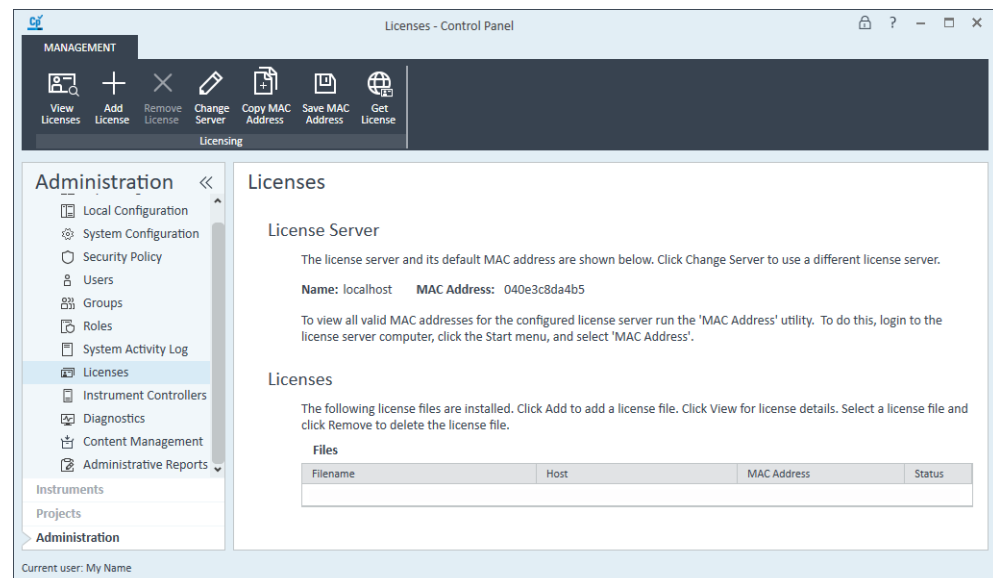
A trial license for the software allows you to run it for 60 days after the installation. In order to run the software after the 60-day period, you must install your license file.

### License file


A license file contains your software license. You generate and download the license file in SubscribeNet. This file will be installed on the computer where the VWorks software is installed. The license file is bound to this computer, and cannot be moved to another computer without regenerating the license in SubscribeNet.

## About the Control Panel Licenses page

The following figure shows the Licenses page in Control Panel.



### To view the Licenses page:

- 1 If you have not already done so, log in to Control Panel . For details, see [“Logging in to Control Panel” on page 5](#).
- 2 In the Control Panel navigation pane, click **Administration > Licenses** to display the Licenses page.

The ribbon at the top of the page includes the following controls that you can use to manage your software licenses:

- **Add License** and **Remove License**. Allows you to install and uninstall license files.
- **Copy MAC Address**. Copies the MAC address of the license server.

- **Save MAC Address.** Saves the MAC address of the license server to a text file (.txt) at the specified location.
- **Get License.** Links to the Agilent SubscribeNet Electronic Software and License Delivery web page, where you can obtain a license.
- **Change Server.** Not applicable. This feature is for systems that have a license server on a separate computer from the client software.

## Workflow for software licensing

Step	For this task...	See...
1	Make sure you have met the prerequisites for getting a license.	<a href="#">“Prerequisites for getting a license” on page 9</a>
2	Generate and download your license.	<a href="#">“Getting a license” on page 10</a>
3	Install your license using Control Panel.	<a href="#">“Installing your license” on page 11</a>
4	Restart the computer for the license to have an immediate effect.	–

## Prerequisites for getting a license

### License prerequisites

To generate, download, and install a license for your product, you will need:

- The authorization code label provided in the envelope containing your Software Entitlement Certificate.

If you have not received an envelope for your product, contact your vendor or internal support.

- The URL for SubscribeNet from the Software Entitlement Certificate.
- The name of the computer (local host) where the VWorks software and the OpenLab components are running.

*Note:* If any changes are made to the computer name or domain reference after the license is installed, remove the license. A new license will need to be created in SubscribeNet, downloaded, and installed.

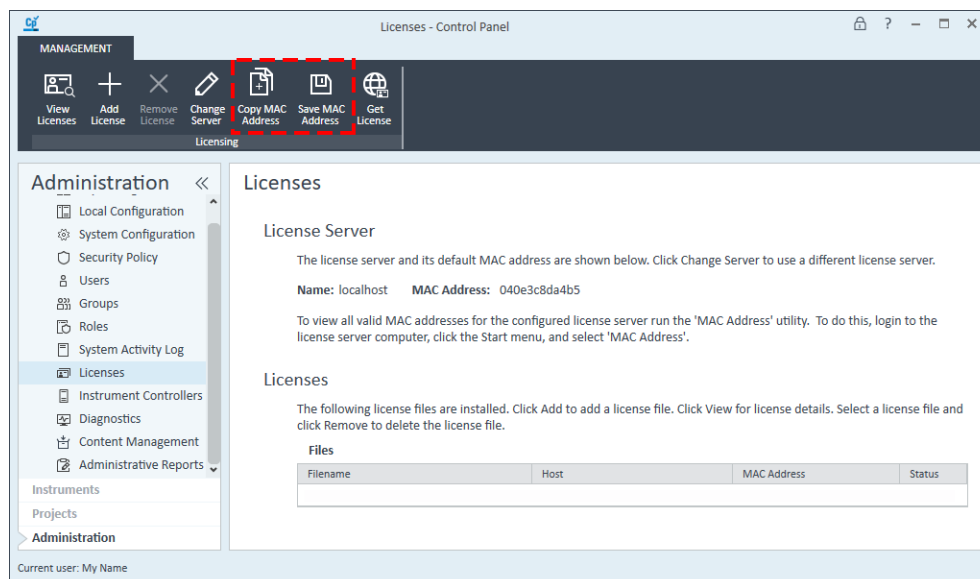
- The MAC address. See the following procedure to retrieve the MAC address.

*Note:* If the network adapter that provides the MAC address used during license creation is removed from the computer, your license will no longer be valid. A new license will need to be generated with a currently available MAC on the license server.

## Retrieving your MAC address

**To retrieve your MAC address:**

- 1 In the Control Panel navigation pane, click **Administration > Licenses**.
- 2 Use the **Copy MAC Address** or **Save MAC Address** to obtain the MAC address for license generation.



## Getting a license

This section describes how to generate and download your license in SubscribeNet.

- If you are a new user who has not registered with SubscribeNet, see [“New SubscribeNet users” on page 10](#).
- If you have registered with SubscribeNet, go to [“Users registered with SubscribeNet” on page 11](#).

### New SubscribeNet users

**To generate and download your license:**

- 1 Go to <https://agilent.subscribe.net/control/agil/AgilRegisterToAccount> to register the product with SubscribeNet.  
*Note:* If the computer where the VWorks software and the OpenLab components are installed is connected to the Internet, you can connect to this site from the Control Panel Licenses page.
- 2 On the registration page, enter the authorization code from the label and complete the profile information.  
*Note:* Required fields are marked with an asterisk (\*).  
The email address you enter will become your login ID.
- 3 Click **Submit**. The system will generate and display an account name for you. SubscribeNet will send a welcome email with your login ID and password.

- 4 Log in to SubscribeNet using your login ID and password.  
*Note:* Once you log in, you can use the online user manual link for help with any questions you have.
- 5 Select **Generate or View licenses** from the left navigation bar.
- 6 Follow the prompts to generate your new license.  
You will be prompted for the HOST NAME of the computer and the MAC address. The host name you enter must match with the network name of the computer where the VWorks Control Panel is running. Do not include any DNS suffix (domain.com) references in the entered computer name.
- 7 When the system generates the license, view its details, and then click **Download License File**. Save the license file to your computer and to a backup location, such as a portable storage device.  
Use your login ID and password when you revisit the Agilent SubscribeNet site to regenerate a license file, add new authorization codes, or further configure the license for your system.

## Users registered with SubscribeNet


### *To generate and download your license:*

- 1 If you already have a SubscribeNet account, go to <https://agilent.subscribenet.com/>  
*Note:* If you lost your SubscribeNet password, go to <https://agilent.subscribenet.com/control/agil/password> to have it emailed to you.
- 2 Select the SubscribeNet account associated with this authorization code.
- 3 From the SubscribeNet navigation pane, select **Register Authorization Code**.  
This will allow you to enter your new authorization code and make available the new license entitlements.
- 4 Follow [step 5](#) through [step 7](#) in the previous procedure ("[New SubscribeNet users](#)" [on page 10](#)) to generate or view your new licenses.

## Installing your license

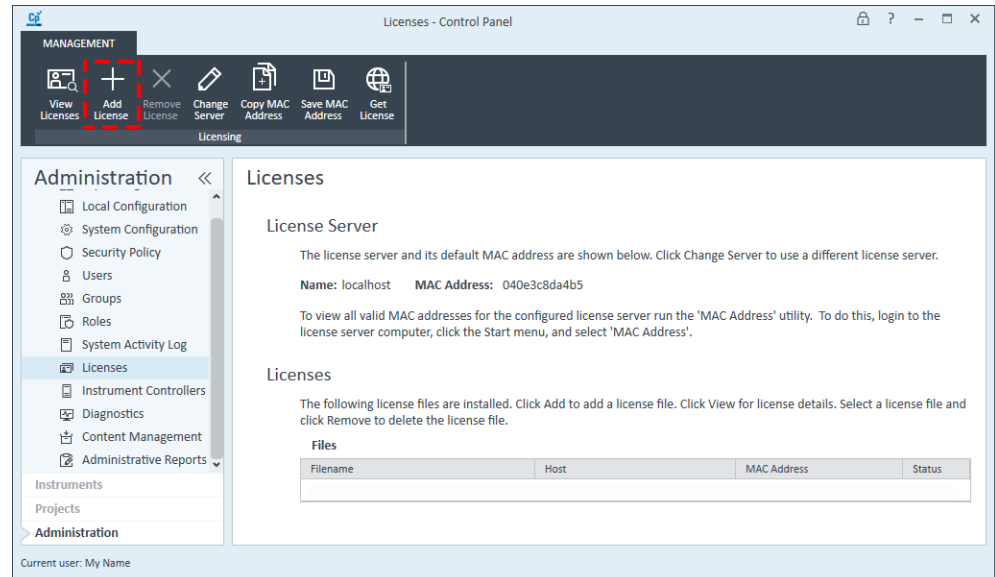
You add the license to your system using Control Panel (OpenLab component).

### *To install your license:*

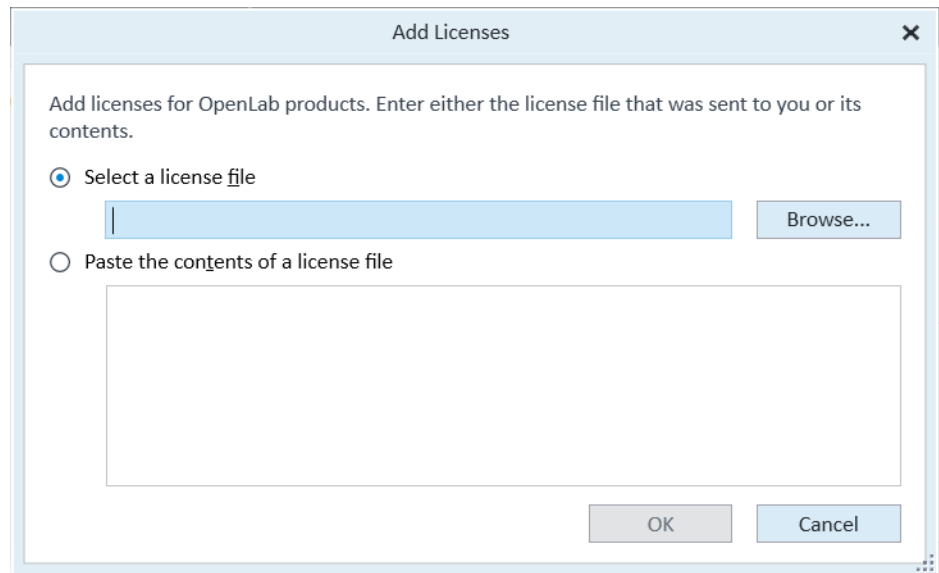
- 1 If you have not already done so, log in to Control Panel . For details, see "[Logging in to Control Panel](#)" [on page 5](#).
- 2 In navigation pane, click **Administration > Licenses**.
- 3 In the ribbon, click **Add License**.

## 2 Licensing the software

### Installing your license



- 4 In the **Add Licenses** dialog box, select one of the following:
- **Select a license file.** Browse to and open the license file (.lic) saved from the license generation process in SubscribeNet.
  - **Paste the contents of a license file.** Copy the license text from a text file and paste the copy in the provided field.



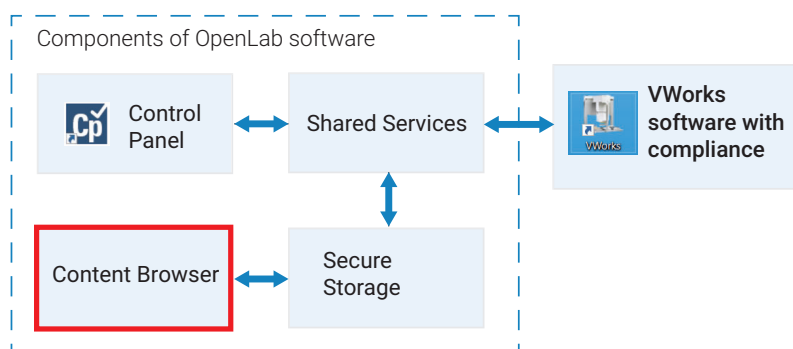
- 5 Click **OK**. The Licenses page in the Control Panel displays the status of installed licenses.

### IMPORTANT

Restart the computer for the license to have an immediate effect.

### 3 Configuring the software

This chapter describes how to use Control Panel to configure the Shared Services for VWorks Plus.



The topics are:

- ["Configuring authentication" on page 14](#)
- ["Configuring the security policy" on page 17](#)
- ["Configuring users, groups, and roles" on page 18](#)
- ["Configuring VWorks project settings" on page 27](#)
- ["Understanding the instrument configuration" on page 38](#)
- ["About configuring automation devices in VWorks" on page 43](#)
- ["Configuring the email server" on page 43](#)

Note: The Control Panel System Activity Log provides a record of the activities during each Control Panel session. For details, see ["System Activity Log" on page 56](#).

# Configuring authentication

VWorks Plus supports either Internal or Windows Domain as authentication providers. After the software installation, internal authentication is configured by default.

IMPORTANT

Changing the Control Panel authentication setting from Internal (default) to Windows Domain will erase any existing users and user groups. You should reinstall the VWorks software after changing the authentication setting to Windows Domain. Installing the VWorks software automatically recreates the predefined VWorks groups.

## Authentication options

**Internal (default)**  
The Internal option uses OpenLab components of the VWorks Plus software to perform the authentication. You create the users and manage user access in the Control Panel, and Shared Services provides the user authentication.  
Internal authentication is the only mode in which you can create new users within the OpenLab Control Panel. If you want to use internal authentication, you can proceed to [“Setting the security policy parameters” on page 17](#).

**Windows Domain**  
The Windows Domain option uses Microsoft Windows to perform the user authentication. You import the users and groups that exist in the active Windows directory into OpenLab Control Panel and then assign them to the appropriate VWorks groups or roles.

**Table** Workflow for Windows Domain authentication

Step	For this task...	See...
1	In OpenLab Control Panel, ensure that Windows Domain authentication is configured.	<a href="#">“Configuring Windows Domain authentication” on page 15</a>
2	If you changed the Control Panel authentication setting after running the VWorks installer, re-run the VWorks installer to automatically publish the predefined VWorks user groups and roles.	<a href="#">VWorks Automation Control Installation Guide</a>
3	In Microsoft Windows, create users and user groups and configure the Security Policy.	Microsoft Windows user documentation




Step	For this task...	See...
4	<p>In OpenLab Control Panel, set up the users and user groups:</p> <ol style="list-style-type: none"> <li>Import the Windows users and user groups from Windows Domain.</li> <li>Assign the imported users to predefined VWorks groups. This automatically grants the appropriate instrument and project privileges.</li> <li>Assign any imported Windows groups to predefined VWorks roles, and also assign the appropriate instrument and project privileges.</li> </ol>	"Configuring users, groups, and roles" on page 18

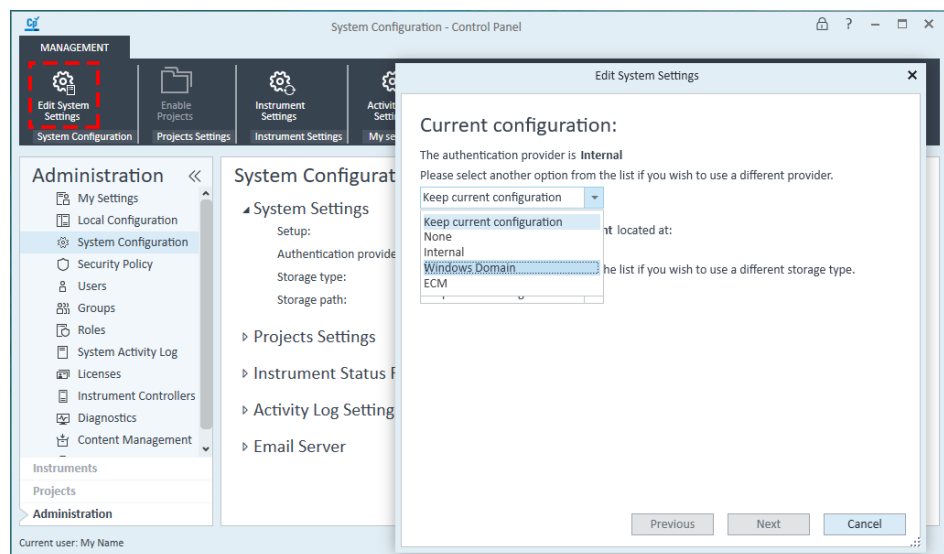
## Configuring Windows Domain authentication

### IMPORTANT

Make sure you install or reinstall VWorks after configuring Windows Domain authentication. The VWorks installer automatically installs a predefined set of VWorks groups that contain all the required privileges for using the VWorks software.

#### To configure Windows Domain authentication:

- 1 If you have not already done so, log in to the Control Panel .
- 2 In the **System Configuration** page, click **Edit System Settings** in the top-left corner of the ribbon. The Edit System Settings dialog box opens.
- 3 Select the authentication provider **Windows Domain** from the list, and then click **Next**.



## IMPORTANT

Do not change the storage type. The storage type is determined automatically based on the VWorks edition for which you have a license.

- 4 In the **Edit System Settings** dialog box, select the **Windows Domain** check box, click **Next**, and then confirm your settings.

When complete, the Control Panel will restart.

The screenshot shows a window titled "Edit System Settings". Inside, under "Additional parameters:", it states "You have chosen **Windows Domain** as the authentication provider. Please specify the following additional parameters."

Under "Authentication Parameters", there is a checkbox labeled "Use domain user to query domain information (user must have rights to obtain user and group information from the domain)". Below this are three input fields labeled "Domain:", "User:", and "Password:". To the right of the "Password:" field is a button labeled "Select Account".

At the bottom of the dialog, there is a line of text: "Select an account that will be used to administer the system." followed by the "Select Account" button. At the very bottom are three buttons: "Previous", "Next", and "Cancel".

- 5 Run the Agilent VWorks 14.4 installer to re-install the VWorks software. This will republish the predefined VWorks groups. The VWorks groups have all the roles and privileges required to run the VWorks software.

*Note:* For instructions, see the [VWorks Automation Control Installation Guide](#).

## Configuring the security policy

To comply with specific standards (for example, 21 CFR Part 11), adjust the security policy as required.


- **Internal authentication.** You can set all security policy parameters in the Control Panel (OpenLab component) using the following procedure.
- **Windows Domain authentication.** You can set only the inactivity time in the Control Panel. All other parameters are defined by the Windows operating system. See the Microsoft Knowledge Base for instructions.

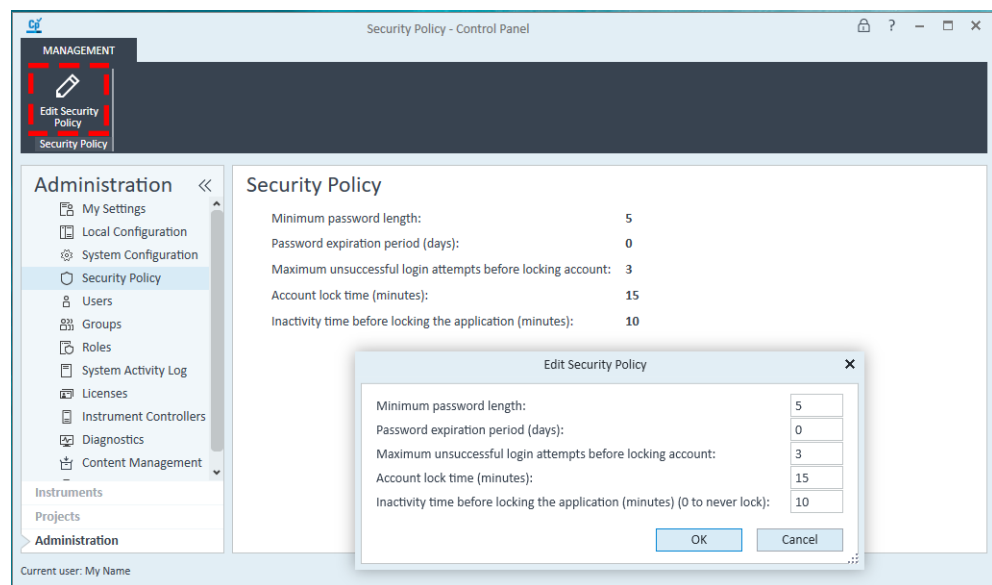
### IMPORTANT

Ensure that your security policy is configured to comply with specific standards, for example, 21 CFR Part 11.

### Setting the security policy parameters

*To configure the security policy in Control Panel:*

- 1 If you have not already done so, log in to the Control Panel .
- 2 In the Control Panel navigation pane, click **Administration > Security Policy**.
- 3 In the ribbon, click **Edit Security Policy**.
- 4 Edit the settings per your requirements, and then click **OK**.



- 5 When the restart message appears, restart Control Panel to ensure that any changes take effect.

## Configuring users, groups, and roles

This section contains the following topics:

- [“User groups and roles” on page 18](#)
- [“Workflow for configuring users and groups” on page 20](#)
- [“Creating a user \(internal authentication\)” on page 21](#)
- [“Importing Windows users \(Domain authentication only\)” on page 22](#)
- [“Importing Windows user groups \(Domain authentication only\)” on page 23](#)
- [“Assigning imported groups to roles \(Domain authentication only\)” on page 23](#)
- [“Changing a password \(Internal authentication only\)” on page 25](#)
- [“Removing users” on page 27](#)

### User groups and roles

#### System administrator

You configure a system administrator account in the Control Panel with all privileges (Everything role) before setting up other users. This administrator account is for a superuser who has access privileges to everything in the software.

Agilent recommends having a primary and a backup for these roles to ensure coverage in the event that the primary administrator is unavailable.

#### VWorks groups

The most efficient way to assign user privileges is to assign users to the predefined VWorks groups, which are automatically created when the VWorks software is installed. These VWorks groups, listed in the following table, are already associated with the corresponding VWorks roles, plus all the project and instrument privileges required to run the VWorks software.

#### VWorks roles

The VWorks roles listed in the table are automatically created when the VWorks software is installed. Each role defines what the users assigned with the role are allowed to view or do.

#### IMPORTANT

To log in to the VWorks software, you must have a role of VWorks Administrator, VWorks Technician, VWorks Operator, or VWorks Guest. In addition, privileges for an instrument and project are required.

Groups	Roles and privileges
VWorks Administrators	<p>VWorks Administrator role</p> <ul style="list-style-type: none"> <li>Log in and log out of Control Panel, VWorks, and Content Browser.</li> <li>View and manage projects or project groups</li> <li>Edit project content, including deleting content</li> <li>Manage project group access</li> <li>E-sign records and revoke signatures for records</li> <li>VWorks Administrator privileges in VWorks to <ul style="list-style-type: none"> <li>Run a protocol that contains compiler errors.</li> <li>Delete development state records of interest, for example, labware entries, profiles, and so forth.</li> <li>Perform all the functions of VWorks Technicians.</li> </ul> </li> </ul> <p>Instrument Administrator role</p> <p>Instrument User role</p>
VWorks Technicians	<p>VWorks Technician role</p> <ul style="list-style-type: none"> <li>Log in and log out of Control Panel and VWorks.</li> <li>View projects or project groups</li> <li>Edit project content</li> <li>E-sign records and revoke signatures for records</li> <li>VWorks Technician privileges in VWorks to <ul style="list-style-type: none"> <li>Perform all functions listed in the VWorks Tools menu.</li> <li>Create and save protocols.</li> <li>Create and edit devices using the device manager.</li> <li>Perform all the functions of VWorks Operators.</li> </ul> </li> </ul> <p>Instrument Administrator role</p> <p>Instrument User role</p>
VWorks Operators	<p>VWorks Operator role</p> <ul style="list-style-type: none"> <li>Log in and log out of Control Panel and VWorks.</li> <li>View projects or project groups</li> <li>Edit project content</li> <li>E-sign records and revoke signatures for records</li> <li>VWorks Operator privileges in VWorks to <ul style="list-style-type: none"> <li>Run protocols.</li> <li>Operate devices using diagnostics software.</li> <li>Access the VWorks Knowledge Base through the Help menu.</li> <li>Use context-sensitive help.</li> </ul> </li> </ul> <p>Instrument User role</p>

Groups	Roles and privileges
VWorks Guest	<p>VWorks Guest role</p> <ul style="list-style-type: none"><li>• Log in and log out of Control Panel and VWorks.</li><li>• VWorks Guest privileges:<ul style="list-style-type: none"><li>– Log in and log out of VWorks.</li><li>– Access the VWorks Knowledge Base through the Help menu.</li><li>– Use context-sensitive help.</li></ul></li></ul>

The effect of privileges:

- If you do not have the privilege to perform a function associated with a particular menu command, the text of the command is gray.
- If you do not have the privilege to perform the functions accessed from a particular tabbed page, the tab is not visible to you.
- In some cases, if you do not have the privilege to perform an operation, when you attempt the operation you get an error message telling you that your privileges are insufficient.

## Workflow for configuring users and groups


To create the required VWorks users:

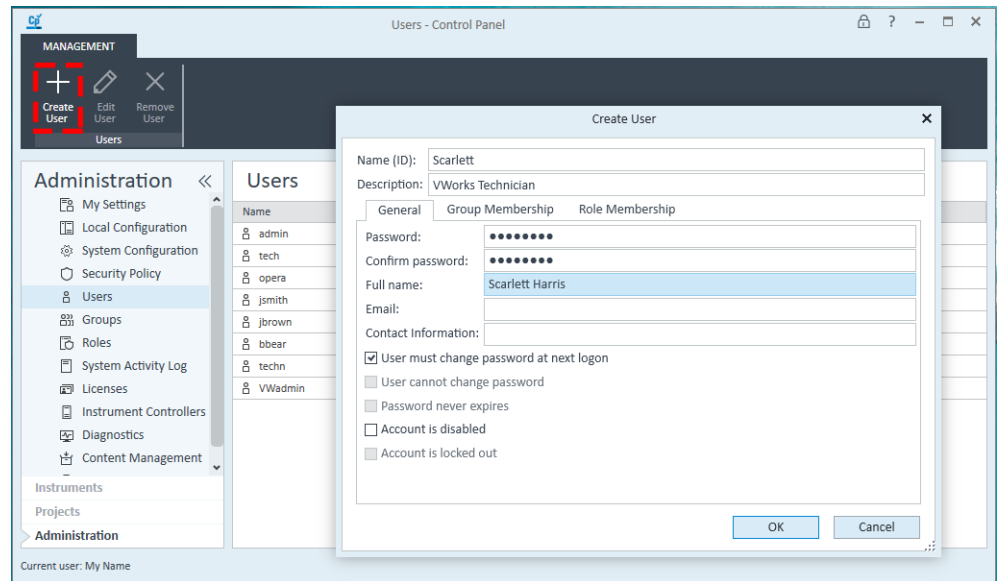
- **Internal authentication.** You create the required users in the OpenLab Control Panel and add them to one of the VWorks groups with predefined roles. See [“Creating a user \(internal authentication\)” on page 21](#).
- **Windows domain authentication.** You import the Windows domain users into Control Panel Control Panel using the following procedures:
  - [“Importing Windows users \(Domain authentication only\)” on page 22](#)
  - [“Importing Windows user groups \(Domain authentication only\)” on page 23](#). and [“Assigning imported groups to roles \(Domain authentication only\)” on page 23](#)

## Creating a user (internal authentication)

Use this procedure if your system configuration uses internal authentication.

### To create a new user:

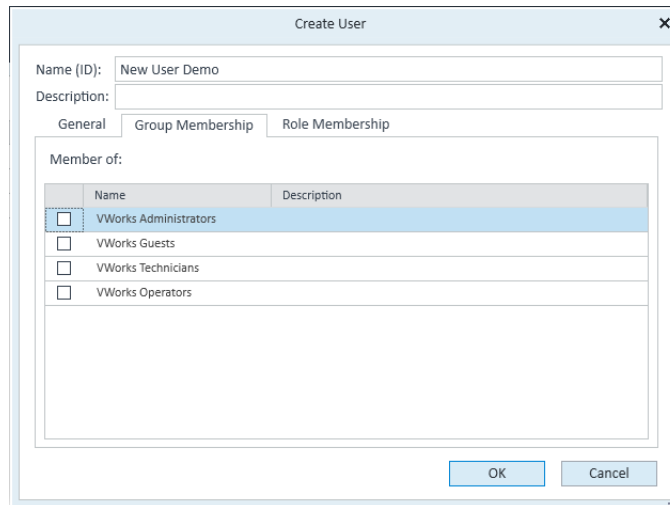
- 1 If you have not already done so, log in to the Control Panel .
- 2 In the Control Panel navigation pane, click **Administration > Users**. The Users page appears, which displays the current list of users that have been assigned to VWorks groups.
- 3 In the ribbon, click **Create User**. The Create User dialog box opens.



- 4 Enter a **Name (ID)** and **Description** for the user.
- 5 In the **General** tab, enter a **Password** for the user and **Confirm password**.  
*Note:* The password length and expiration period is set under the Security policy.
- 6 *Optional.* Enter the user's **Full name**, **Email**, and **Contact Information**.  
The full name is used in activity log entries and the welcome message at the lower right of the Control Panel.
- 7 Select the password options:
  - Typically, you select **User must change password at next logon** so that the user can set their password and keep it private.
  - To prevent the user from changing the password assigned here, select **User cannot change password**.
  - To set the password to never expire, select **Password never expires**.*Note:* To prevent the user from logging in to the VWorks software, select **Account is disabled**.
- 8 Click the **Group Membership** tab, select the VWorks group for this user, and click **OK**.

### 3 Configuring the software

#### Configuring users, groups, and roles



The 'Create User' dialog box is shown. It has a title bar 'Create User' with a close button. Inside, there are fields for 'Name (ID):' (containing 'New User Demo') and 'Description:'. Below these are three tabs: 'General', 'Group Membership', and 'Role Membership'. The 'General' tab is active. Under 'Member of:', there is a table with columns 'Name' and 'Description'. The table lists four groups: 'VWorks Administrators', 'VWorks Guests', 'VWorks Technicians', and 'VWorks Operators'. Each group has a checkbox to its left. The 'VWorks Administrators' checkbox is checked. At the bottom right are 'OK' and 'Cancel' buttons.

These predefined groups correspond to the predefined VWorks groups. For details, see [“User groups and roles” on page 18](#).

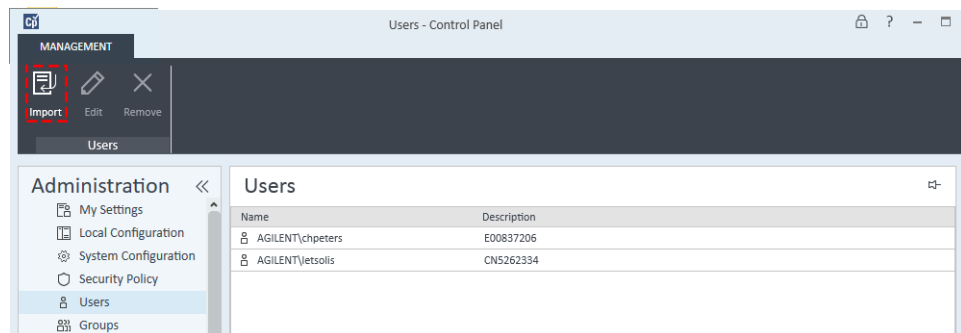
### Importing Windows users (Domain authentication only)

If you are using Windows Domain as the authentication provider, you can import users into the Control Panel and assign them to groups using the following procedure.

*Note:* The computer must be connected to the server of the company network to import Windows users.

#### **To import Windows users and assign them to groups:**

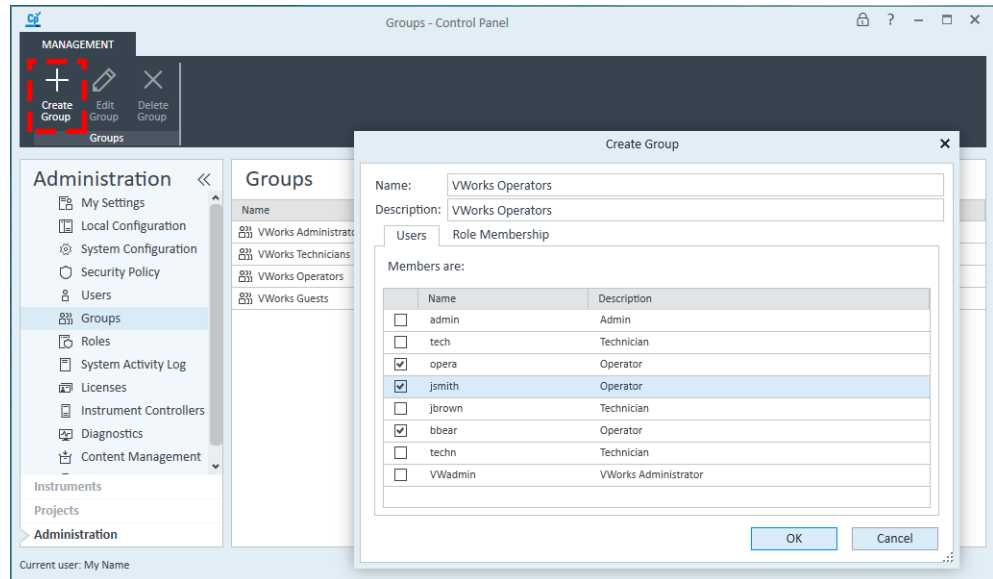
- 1 In the Control Panel navigation pane, click **Administration > Users**. The Users page appears and displays the current list of users that have been assigned to VWorks groups.
- 2 In the ribbon, click **Import**.



- 3 In the **Search Users** dialog box, type the search string for the user name.
- 4 In the **Search Results** list, select the user you want to import, and click **Add**. The user is added to the Selected Users list.
- 5 Repeat steps 2 through 4 until you have added all the user names that you want to import, and then click **OK**.
- 6 In the Control Panel navigation pane, click **Administration > Groups**. The Groups page appears.



- 7 Select one of the **Groups**, and then click **Edit Group** on the ribbon. The Edit Group dialog box opens.



- 8 In the **Users** tab, select the check box of the user to be assigned to this group, and then click **OK**.

## IMPORTANT

Do not change the roles for the predefined VWorks groups. The VWorks software requires one of the following roles Everything, VWorks Administrator, VWorks Technician, or VWorks Operator.

## Importing Windows user groups (Domain authentication only)

If you use are using Windows Domain as the authentication provider, you can import user groups from the active Windows directory. After you import the groups, you assign the groups to one of the VWorks roles.

### To import a Windows user group:

- 1 In the Control Panel navigation pane, click **Administration > Groups**.
- 2 In the ribbon, click **Import**.
- 3 In the **Search Groups** dialog box, type the search string for the group name.
- 4 In the **Search Results** list, select the group you want to import, and click **Add**. The group is added to the Selected Groups list.
- 5 Click **OK**.

Assign the imported group to a VWorks role using the following procedure.

## Assigning imported groups to roles (Domain authentication only)

## IMPORTANT

Do not change the roles for the predefined VWorks groups. The VWorks software supports only the roles of Everything, VWorks Administrator, VWorks Technician, VWorks Operator, and VWorks Guest.

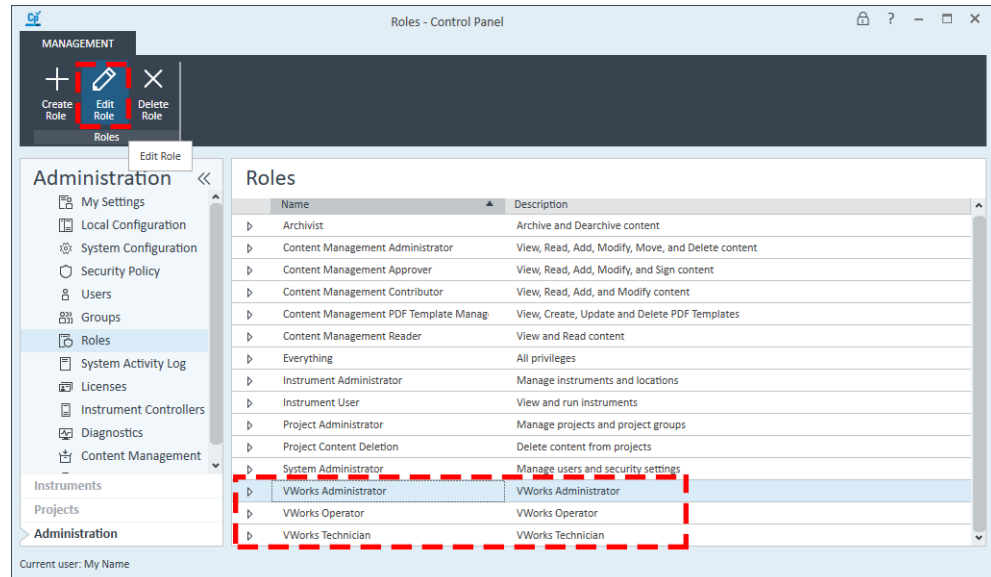
### 3 Configuring the software

#### Configuring users, groups, and roles

Use the following procedure to assign previously created or imported users to membership in a selected group.

**To assign a group to a predefined VWorks role:**

- 1 In the Control Panel navigation pane, click **Administration > Roles**. The Roles page appears.
- 2 Select one of the predefined VWorks roles:
  - VWorks Administrator
  - VWorks Technician
  - VWorks Operator



For a description of the role privileges, see [“User groups and roles” on page 18](#).

- 3 In the ribbon, click **Edit Role**. The Edit Role dialog box opens.

Name	Description
bbear	Operator
jsmith	Operator
opera	Operator

- 4 In the **Members** tab, click **Add user or group**. The Search Users and Groups dialog box opens.

Name	Full name
------	-----------

Name	Full name
------	-----------

- 5 Type the user name in the **Enter search string** box, and click **Search**.
- 6 In the **Search results** box, select the name and click **Add**.
- 7 Click **OK**.
- For imported groups, you will also assign permissions for a given project and a given instrument in subsequent procedures of this guide.

## Changing a password (Internal authentication only)

### Requirements

You may use the following procedures if:

### 3 Configuring the software

#### Configuring users, groups, and roles

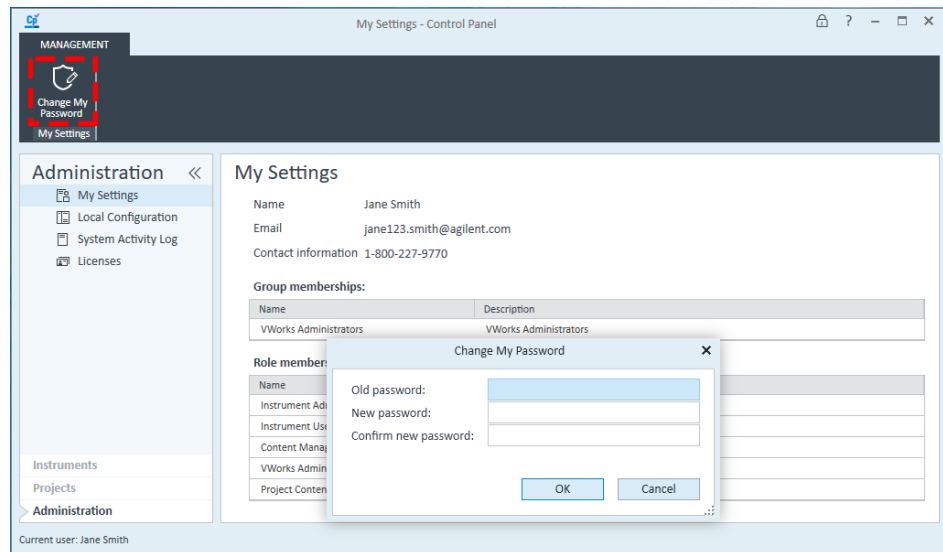
- Your system is configured for Internal authentication
- You have Everything privileges

Note: Users who do not have Everything privileges may log in to change their own password, but they will have limited access to other Control Panel features.

#### Changing your password

##### To change your password:

- 1 In the Control Panel navigation pane, click **Administration > My Settings**.

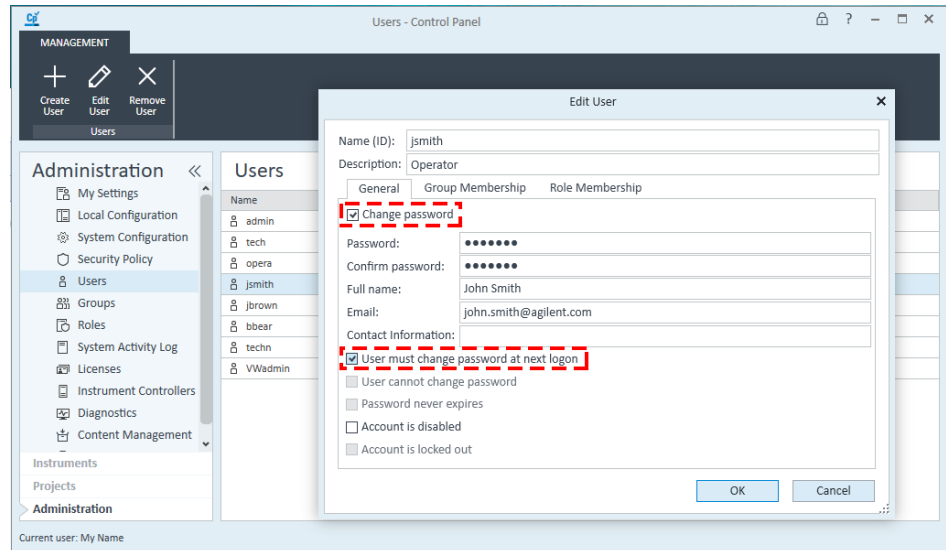


- 2 In the ribbon, click **Change My Password**. The Change My Password dialog box opens.
- 3 Type the **Old password**, **New password**, and **Confirm new password**.
- 4 Click **OK**.

#### Editing user data and resetting user passwords

##### To edit a user's data and reset their password:

- 1 In the Control Panel navigation pane, click **Administration > Users**.
- 2 In the **Users** page, select the user.
- 3 In the ribbon, click **Edit User**. The Edit User dialog box opens.
  - In the **General** tab, you may change the user password. For example, to reset the user password:
    - Select **Change password**.
    - Clear the remaining password check boxes, and then select **User must change password at next logon**.
  - In the **Group Membership** tab, you may change the user's group assignment.
  - In the **Role Membership** tab, you may change the user's role assignment.



4 Click **OK**.

## Removing users

*To remove a user:*

- 1 In the Control Panel navigation pane, click **Administration > Users**.
- 2 In the **Users** page, select the user.
- 3 In the ribbon, click **Remove User**.

## Configuring VWorks project settings

The following VWorks project is configured automatically during the VWorks software installation:

/VWorks Projects/VWorks

The VWorks project folder stores the labware entries, liquid classes, pipetting techniques, device files, protocols, forms, runsets, and other miscellaneous files for your protocols.

No additional projects are required.

## Workflow to configure VWorks project settings

Step	For this task...	See...
1	Determine if you want to allow files to be saved to folders other than the fourth level folder.	"Project folder structure" on page 28
2	Specify the project audit comment settings.	"Editing project audit trail settings" on page 28

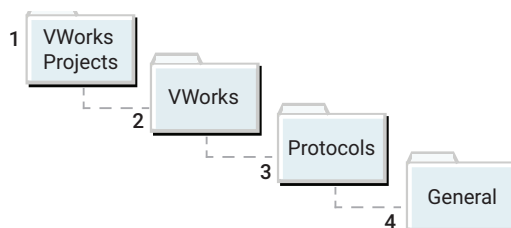
Step	For this task...	See...
3	Specify the project signature level settings.	"Editing project signature level settings" on page 29
4	<i>Windows Domain authentication only.</i> Assign project privileges to any imported groups.	"Assigning project privileges to imported groups (Windows Domain)" on page 35

## Project folder structure

By default, VWorks Plus restricts file saving to fourth-level folders in order to maintain compatibility with legacy OpenLab ECM 3.x servers. The legacy OpenLab ECM 3.x servers do not allow files to be saved in folders above or below the fourth level.

The following figure shows an example of four folder levels in a project.

/VWorks Projects/VWorks/General/Protocols/



An administrator can add additional fourth-level subfolders using the Content Browser. For details on how to view the project structure and add folders, see ["Editing the project structure" on page 47](#).

If compatibility with legacy OpenLab ECM 3.x servers is not required, you can remove the folder restriction. To remove this folder restriction, you change the **Restrict file saving to 4th level folders** option in the VWorks software. For detailed instructions on setting this option and other VWorks compliance-related options, see the [VWorks Automation Control Setup Guide](#).

## Editing project audit trail settings

The VWorks software can prompt for an audit comment when a user changes a record of interest. If you plan to use audit trails in the VWorks software, ensure that you specify the audit comment settings using the following procedure.

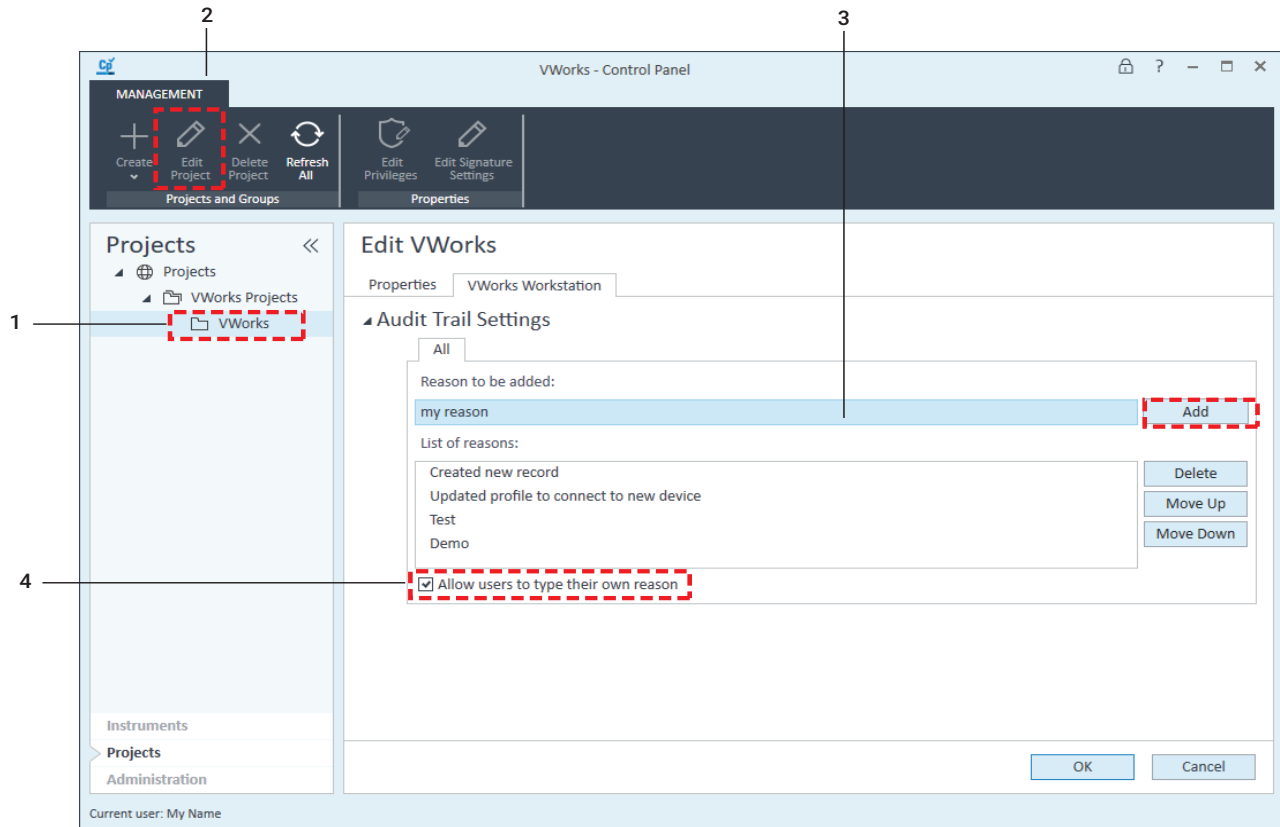
For details on records of interest and how to use the audit trails, see the [VWorks Automation Control Setup Guide](#).

### To edit the VWorks project audit trail settings:

- 1 in the **Projects** page, select the **VWorks** project.
- 2 Click **Edit Project** in the ribbon. In the **Edit VWorks** page, click the **VWorks Workstation** tab.
- 3 To enter the audit comments that a user can select in the VWorks software:
  - a In the **Reason to be added** box, type the comment, and then click **Add**.

- b** Repeat step a to add additional comments.
- c** To edit the list of reasons, use the **Delete**, **Move Up**, and **Move Down** buttons.
- 4** Select the **Prompt for reason when saving** check box.
- 5** *If applicable*. Select the **Allow users to type their own reason** check box.

The List of reasons includes only the reasons that an administrator enters in the VWorks Workstation tab for the project. The software does not add the reasons that users are allowed to type to this list.



## Editing project signature level settings

The VWorks software can prompt for a signature to transition a record of interest from one state to another. If the Experiments database is configured, the software also prompts for a signature when closing an experiment ID.

If you plan to use the electronic signature service in the VWorks software, ensure that you set the signature levels using the following procedure.

For details on how to establish a connection to the electronic signature database, see the [VWorks Automation Control Setup Guide](#).

### IMPORTANT

The software defines the *author* as the user who initiates the transition of a VWorks record or closing of an experiment ID. An *author* can sign only if the signature order is enforced and the settings specify that the author may sign.

For examples of how VWorks implements various signature level settings, see ["Signature level scenarios" on page 33](#).

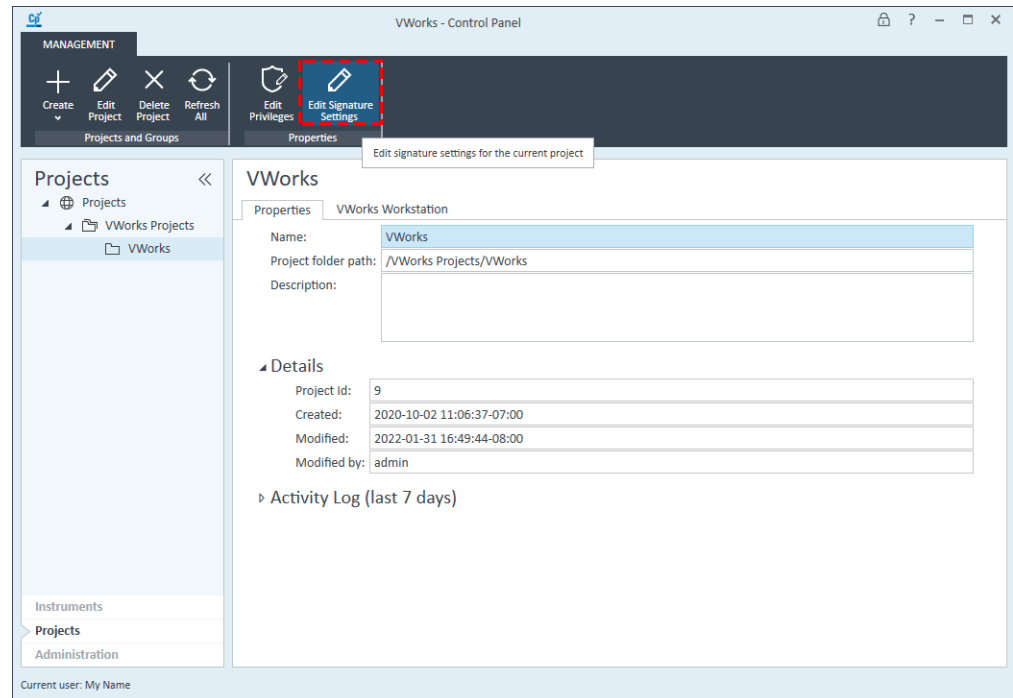
### 3 Configuring the software

#### Configuring VWorks project settings

*Note:* A user may only revoke the electronic signature of a record if no one with a higher signing authority has signed it.

#### **To set signature levels:**

- 1 In the Control Panel **Projects** page, select the **VWorks** project and then click **Edit Signature Settings** in the ribbon. The Edit Signature Settings dialog box opens.



- 2 In the **Levels** tab, select the number of signature levels (1–5) required to transition a VWorks record state or close a VWorks experiment ID, and select a **Description** for each level.



Levels Users/Groups Meanings

Select the highest signature level for this project 2

Level	Description
1	Author
2	Shift Supervisor

☒ Enforce signature order

Step	Levels	Meanings
1	Author	I am the author
2	Shift Supervisor	Approved

☐ Lock results on signing

☒ Always

☐ At level 1

☐ At step 1

☐ Allow same level signatures

OK Cancel

You may select a description for each level from the corresponding list, or you can edit the descriptions to reflect your project requirements. The preceding figure shows 2 levels: level 1 is Author and level 2 is Shift Supervisor.

- 3 Select or clear the **Enforce signature order** check box.

Levels Users/Groups Meanings

Select the highest signature level for this project 2

Level	Description
1	Author
2	Shift Supervisor

☒ Enforce signature order

Step	Levels	Meanings
1	Author	I am the author
2	Shift Supervisor	Approved

☐ Lock results on signing

☒ Always

☐ At level 1

☐ At step 1

☐ Allow same level signatures

OK Cancel

- Clear the **Enforce signature order** check box to allow the user levels set in step 2 to sign in any order.

In this case, the *author* (user who initiates the transition) cannot post a signature.

- Select **Enforce signature order** to specify an order.

In this case, the *author* may post a signature when they initiate the transition only if the Level 1 description is Author and the meaning is "I am the author".

- Click **Add**, and then select the signature **Level** and **Meaning** for the step.
- If you want to edit the available options in the **Meanings** list, click the **Meanings** tab, and then add any desired options.
- Ensure that you include a step for each signature level specified in step 2.

*Note:* Multiple steps can be added for a given signature level.

- 4 Clear the **Lock results on signing** check box. This setting is not valid in the VWorks software, which uses record states to lock records of interest.
- 5 If you want to allow users of the same signature level to sign, clear the **Enforce signature order** check box, and then select the **Allow same level signatures** check box.
- 6 To assign the users or groups to the signature levels:
  - a Click the **Users/Groups** tab.
  - b For each user or user group, double-click the corresponding entry under **Level**, and then select the signature level from the list.

The following figure shows an example of 2 level assignments for users and groups.

**Edit Signature Settings**

Levels Users/Groups Meanings

Select signature levels for each user or group

Users/Groups	Level
SuperUser	Shift Supervisor
VWorks Administrators	Shift Supervisor
VWorks Technicians	Author
VWorks Operators	Author

☒ Enforce signature order

Step	Levels	Meanings
1	Author	I am the author
2	Shift Supervisor	Approved

☐ Lock results on signing

☒ Always

☐ At level

☐ At step

☐ Allow same level signatures

OK Cancel

In this example, a VWorks Technician (Author level) could initiate a record state transition or close an experiment ID, and also post a signature. A user of the Shift Supervisor level could only sign after a user from the Author level posted a signature.

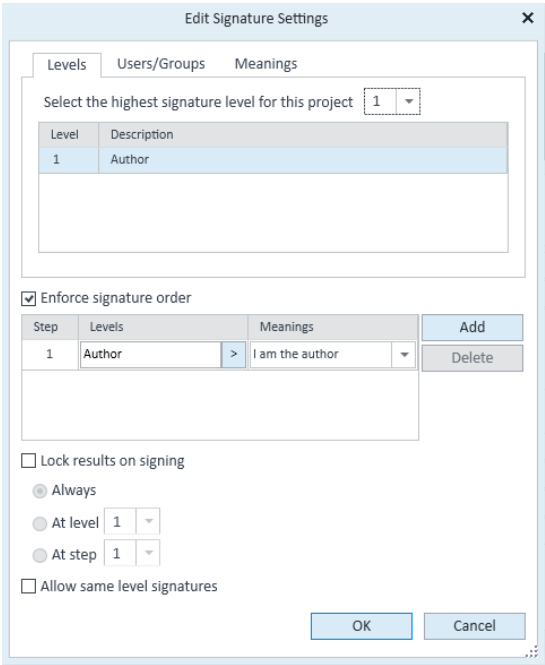
*Note:* The VWorks software requires VWorks Technician privileges or higher to post a signature for a record state transition or to close an experiment ID. VWorks ignores the Control Panel signature level assignments for any users with insufficient privileges, such as VWorks Operators.

- 7 Click **OK** to save the changes.

Signature level scenarios

The following table provides examples of how VWorks implements the project signature level settings.

Signature level settings in Control Panel	VWorks implementation
<p><b>Scenario A</b></p> <ul style="list-style-type: none"><li>1 signature level = <b>Author</b></li><li>Enforced signature order: Level 1, Author = <b>I am the author</b></li></ul> <p><i>Note:</i> In the Users/Groups tabs all users and groups are level 1.</p>	<p>The <i>author</i> (user who initiates the transition) can post a signature when initiating a record state transition or closing an experiment ID.</p> <p><b>VWorks example of scenario A:</b></p> <p>Level 1 user initiates the closing of an experiment ID and signs to confirm the close status.</p> <p>The signature is posted successfully, the experiment ID closes, and an experiment ID report is generated automatically.</p>



#### Signature level settings in Control Panel

##### Scenario B

- 2 signature levels:
  - Level 1 = **Author**
  - Level 2 = Shift Supervisor
- Enforced signature order:
  - Level 1, Author = **I am the author**
  - Level 2. Shift Supervisor, Approved
- Users/Groups
  - Level 1. VWorks Technicians group
  - Level 2. VWorks Administrators group

#### VWorks implementation

The *author* can post a signature when initiating a record state transition or closing an experiment ID. A Level 2 signature is required to complete the transition.

##### VWorks example of scenario B:

- 1 Level 1 user initiates the closing of an experiment ID and signs to confirm the transition.  
The signature is posted successfully, but the transition is pending.
- 2 Level 2 user signs.  
The signature is posted successfully, the experiment ID closes, and an experiment ID report is generated automatically.

##### Scenario C

- 2 signature levels:
  - Level 1 = Technician
  - Level 2 = Shift Supervisor
- Enforced signature order
  - Level 1. Technician = Ready for review
  - Level 2. Shift Supervisor = Approved
- Users/Groups
  - Level 1. VWorks Technicians group
  - Level 2. VWorks Administrators group

The *author* **cannot** post a signature when they initiate a record state transition or close an experiment ID. But a Level 1 user other than the *author* can post the first signature. A Level 2 signature is required to complete the transition.

##### VWorks example of scenario C:

- 1 Technician A (Level 1) initiates a record state transition. A message states that the user is the *author*, and therefore cannot sign at this step.  
The transition is pending.
- 2 Technician B (Level 1) signs to confirm that this record is ready to transition.  
The signature is posted successfully, but the transition is pending.
- 3 Shift Supervisor (Level 2) signs approval.  
The signature is posted successfully, and the transition is implemented.

Edit Signature Settings

Levels Users/Groups Meanings

Select the highest signature level for this project 2

Level	Description
1	Technician
2	Shift Supervisor

☒ Enforce signature order

Step	Levels	Meanings
1	Technician	Ready for review
2	Shift Supervisor	Approved

☐ Lock results on signing

☒ Always

☐ At level 1

☐ At step 1

☐ Allow same level signatures

OK Cancel

Signature level settings in Control Panel	VWorks implementation
<b>Scenario D</b> <ul style="list-style-type: none"> <li>2 signature levels: <ul style="list-style-type: none"> <li>Technician</li> <li>Shift Supervisor</li> </ul> </li> <li>No enforced signature order</li> <li>Users can select any meaning when they sign</li> <li>Users/Groups <ul style="list-style-type: none"> <li>Level 1. VWorks Technicians</li> <li>Level 2. VWorks Administrators</li> </ul> </li> <li>Allow same level signatures</li> </ul>	<p>The <i>author</i> <b>cannot</b> post a signature, but another user at the same level can. Two signatures are required, but the signatures can be in any order.</p> <p><b>VWorks example of scenario D:</b></p> <ol style="list-style-type: none"> <li>1 A user initiates a record state transition. The user is the <i>author</i>, and therefore cannot sign at this step. The transition is pending.</li> <li>2 Level 1 or 2 user other than the <i>author</i> signs. The signature is posted successfully, but the transition is pending.</li> <li>3 If a level 1 user signed in step 2, this step requires a level 2 user. Likewise, if a level 2 user signed in step 2, this step requires a level 1 user. The signature is posted successfully, and the transition is implemented.</li> </ol>

## Assigning project privileges to imported groups (Windows Domain)

By default, the roles of users or user groups are globally set for all project groups and projects. The role settings are inherited from the root node *Projects*.

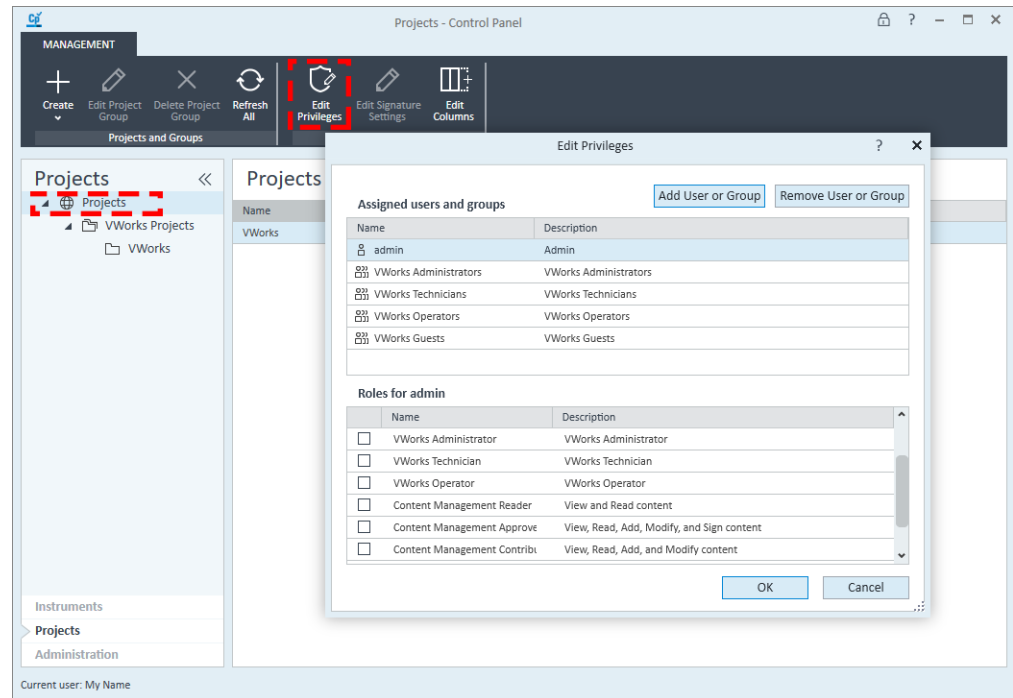
- If users are assigned to one of the predefined VWorks groups, the project privileges are already set globally. No additional project privileges are required.
- If users are part of an imported Windows group, perform the following procedure to assign global project privileges for the group.

### **To assign global project privileges for an imported group:**

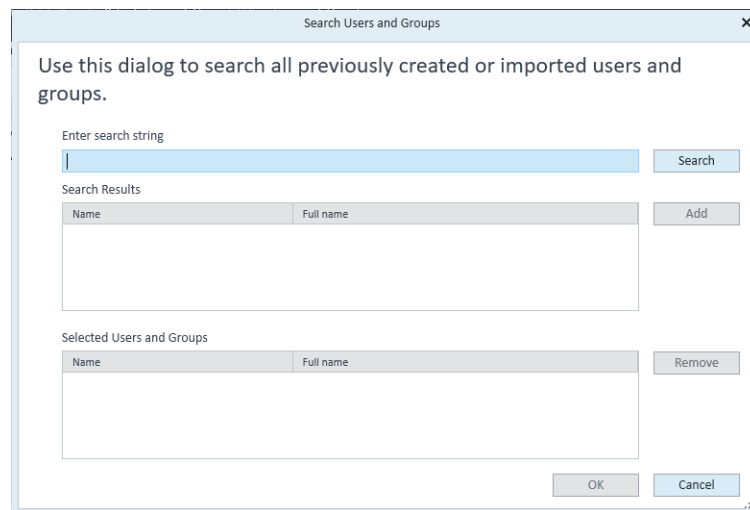
- 1 in the **Projects** page select the **Projects** icon in the navigation pane, as the following figure shows.
- 2 In the ribbon, click **Edit Privileges**. The Edit Privileges dialog box opens.

### 3 Configuring the software

#### Configuring VWorks project settings



- 3 In the **Edit Privileges** dialog box, click **Add User or Group**. The Search Users and Groups dialog box opens.



- 4 Use the **Search Users and Groups** dialog box to add the groups for the projects. Click **OK** after you finish adding groups.
- 5 Click **OK** to close the Edit Privileges dialog box.

If you have multiple projects, you may assign specific users or user groups to each project or project group using the following procedure.

#### ***To assign privileges for a specific project:***

- 1 In the **Projects** page, select the relevant project in the navigation pane, and then click **Edit Privileges** in the ribbon.

- 2 In the **Edit Privileges** dialog box, clear the **Inherit privileges from parent** check box. Click **Remove** in the confirmation message.
- 3 In the **Edit Privileges** dialog box, click **Add User or Group**.
- 4 In the **Search Users and Groups** dialog box, locate and add the users or groups for the given project. Click **OK** after you finish adding groups.

## Understanding the instrument configuration

### IMPORTANT

During the software installation, the instrument is created and configured automatically. No additional instrument configuration is required in Control Panel for the VWorks software.

### Workflow for instrument settings

Step	For this task...	See...
1	Understand the OpenLab term <i>instrument</i> .	"Instrument defined" on page 38
2	<i>Optional</i> . If desired, edit the instrument properties, for example, the name.	"(Optional) Editing instrument properties" on page 38
3	<i>Windows Domain authentication only</i> . Assign project privileges to any imported groups.	"Assigning instrument privileges to imported user groups (Windows Domain)" on page 40

Note: If your organization requires additional instrument configuration, see the procedure "[Optional instrument configuration](#)" on page 84.

### Instrument defined



In the context of OpenLab for VWorks, an *instrument* is either the VWorks computer that is physically connected to an automation device, such as the Bravo Platform, or the VWorks computer that is used for creating protocols, which is not necessarily connected to an automation device.

A configured instrument and project are required to log in to the VWorks software. Typically, only one instrument is configured in OpenLab Control Panel for the VWorks software.

### (Optional) Editing instrument properties

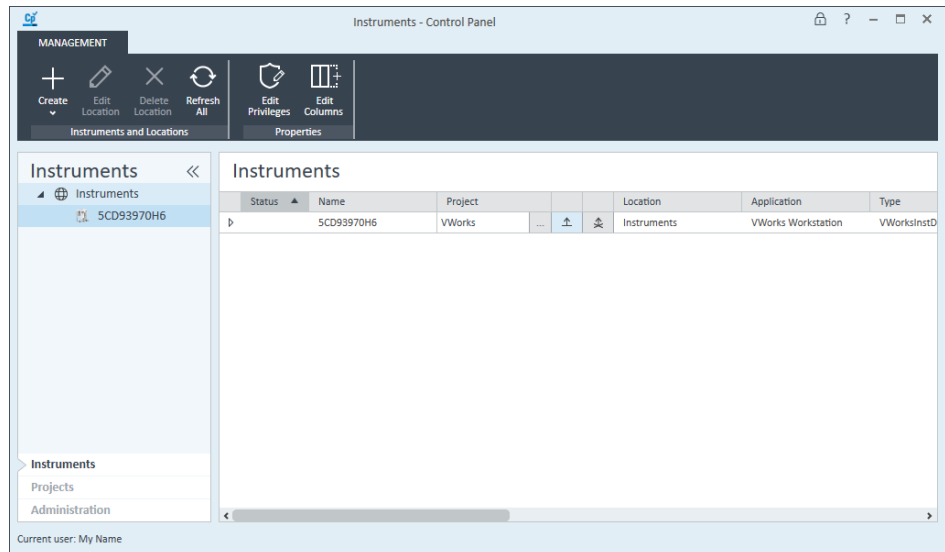
You can use the following procedure if you want to edit the instrument properties, for example, to change the instrument name.

#### To create an instrument:

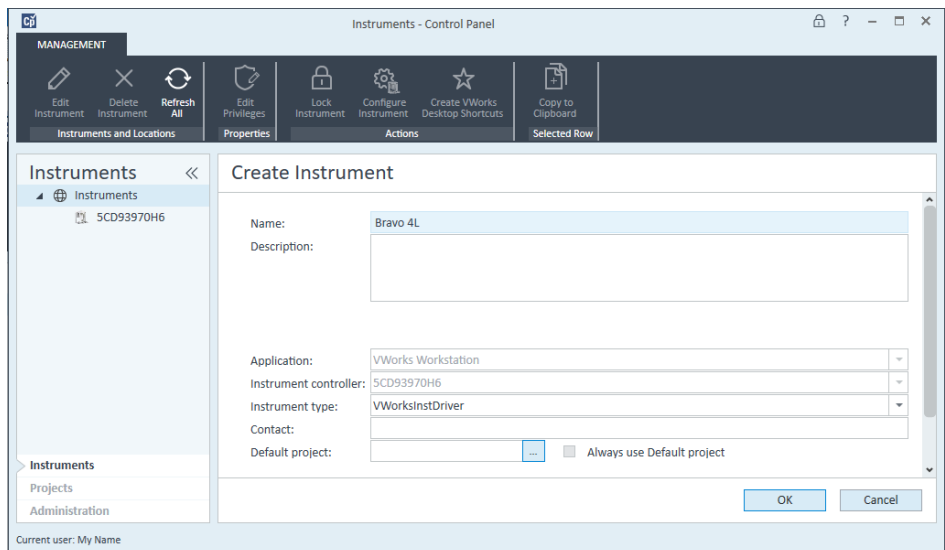
- 1 If you have not already done so, log in to the Control Panel .
- 2 On the **Instruments** page, click **Create** , and then click **Create Instrument**.

Note: The Create Location option is not applicable for the VWorks software.



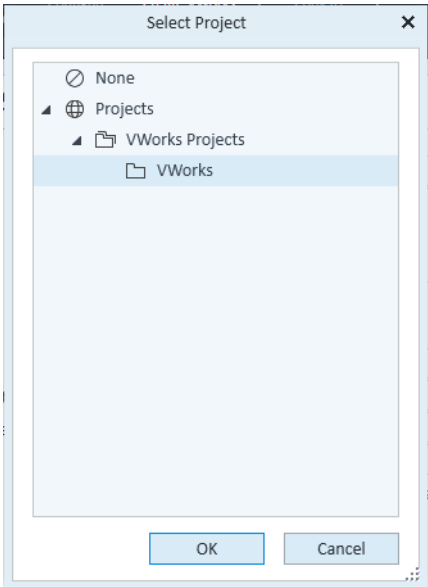


3 On the **Create Instrument** page, set the following properties.



Property	Description
Name	By default, the software uses the computer name. You can type a different name for the instrument. For example, if this computer controls a Bravo Platform, you might type Bravo. <i>Note:</i> When you create a VWorks desktop shortcut, this instrument name is used as the shortcut label.
Description	Optional. Type any comments about this instrument.
Application	VWorks Workstation (This value is fixed.)
Instrument controller	Computer name (This value is fixed.)
Instrument type	VWorksInstrDriver

Property	Description
Contact	<i>Optional.</i> Type the name or title of the contact for this instrument.
Default project	Click the browse button (...) and select a project in the Select Project dialog box, for example, VWorks Projects.



If you do not select a default project, you will be prompted to select a project anytime you launch this VWorks instrument.

Always use Default project	Select the check box to prevent users from storing data for this instrument to a different project folder..
----------------------------	---

Before you can use the instrument, you must configure it.

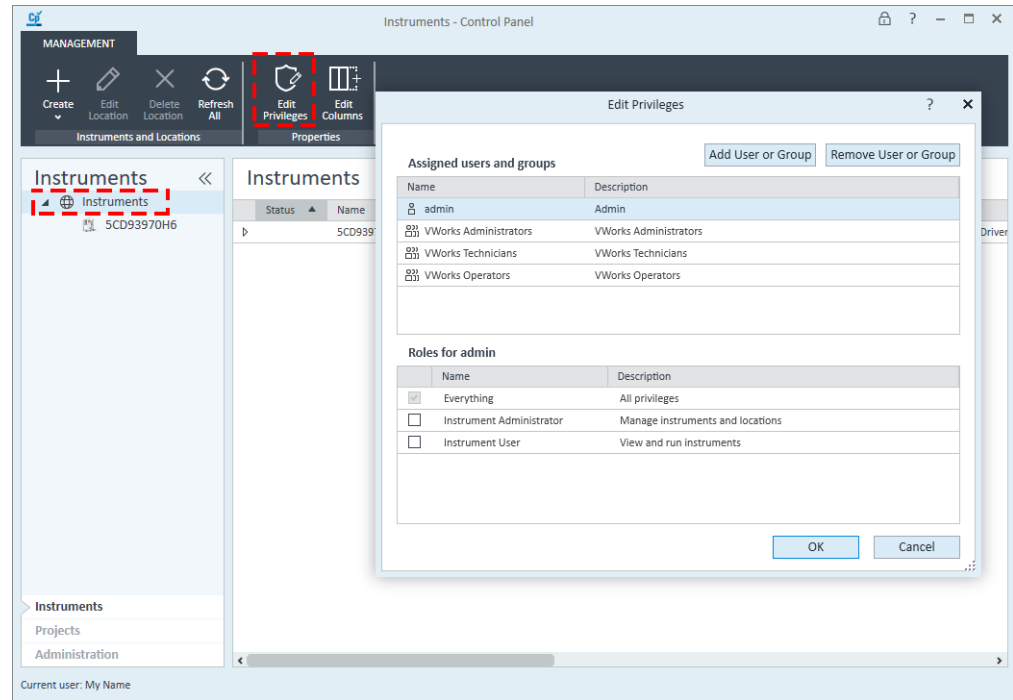
Assigning instrument privileges to imported user groups (Windows Domain)

By default, the roles of users or user groups are globally set for all instruments. The role settings are inherited from the root node *Instruments*.

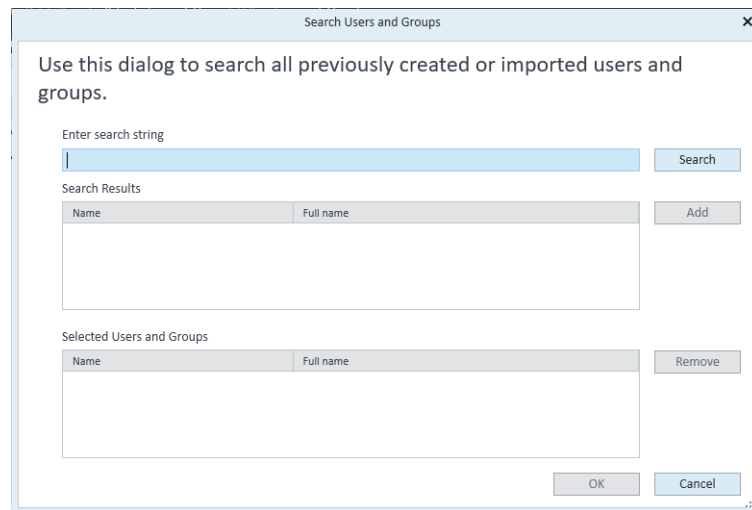
- If users are assigned to one of the predefined VWorks groups, the instrument privileges are already set globally. No additional instrument privileges are required.
- If users are part of an imported Windows group, perform the following procedure to assign global instrument privileges for the group.

To assign instrument privileges for imported user groups:

- 1 In the **Instruments** page select the **Instruments** icon in the navigation pane, as the following figure shows.
- 2 In the ribbon, click **Edit Privileges**. The Edit Privileges dialog box opens.



- 3 In the **Edit Privileges** dialog box, click **Add User or Group**. The Search Users and Groups dialog box opens.



- 4 Use the **Search Users and Groups** dialog box to add the groups for the projects. Click **OK** after you finish adding groups.
- 5 Click **OK** to close the Edit Privileges dialog box.

## About the VWorks shortcut



The VWorks installer automatically places a VWorks shortcut on the Windows desktop. This shortcut specifies the default instrument and project when starting the VWorks software.

*Note:* If you create projects in addition to the VWorks project in the Control Panel, the Create VWorks Desktop Shortcuts feature allows you to create additional shortcuts. For details, see [“About the Create VWorks Desktop Shortcuts feature” on page 84](#).

## Launching VWorks from the Instruments page

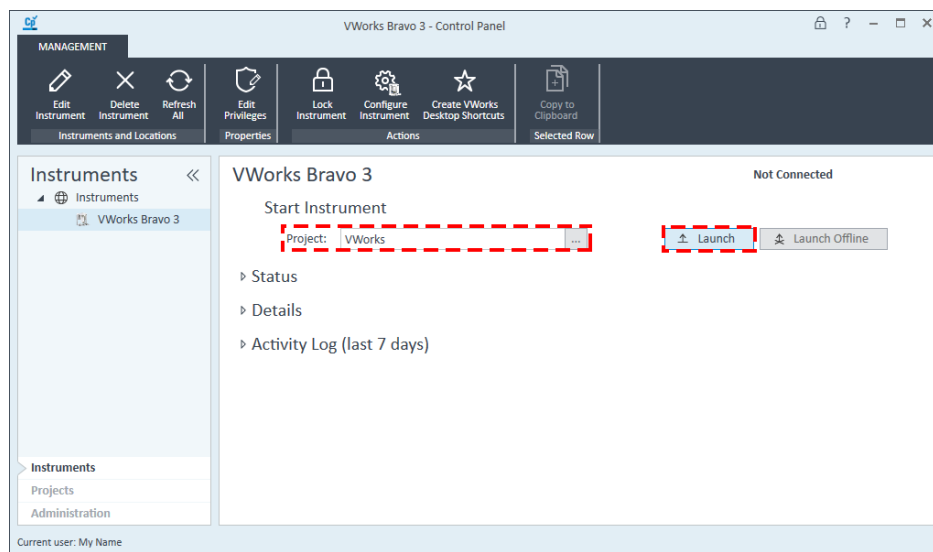
If you are already logged in to the Control Panel, you are not prompted for login credentials when you start VWorks from the Instruments page using the Launch button.

### *To launch VWorks from the Control Panel:*

- 1 In the **Instruments** page, select the instrument.
- 2 Under **Start Instrument**, select the **Project**, and then click **Launch**.

*Note:* If the Instrument properties specify the **Always use Default project** option, the project selection is already set.

The VWorks software opens.



## About configuring automation devices in VWorks

To communicate with and to control automation devices, the VWorks software uses a device file, which contains the relevant devices. A *device* can be a robot (for example, automated liquid handler or microplate handler) or a location on the lab automation workstation that can hold a piece of labware. The following are examples of devices:

- BenchCel Microplate Handler
- Bravo Platform
- PlateLoc Sealer
- Microplate Labeler
- Labware MiniHub
- Platepad
- Waste Bin

For details on how to configure VWorks devices, see the [VWorks Automation Control User Guide](#) in the VWorks Knowledge Base.

## Configuring the email server

If you want to allow the VWorks software to send email notifications, for example, when a run error occurs, the Control Panel must be connected to an email server.

### Requirements

Work with your IT organization to meet these requirements.

- The computer running the VWorks software must be able to communicate with your outgoing email server (SMTP server). The email server settings must be configured in the Control Panel.
- After connecting to an email server in the Control Panel, you must also enable email notifications in the VWorks software Options dialog box. For details, see the [VWorks Automation Control User Guide](#).

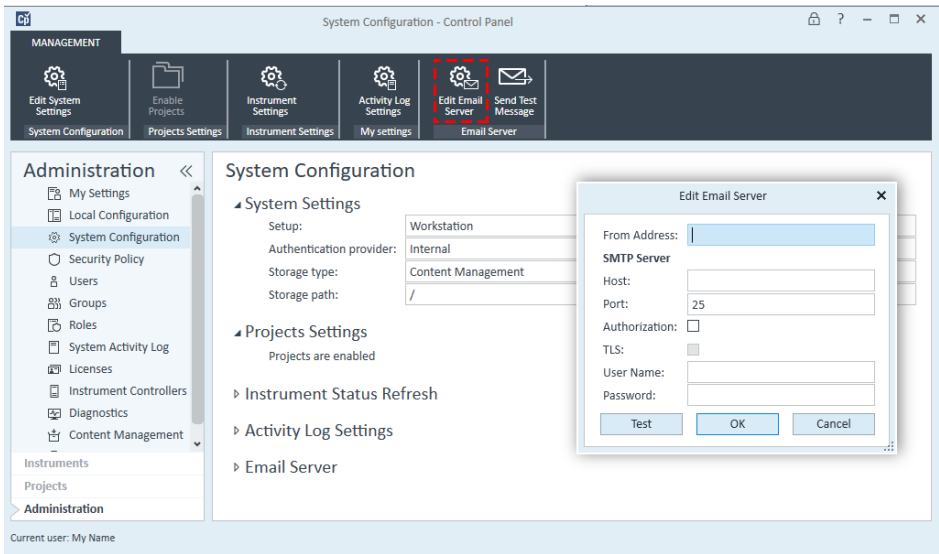
### Procedure

**To connect an email server to the Control Panel:**

- 1 In the Control Panel **Administration** page, select **System Configuration** in the navigation pane, and then click **Edit Email Server** in the ribbon.

3 Configuring the software

Configuring the email server



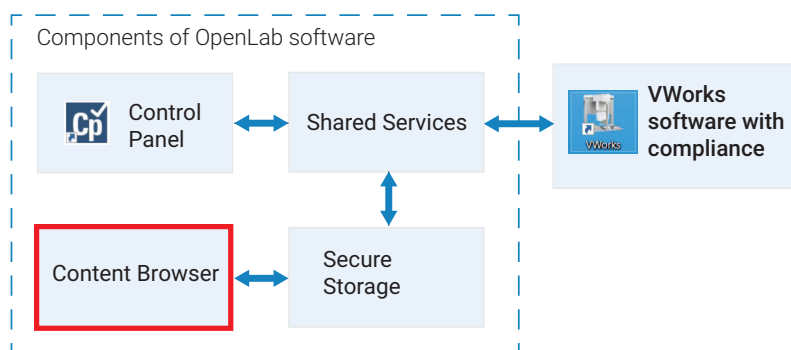
2 In the Edit Email Server dialog box, set the following properties.

Property	Description
From Address	The name of a valid email account on your mail server that will be used to send the notifications.
Host	The URL of the mail server.
Port	The TCP port used for outgoing mail.
Authorization	The option to specify that authorization is required.
TLS	Transfer Layer Security connection.
User Name	If authorization is required, the user name.
Password	If authorization is required, the password.

- 3 To send a test message, click **Test**. Enter an email address of a potential recipient and message, and then click **Send**.
- 4 Click **OK**.

## 4 Using Content Browser

This chapter provides an overview of Content Browser for VWorks Plus.



The topics are:

- ["Viewing the project structure" on page 46](#)
- ["Editing the project structure" on page 47](#)
- ["Restoring a previous version of a record" on page 49](#)
- ["Viewing the Content Browser Activity Log" on page 50](#)
- ["Using Content Browser Help system" on page 52](#)

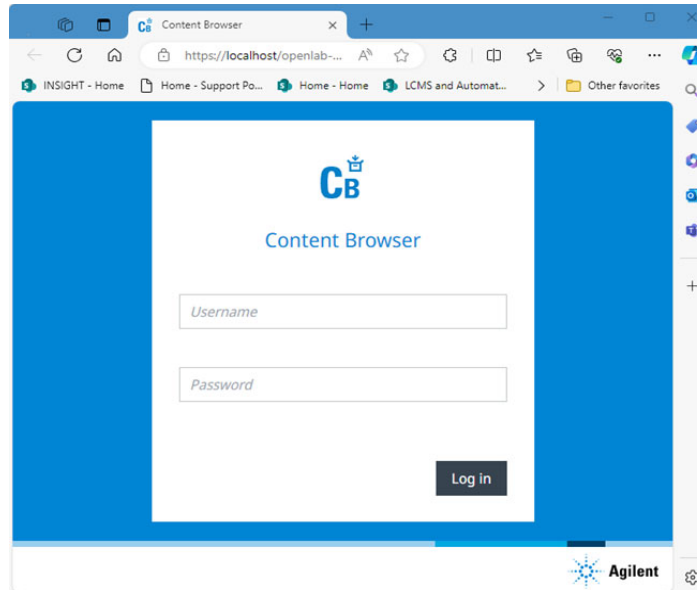
### IMPORTANT

The Sign File feature that is available when you use the Content Browser is not supported in the VWorks software. To ensure proper tracking of signatures for VWorks records, only use the VWorks e-signatures feature.

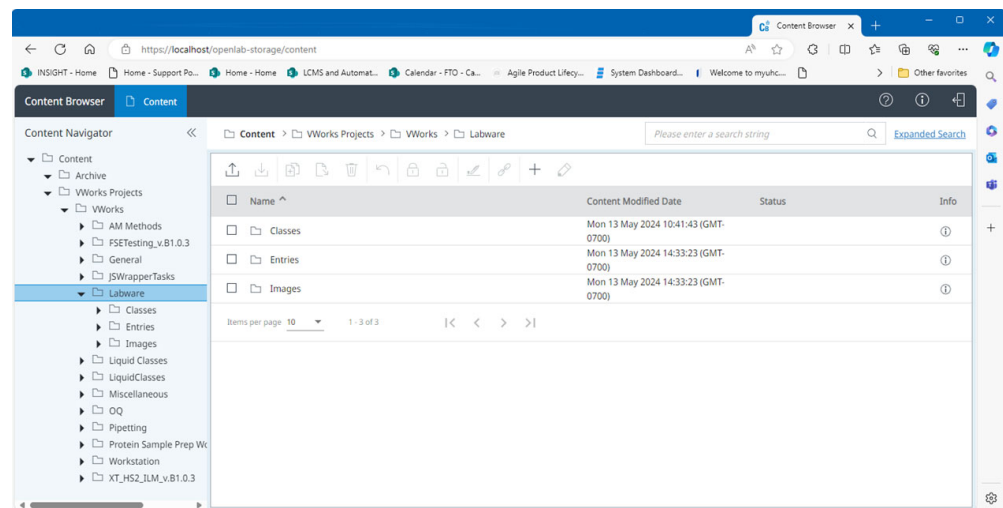
## Viewing the project structure

*To view the project structure:*

- 1 Click **All apps > Agilent Technologies > Content Browser**.
- 2 Log in using your user name and password.



- 3 In the Content Browser navigation pane, click **Content > VWorks Projects > VWorks** to display the project structure.





## Editing the project structure

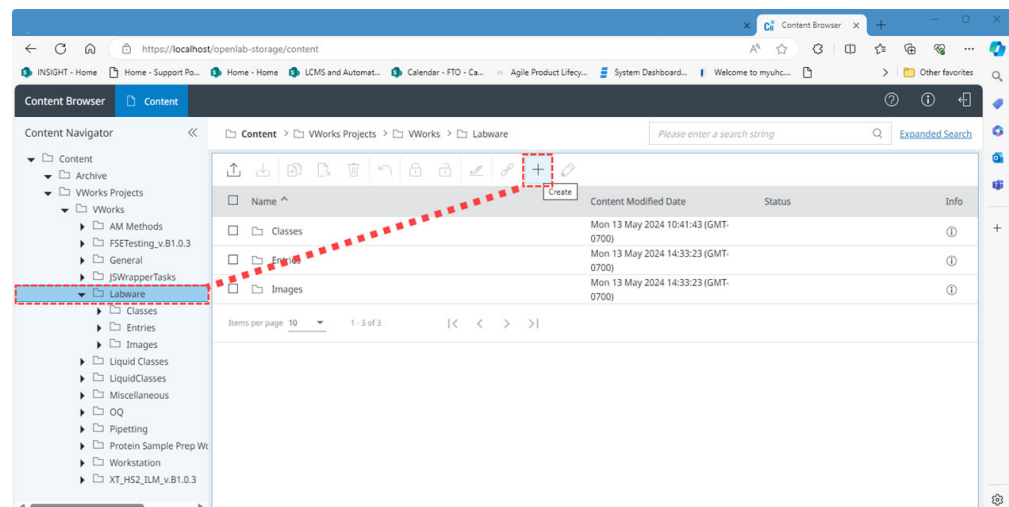
### IMPORTANT

The VWorks software either restricts or allows file saving at levels other than fourth-level folders based on the option specified in the VWorks Options dialog box. For details on this option, see the [VWorks Automation Control Setup Guide](#).

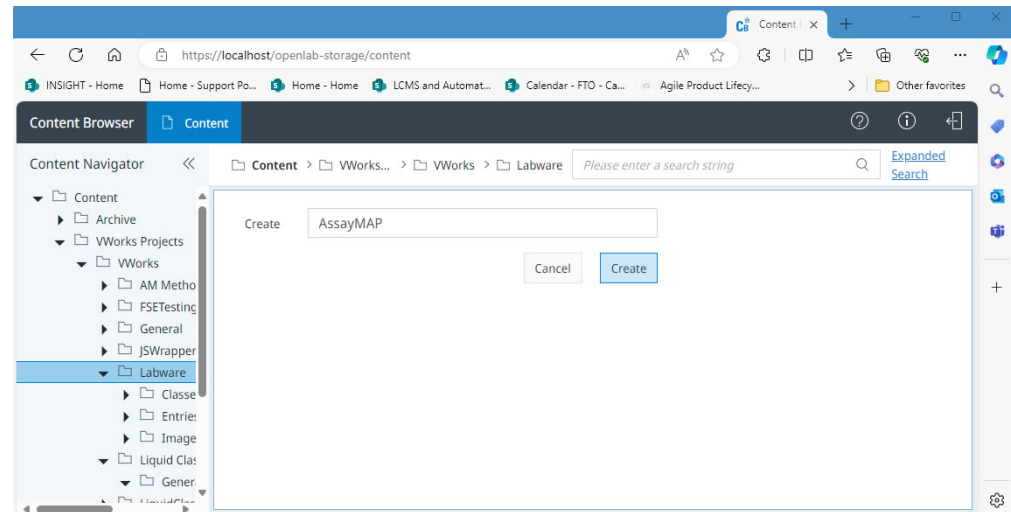
### Creating a subfolder in Content Browser

*To create a subfolder in the project structure:*

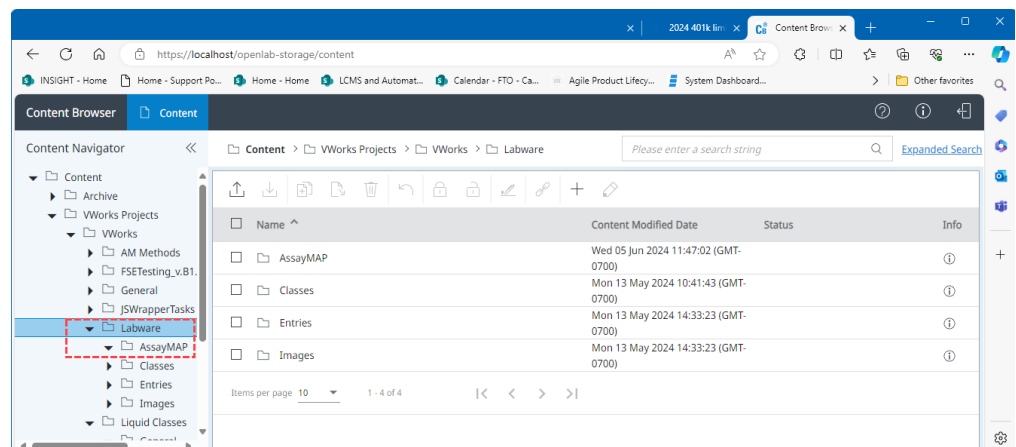
- 1 In the Content Browser navigation pane, click **Content > VWorks Projects > VWorks** to display the project structure.
- 2 Select the folder to which you want to add a subfolder. For example, in the following figure the Protocols folder is selected.



- 3 In the ribbon, click the plus ( **+** ) sign. The Create window opens.



- 4 Type the name of the subfolder in the **Create** field and then click **Create**. The new folder appears in navigation pane, as the following figure shows.

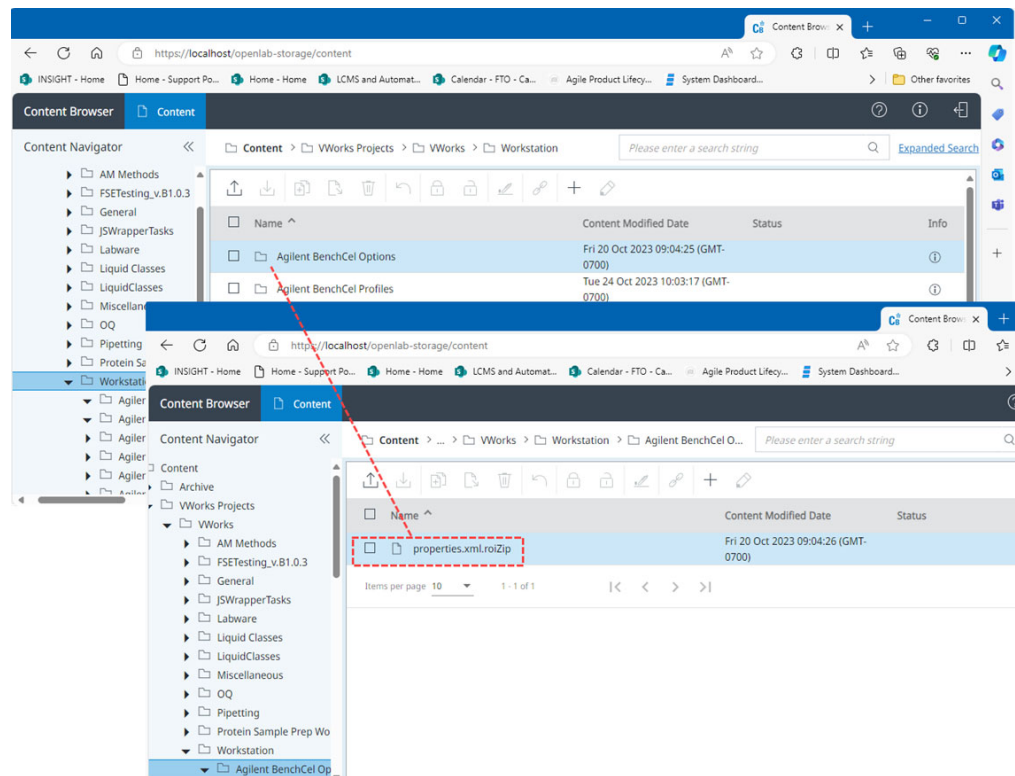


## Restoring a previous version of a record

Each time you save a change to a record of interest in the VWorks software, a new version is uploaded in Secure Storage. If a record becomes corrupted or is tampered outside of the VWorks software, an administrator may use the following procedure to restore a previous version of the record.


**To restore a previous version of a record of interest:**

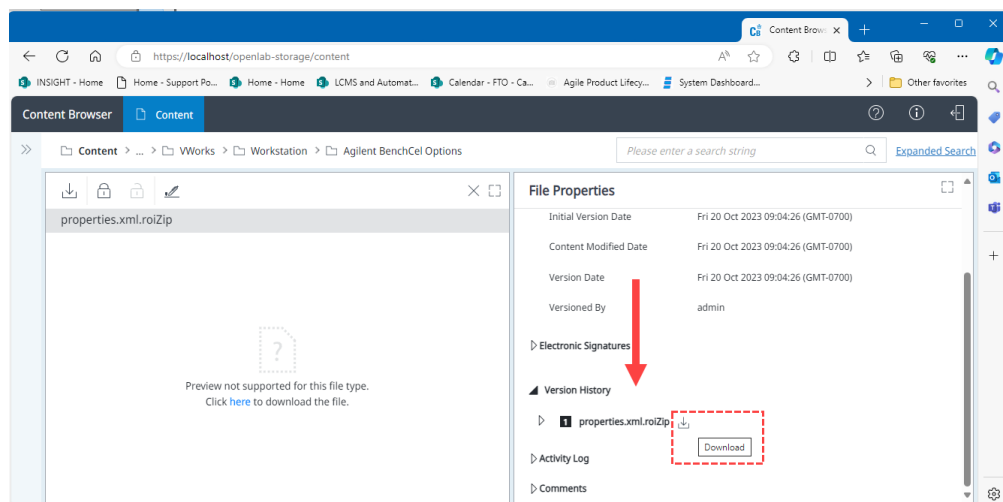
- 1 In the Content Browser navigation pane, click **Content > VWorks Projects > VWorks** to display the project folders. Locate the folder that contains the record of interest.
- 2 Locate the record and click the record link (.roiZip) to display the file details. In the following figure the properties.xml.roiZip record is selected.



## 4 Using Content Browser

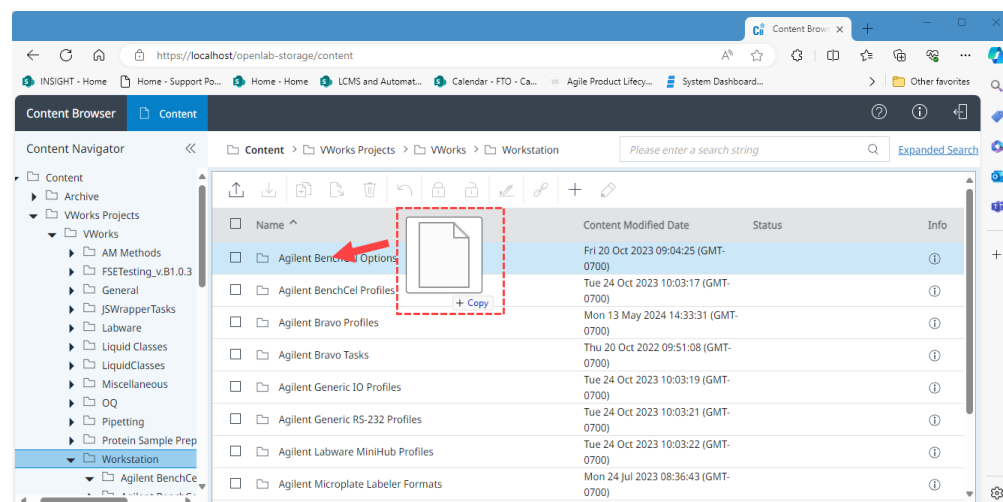
### Viewing the Content Browser Activity Log

- 3 Scroll down to **Version History**, locate the version to be restored, and then click the download (  ) icon.



- 4 To upload the downloaded version of the record and use it as the current version, drag-and-drop the downloaded record in the corresponding project folder in the Content Browser.

The figure shows the downloaded properties.xml.roiZip file being dropped in the Agilent BenchCel Options folder.



A confirmation message appears when the upload is complete. The software increments the version number of the record. For example, if version 7.0 is tampered, and you restore version 6.0, the uploaded record becomes version 8.0.

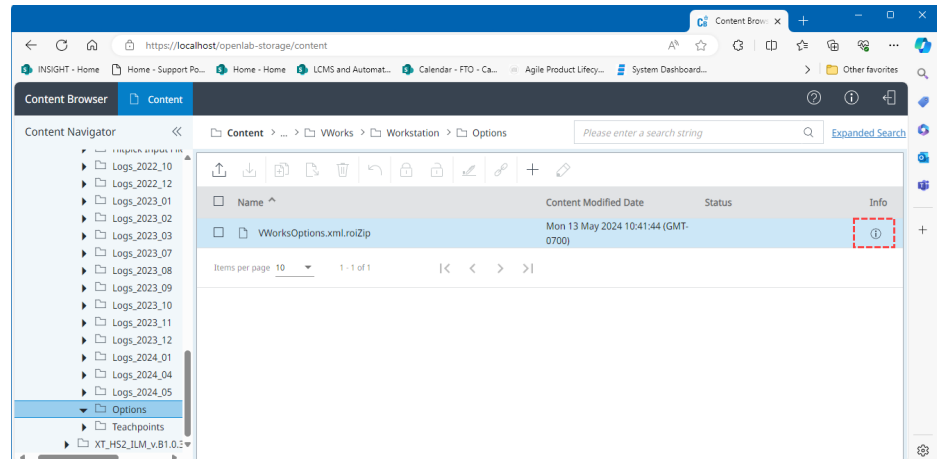
## Viewing the Content Browser Activity Log

You can use the Activity Log in the Content Browser to display an overview of activities that took place during Content Browser sessions.

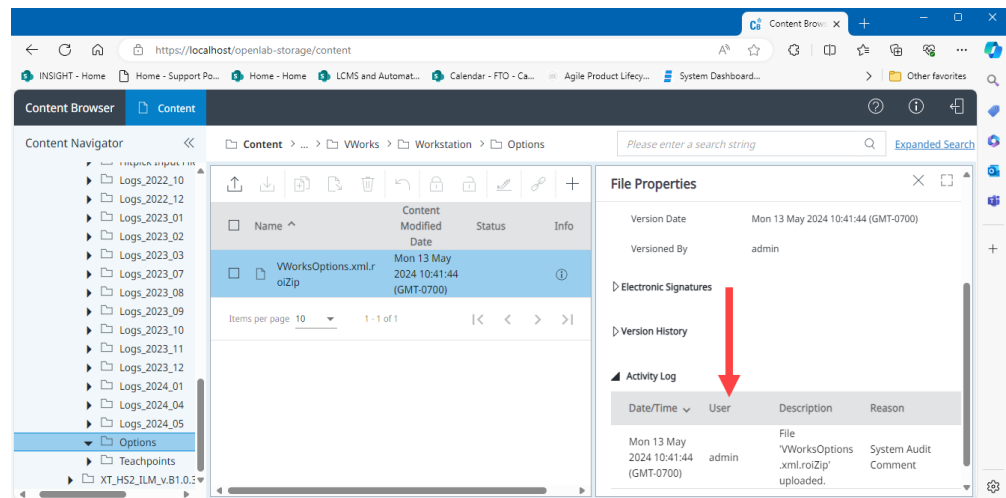
See the [VWorks Automation Control Setup Guide](#) for instructions on how to display an audit trail report for a record. For details on how to view the activity logs for sessions in the VWorks software, see the [VWorks Automation Control User Guide](#).

#### To view the Activity Log for a record in Content Browser:

- 1 In the Content Browser navigation pane, select the file of interest and click **Info** ( ⓘ ).



- 2 Scroll down the **File Properties** area, click expand ( ▸ ) next to the **Activity Log** section to display the activity log table for the file.



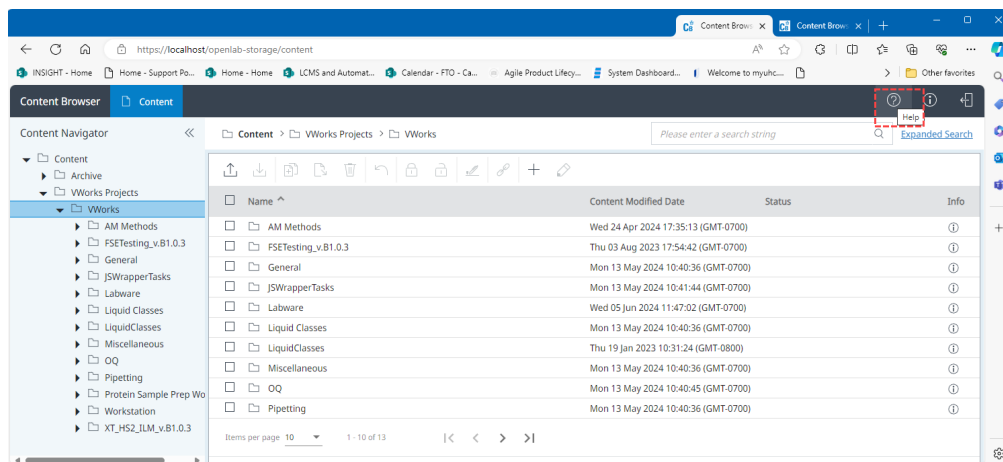
## Using Content Browser Help system

Note: Not all Content Browser features are available for VWorks users, such as the Sign File feature.

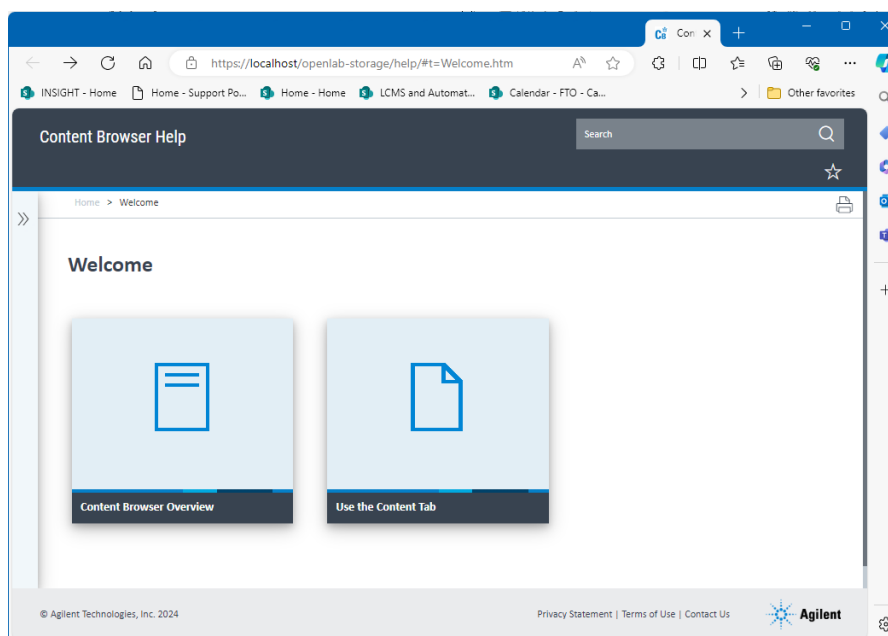
You can use the Help system available from the Content Browser ribbon to view procedures for additional features that are available to a VWorks administrator.

**To use the Content Browser Help system:**

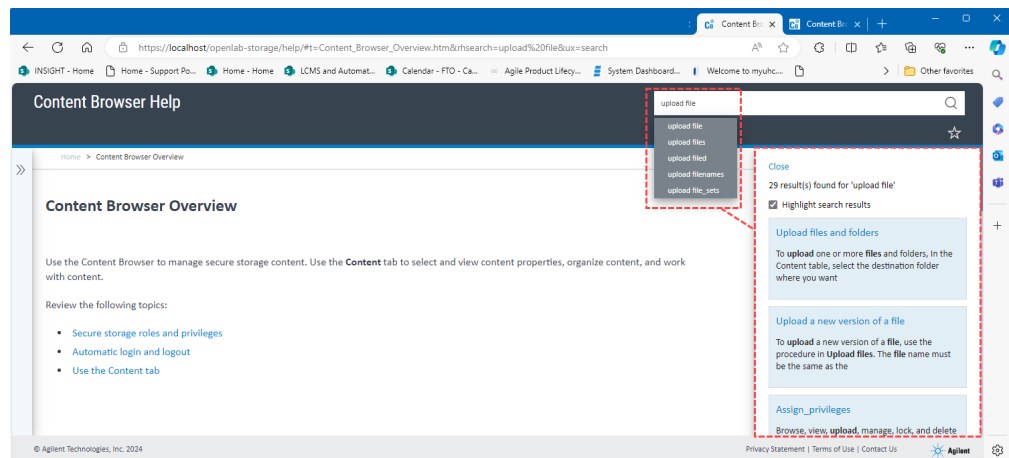
- 1 In the Content Browser ribbon, click **Help** (?).



- 2 In the **Content Browser Help** window, click a tile to display the corresponding help content.



- 3 To display help for a topic not listed on this page, type the topic name in the search box in the top right corner of this help page.
- A list of potential matches is displayed, as the following figure shows.



This page is intentionally blank.



## 5 System maintenance

This chapter includes the following topics:

- [“Control Panel activity log and administrative reports” on page 56](#)
- [“Shared Services Maintenance utility” on page 58](#)
- [“Backup and restore procedures” on page 59](#)
- [“Performing a backup” on page 60](#)
- [“Restoring from a backup” on page 66](#)
- [“Restoring a system with the same hostname as the one backed up” on page 66](#)
- [“Restoring a system with a different hostname as the one backed up” on page 67](#)
- [“Routine maintenance” on page 77](#)

## Control Panel activity log and administrative reports

This section describes the System Activity Log and Administrative Reports pages in the Control Panel.

For a description of the License page, see [“Licensing the software” on page 7](#). For a description of the authentication provider, security policy, and user management, see [“Configuring the software” on page 13](#).

### System Activity Log

*Note:* For information on activity logs in the VWorks software, see the [VWorks Automation Control User Guide](#).

The System Activity Log contains information on the various events associated with Shared Services. You can filter the list in order to view only events of a specific type, in a specific time range, created by a specific user, or containing a specific description.

The following types of events are recorded:

- System
- Instrument
- Project Management
- User
- Group
- Security
- License

The messages can come from other components, such as the user management, system messages, or event messages. The System Activity Log records these events irrespective of whether you have been alerted to them or not. To get more information on an event, expand the line of interest in the activity logbook viewer.

#### To display the System Activity Log:

In the Control Panel navigation pane, click **Administration > System Activity Log**.

The screenshot shows the 'System Activity Log - Control Panel' window. On the left is a 'MANAGEMENT' sidebar with icons for Export, Print, Copy to Clipboard, and Refresh. Below these are navigation links: Administration, My Settings, Local Configuration, System Configuration, Security Policy, Users, Groups, Roles, System Activity Log (selected), Licenses, Instrument Controllers, Diagnostics, and Content Management. The main area is titled 'System Activity Log' and contains a table with the following data:

Date/Time	User	Description
2021-08-09 17:22:35-07:00	My Name (admin)	User "admin" unlocked the UI session.
2021-08-09 17:20:46-07:00	My Name (admin)	Control Panel was locked due to inactivity timeout. User "admin" is logged in.
2021-08-09 17:02:06-07:00	My Name (admin)	User "admin" unlocked the UI session.
2021-08-09 16:59:48-07:00	My Name (admin)	Control Panel was locked due to inactivity timeout. User "admin" is logged in.
2021-08-09 16:42:43-07:00	My Name (admin)	User "admin" unlocked the UI session.
2021-08-09 16:36:56-07:00	My Name (admin)	Control Panel was locked due to inactivity timeout. User "admin" is logged in.
2021-08-09 16:26:11-07:00	My Name (admin)	User "admin" unlocked the UI session.
2021-08-09 15:18:55-07:00	My Name (admin)	Control Panel was locked due to inactivity timeout. User "admin" is logged in.
2021-08-09 15:08:15-07:00	My Name (admin)	User "admin" unlocked the UI session.
2021-08-09 15:01:28-07:00	My Name (admin)	Control Panel was locked due to inactivity timeout. User "admin" is logged in.
2021-08-09 14:49:26-07:00	My Name (admin)	User "opera" was changed

At the bottom of the table, there are navigation controls (back, forward, first, last, etc.) and a page indicator '1 - 50 of 102'. The status bar at the bottom left says 'Current user: My Name'.

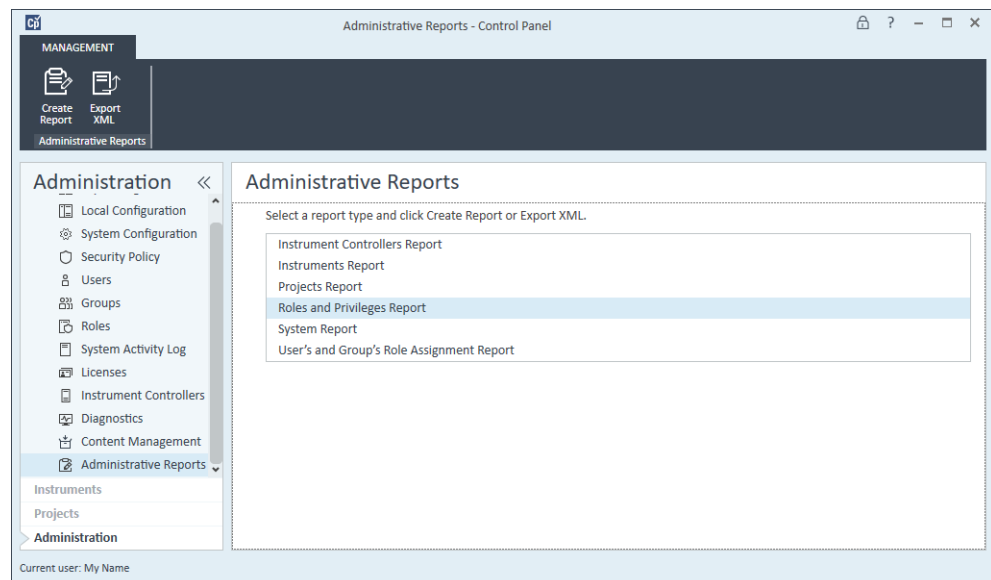
## Administrative Reports view

In the Administrative Reports view, you can additionally create and export various XML or PDF reports related to the system configuration, including:

- **Instruments Report.** Provides detailed information about configuration and access privileges for all online instruments on the system. Typically, one online instrument is configured for VWorks Plus.
- **Projects Report.** Provides detailed information about configuration and access privileges for all projects on the system.
- **Roles and Privileges Report.** Describes all roles defined on the system, including details of all privileges included in each role.
- **System Report.** Provides a consolidated view of the system, which includes all information about instrument controllers, instruments, projects, roles, users, and groups.
- **User's and Group's Role Assignment Report.** Provides an overview of all users and groups with their assigned roles.

### *To display the Administrative Reports view:*

In the Control Panel navigation pane, click **Administration > Administrative Reports**.



## Shared Services Maintenance utility

The Shared Services Maintenance utility is automatically installed with VWorks Plus to help administrators manage the system.

***To open the utility:***

Select **Start > All Apps > Agilent Technologies > Shared Services Maintenance**.

A user must have Windows administrator rights to access this utility.

### Backup and Restore tab

This tab does not apply to VWorks Plus.

### Windows Domain tab

In the Shared Services Maintenance utility, the Windows Domain tab is relevant if you use Windows domain authentication to identify your VWorks Plus users.

VWorks Plus must be given access to the server where these credentials are stored. In the Windows Domain tab, you specify or change the credentials that VWorks Plus will use to access your Windows domain server.

For client/server systems: This feature can only access credentials that are stored on the computer where you launched the Shared Services Maintenance program. To specify or change the Domain, User name, or Password for the Windows account that will be used to access your Windows domain server, use the Shared Services Maintenance utility that is installed on the server.

### Server Settings tab

The Server Settings tab can be used to manage different server connections. VWorks Plus typically has only the connection to the local computer.

## Backup and restore procedures

The VWorks Plus installation includes Backup and Restore utilities for you to use. Agilent recommends using the Backup and Restore utilities whenever possible. These backups are the only way to restore a VWorks Plus if a hardware or software failure occurs.

Agilent also recommends that you test the restore procedures to ensure that the backups are performed properly, and can be used for a restore. To do an effective restore, ensure that you have a disaster recovery plan.

The backup only reduces the amount of data loss if a catastrophic system failure occurs. Performing backups guarantees that any data that was committed at the time of the backup can be restored. Data that was queued for upload and not yet committed or was added or updated in the system after the backup was performed will not be recoverable by restoring a backup.

VWorks Plus stores files and indexes on your local file system. The location of this folder is determined when the product is installed. Other data, such as folder information, audit trails, and signatures are stored in a database.

A full backup captures a complete set of data, including database and files. An incremental backup contains changes that have occurred since the last full backup. The incremental backup process is faster than the full backup because only the changed elements are backed up.

If you are upgrading VWorks Plus, perform the following procedures on your computer after the upgrade.

### Disaster recovery planning

Prepare a recovery plan for the unlikely potential of VWorks Plus becoming inoperable due to a hardware or software failure. This plan must include information and procedures for completely restoring the operating system, the software, and the data. Make sure that the disaster recovery plan has been tested and confirmed to be working.

The Disaster Recovery Plan must include the following:

Category	Details
Computer specifications	CPU, memory, and hard disk configuration information
Computer identity	<ul style="list-style-type: none"><li>• Computer name, IP, domain, URI, and so forth</li><li>• Computer administrator information: user name and passwords for logging in to the server</li><li>• If applicable, user names and passwords for the database</li></ul>
Software	OS version and build

Category	Details
Installation parameters	<ul style="list-style-type: none"><li>• Installation folder</li><li>• Installation log file</li><li>• Secure Storage content</li><li>• Shared Services language</li><li>• Shared Services database name</li><li>• Installed licenses</li><li>• Registered applications</li></ul>
3rd party software information	Applications and their revisions and installation paths
Backup and restore	<ul style="list-style-type: none"><li>• <a href="#">“Performing a backup” on page 60</a></li><li>• <a href="#">“Restoring from a backup” on page 66</a></li></ul>

Ensure the following:

- *Regular backups.* Administrators should perform periodic full backups and differential backups between the full backups. These backups are the only way to restore a system in the event of a hardware or software failure.
- *Tested procedures.* Make sure your disaster recovery plan and restore procedures are tested to confirm that the backups are sufficient to restore your system.

## Performing a backup

Use the Backup Utility to perform immediate or scheduled backups for supported topologies. The backup captures a complete set of data, including:

- Configuration files
- Databases for Shared Services and Data Repository
- Storage locations
- Certificate service
- Rabbit MQ service
- Reverse Proxy service
- E-Signatures
- Experiments databases

Agilent recommends that you complete all pending record transitions and experiment ID closures before performing a backup.

In addition to running the Backup utility, you use the VWorks software to create backup copies of the following database:

- Inventory database. You can export the inventory data to create a backup copy.

This databases is not backed up by the Backup utility.

## Space required

The free space required for the backup procedure depends on different factors, including the system configuration, backup location, and database backup size. In the most resource-intensive case, free space should be twice as much space as is stored on-perm (local or network share) or bigger in the most demanding case. This is needed to avoid rewriting a previous successful backup with a backup that finished in the middle for any reason.

## Workflow for performing backups

Step	For this task...	See...
1	If you plan to run incremental backups, you must configure an incremental backup for PostgreSQL. You set this up before using the Agilent OpenLab Backup Utility.	<a href="#">“Configuring an incremental backup for PostgreSQL” on page 61</a>
2	Use the Agilent OpenLab Backup Utility to configure the backup type and schedule, and to perform the backups.	<a href="#">“Using Agilent OpenLab Backup Utility” on page 63</a>
3	<p>If applicable, periodically use the VWorks software to create backup copies of the following databases, which are not included in the backup created by the Backup utility:</p> <ul style="list-style-type: none"> <li>Inventory database. You can export the labware inventory data to create a backup copy.</li> </ul>	<a href="#">VWorks Automation Control Setup Guide</a>

## Configuring an incremental backup for PostgreSQL

Cumulative incremental backup is a process that saves data files and objects that have been modified since the last full backup. It is a data backup technique that only updates modified data rather than the complete data.

PostgreSQL has an incremental backup strategy called *Continuous Archiving*. With Continuous Archiving enabled, PostgreSQL records every change made to the database files in a log. This process is called the Write Ahead Log (WAL). You can combine a file-system-level backup with a backup of the WAL files.

To recover successfully using Continuous Archiving, you need a continuous sequence of archived WAL files that extends back at least as far as the start time of your backup. Before you make your first database backup, set up and test your procedure for archiving WAL files.

To enable Continuous Archiving, you need to edit the relevant postgresql.conf files:

- Set the *wal\_level* configuration parameter to replica or higher (by default it has a replica value)
- Set *archive\_mode* to on, and specify the shell command to use in the *archive\_command* configuration parameter
- Set 0 for the *archive\_timeout* configuration parameter

*Note:* Paths in the following examples are based on a default installation of the VWorks Plus.

### To enable Continuous Archiving:

- 1 In Microsoft Windows, open Services and stop the following service:

- postgresQL 15.6.1.105 (x64)
- 2 Edit the postgresql.conf files under the following folder:
    - For Data Repository:  
C:\ProgramData\Agilent\OpenLab Platform\Data  
Repository\postgresql\15\data\
  - 3 Remove the # in front of the following lines:  
wal\_level = replica  
archive\_mode = on  
archive\_timeout = 0
  - 4 Edit the **archive\_command**:
    - For Secure Storage:  
archive\_command = 'IF exist "C:\\ProgramData\\Agilent\\Backup\\PgWalArchives\\System" (copy "%p" "C:\\ProgramData\\Agilent\\Backup\\PgWalArchives\\System\\%f" ) ELSE (mkdir "C:\\ProgramData\\Agilent\\Backup\\PgWalArchives\\System" && copy "%p" "C:\\ProgramData\\Agilent\\Backup\\PgWalArchives\\System\\%f") '
    - For Data Repository:  
archive\_command = 'IF exist "C:\\ProgramData\\Agilent\\Backup\\PgWalArchives\\DR" (copy "%p" "C:\\ProgramData\\Agilent\\Backup\\PgWalArchives\\DR\\%f" ) ELSE (mkdir "C:\\ProgramData\\Agilent\\Backup\\PgWalArchives\\DR" && copy "%p" "C:\\ProgramData\\Agilent\\Backup\\PgWalArchives\\DR\\%f") '

%p is replaced by the path name of the file to archive, while %f is replaced by only the file name. The path name is relative to the current working directory. Use %% if you need to embed an actual % character in the command.
  - 5 Save the postgresql.conf files.
  - 6 In Microsoft Windows, open Services and start the following service:
    - postgresQL 15.6.1.105 (x64)



## Using Agilent OpenLab Backup Utility

### Prerequisites

System administrator privileges are required to run and execute the Backup utility.

### CAUTION

Anti-virus scanning during backup can prevent successful completion of the backup. Make sure that the backup location is excluded for both regular/scheduled scans and real-time protection. If the backup location cannot be excluded from real-time protection and real-time protection cannot be turned off, it is possible the final backup tasks might not finish successfully.

If you have an anti-virus running during backup, you can verify that the backup finished successfully with these steps:

- After the backup completes, check that the backup location contains only "Current" (or "Current" and "Incremental") subfolders.
- Check that the log file corresponding to the backup time contains an entry stating "The backup has completed" at the end. Backup logs are placed in the "C:\ProgramData\Agilent\LogFiles\Backup" folder.

### To use the Backup utility:

- 1 In Windows, go to **Start > Agilent Technologies > Backup Utility**. If a request for User Account Control access appears, click **Yes**.  
The Agilent OpenLab Backup Utility opens and the Status page displays the date and time of the latest successful backup.  
If a backup is scheduled, the page displays the current backup status and the next backup start date and time.  
If a backup is currently running, the status shows Running. If a scheduled backup has failed, the status shows Failed.  
The Last successful backup shows the date/time when the latest successful backup was taken, and its location. The link points to the backup location. It will contain information right after the first successful backup.
- 2 On the **Backup option** page, select one of the following options:
  - **Set backup schedule**  
Use this option as part of an automatic backup procedure. Agilent recommends scheduling automatic backups.
  - **Backup now**  
This option starts the backup immediately. It has no impact on a scheduled backup.  
*Note:* This option can be helpful for checking the correctness of the backup settings, how much disk space and how much time a single backup requires. In addition, this option can be a part of the testing of the whole recovery procedure.
- 3 On the **Configure** page, configure the settings for the selected backup option.

Backup option	Setting	Description
Set backup schedule	Enable the backup schedule	To disable automatic backups during maintenance periods, clear the Enable backup schedule check box.  Clearing the Enable backup schedule check box turns the scheduled backup off. Be sure to enable the scheduled backups again when maintenance is completed.
	Provide the backup type	Select one of the following: <ul style="list-style-type: none"><li>Hot backup. System remains operational during backup.</li><li>Cold backup. Requires stopping all OpenLab and VWorks operations. The Backup utility does this automatically.</li></ul>
	Set backup schedule on	Specify the date for when the backup schedule will start. The schedule time uses a 24-hour format.
	Full backup	Set the time of day and days of the week to perform scheduled backups.
	Incremental Backup	Enables incremental backups. Enter the time and days for incremental backups.  When full and incremental backups are scheduled on the same day, the full backup will be performed. Incremental backups require that at least one full backup is performed first.  In order to use Incremental Backup, PostgreSQL must be configured. See <a href="#">“Configuring an incremental backup for PostgreSQL” on page 61</a> .
Backup now	Provide the backup type	Select one of the following: <ul style="list-style-type: none"><li>Hot backup. System remains operational during backup.</li><li>Cold backup. Requires stopping all OpenLab and VWorks operations. The Backup utility does this automatically.</li></ul>

- 4 On the **Backup location** page, provide a path to the local file system. Network drive is not supported.  
  
The backup can be configured to a folder without permissions for the current Windows user. The backup executes from the System user, which allows archive of a successful backup. In this case of scheduled backup, the backup will be executed, but the current Windows user will not be able to view the results without the appropriate privileges.
- 5 If you scheduled a backup: On the **Notifications** page, enable and set up backup notifications.  
  
Use a *From* address that is configured in the Control Panel. For information on how to set up email addresses, see the Control Panel online help.  
  
Use a comma to separate multiple To addresses. Each address can be represented in long-form (name and email) or in short-form (only email).  
  
Under **Subject starts with**, specify a prefix in the notification e-mail subject.  
  
Use **Send test message** to ensure that the notification settings are correct.
- 6 On the **Review** page: Review your settings, and click **Apply** to start the backup or save the backup schedule.  
  
Progress is tracked on the Processing page.
- 7 When backup is complete, click **Done**.

Backup folders are created in the location specified when you run the Backup utility. In the event of a failed backup, the partial backup is saved in a Temp folder in your backup location.

## Backup verification

The backup verification step verifies the backed-up data after the completion of the backup procedure. This step generates two reports. Both reports are located in the Verification subfolder.

- The VerificationReport.xml file contains the technical information about the backed-up entities such as files, their hashes, database entities, and so on. In case of restoration, this report will be used for comparison of the files and database entities.
- The VerificationReport.html report contains information about the backup, number of verified files, information about failed file verification, and database entity verification results in a human-readable view.

The verification step checks that main entities (files, database entities) are backed up properly. The number of files for verification is specified in the configuration file after backup configuration (10% by default). Files will be verified and included in the report after the backup procedure. In case of restoration, all entities which have been included in the report will be verified. Any entity (or its version) modified after the backup start time will not be included in the reports and will not be verified during the restoration procedure.

## Verification Logic

For the verification, the following logic is used:

- 1 The Backup utility counts all files in Secure Storage and randomly takes 10% of the amount of the files. The taken percent of the files for the verification is always rounded up, for example, for 3 files 10% is 0.3, and this value rounded to 1. It is useful for a small number of files in Secure Storage, the tool guarantees that at least 1 file will be verified.
- 2 The utility takes a random version of the file for each of the chosen files. For example, if a file in Secure Storage has three revisions (1.0, 2.0, and 3.0), the utility will randomly take one of them.
- 3 The Verify procedure compares the checksum and size of backed up files with file information from Secure Storage. If the checksums are equal, the verification is passed. Otherwise, the verification is failed.

By default, the percentage of the verified files is set to 10. The percentage of files verified can be modified by changing the PercentFilesVerification property in the Backup section of the configuration.xml file, located in the %ProgramData%\Agilent\Installation folder. Only a user with System Administrator privileges can update this file. Acceptable values are from 1 to 100. Negative, fractional, and values above 100 are not accepted.

A new value will be applied during a backup; for **Backup now** at the Processing Page before the first step, for **Backup by schedule** when a backup is started.

## Troubleshooting

The Backup utility collects logs in the %ProgramData%\Agilent\LogFiles\Backup folder. During the backup procedure, all steps are checked, and the procedure will stop on the first failed step. A link with the failed step opens the current backup log file to help identify the issue. In case of a failed backup, the partial backup is stored in a Temp folder in the backup location.

## Restoring from a backup

Use the Agilent OpenLab Restore Utility to restore VWorks Plus from an existing backup if it becomes inoperable due to a hardware or software failure.

The Restore utility can restore a system from cold and hot backups created using the Agilent OpenLab Backup Utility. The restore procedure will restore only committed data captured by the successful backup procedure. Any data that was created or updated after the backup was performed are not recovered by restoring a backup.

Use one of the following procedures to perform a backup, depending on what type of system is being restored.

- [“Restoring a system with the same hostname as the one backed up” on page 66](#)
- [“Restoring a system with a different hostname as the one backed up” on page 67](#)

## Restoring a system with the same hostname as the one backed up

### Prerequisites


- You must have System Administrator privileges to run the Restore utility.
- To successfully access the backup folder, the utility must be launched by a user with reading rights in this folder.
- Ensure that VWorks Plus is not operational during the restore process.

### Procedure

#### *To run the Restore utility on a system with the same hostname:*

- 1 Make sure that any instruments or other parts of the system are not using the system during the restore process.
- 2 In Windows, go to **Start > Agilent Technologies > Restore Utility**. If a request for User Account Control access appears, click **Yes**.  
The Agilent OpenLab Restore Utility opens to the Backup Location page.
- 3 In the **Backup Location** page:
  - a Select **File system** as the **Backup Location**.

*Note:* AWS S3 backup location is not supported for VWorks Plus.

- b Click the  button for **Backup folder**, and select the folder where the backup is stored.
- c Select **Restore only** for normal recovery or select **Restore and Verify**. Click **Next**.
- 4 On the **Review** page, review the settings and click **Apply**.  
The restore procedure progress is tracked on the Processing page.
- 5 When the restore procedure is complete, click **Done**.  
If you selected Restore and Verify you will see all normal steps plus the verification step. You can open a report by clicking Done.

### Verification

When restoring to an existing VWorks Plus installation, you can verify the restoration was performed correctly. Verification reports are saved at C:\ProgramData\Agilent\Restore\Verification.

The Restore Utility collects logs in the %ProgramData%\Agilent\LogFiles\Restore folder.

## Restoring a system with a different hostname as the one backed up

### Prerequisites

- You must have System Administrator privileges to run the Restore utility.
- You must have reading rights to the backup folder to access it successfully.
- Ensure that neither OpenLab 2.8 or VWorks 14.4 is installed on the system.

### Workflow

**Table** Workflow for restoring a system with a different hostname

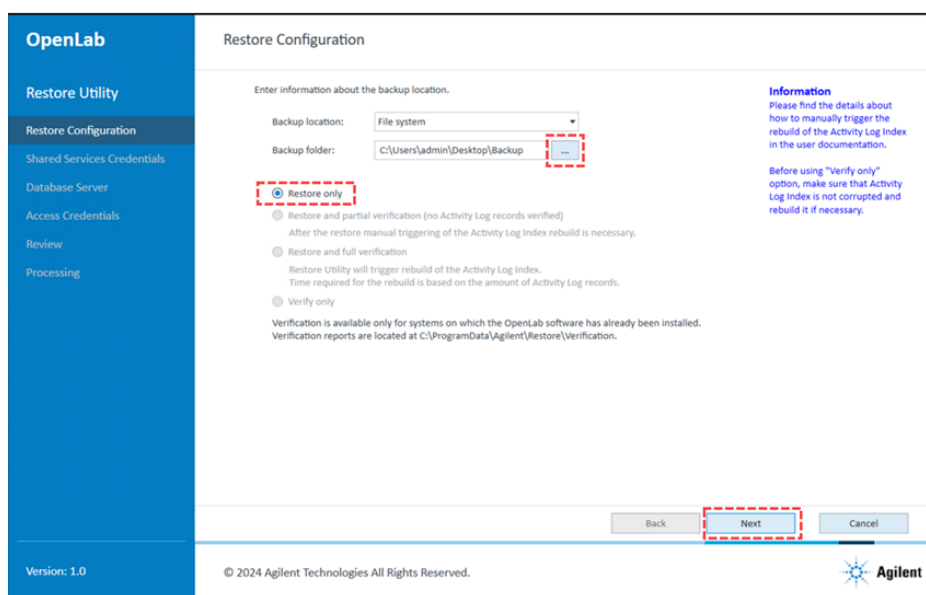
Step	For this task...	See...
1	Run the Restore utility.	"Running the Restore utility" on page 68
2	Install OpenLab for VWorks.	<i>VWorks Automation Control 14.4 Installation Guide</i>
3	Index the Activity Log.	"Indexing the Activity Log" on page 70
4	Verify the data restoration.	"Verifying the data restoration" on page 70
5	Configure the secure storage server.	"Configuring the secure storage server" on page 72
6	Install the VWorks 14.4 software.	<i>VWorks Automation Control 14.4 Installation Guide</i>

Step	For this task...	See...
7	Configure the Instruments and Instrument Controllers.	"Configuring the Instruments and Instrument Controllers" on page 74
8	Configure authentication, security policy, users, groups etc.	"Configuring the software" on page 13

## Running the Restore utility

**To run the Restore utility on a system with a different hostname:**

- 1 Transfer the **OpenLab for VWorks\_2.8.0.1515.zip** files from the USB drive to the **C:\Temp** folder on the computer, and then safely eject the USB drive.
- 2 Unzip the OpenLab for VWorks 2.8.0.1515 folder and extract its contents to the **C:\Temp\OpenLab** directory.
- 3 Navigate to **C:\Temp\OpenLab\Agilent OpenLab for VWorks\_2.8.0.1515\OLSS\Setup\Tools\RestoreTool**.
- 4 Open the RestoreUtility software in this directory and confirm by selecting **Yes** on the User Access Control dialog.
- 5 In the **Restore Configuration** dialog box, click the browse button and navigate to the location of the backup folder.
- 6 Ensure that **Restore only** is selected and then click **Next**.



- 7 On the Database Server dialog, leave the default entries and click Next.

## Restoring a system with a different hostname as the one backed up

**OpenLab**

**Restore Utility**

Restore Configuration

Shared Services Credentials

**Database Server**

Access Credentials

Review

Processing

**Database Server**

Please provide PostgreSQL Server connection settings.

Server Name: localhost

Port: 5432

Please provide database administrator credentials.

Super User: postgres

Password: \*\*\*\*\*

Validate

Back Next Cancel

Version: 1.0

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- 8 Click **Yes** to the warning regarding the PostgreSQL server is displayed.

**Warning**

PostgreSQL server at given host and port is not available. Would you like to continue?

Yes No

- 9 Click Apply in the Review dialog box. The restore process will begin.

**OpenLab**

**Restore Utility**

Restore Configuration

Shared Services Credentials

Database Server

Access Credentials

**Review**

Processing

**Review**

OpenLab Content Management server restore summary

**Restore settings**

Backup location type: File System

Backup location: C:\Users\admin\Desktop\Backup

Launch option: Restore only

**Content Management Service**

Service Account: LocalSystem

**Database Summary**

Database type: PostgreSQL

Database server name: localhost

Database server port: 5432

Database superuser: postgres

Back Apply Cancel

Version: 1.0

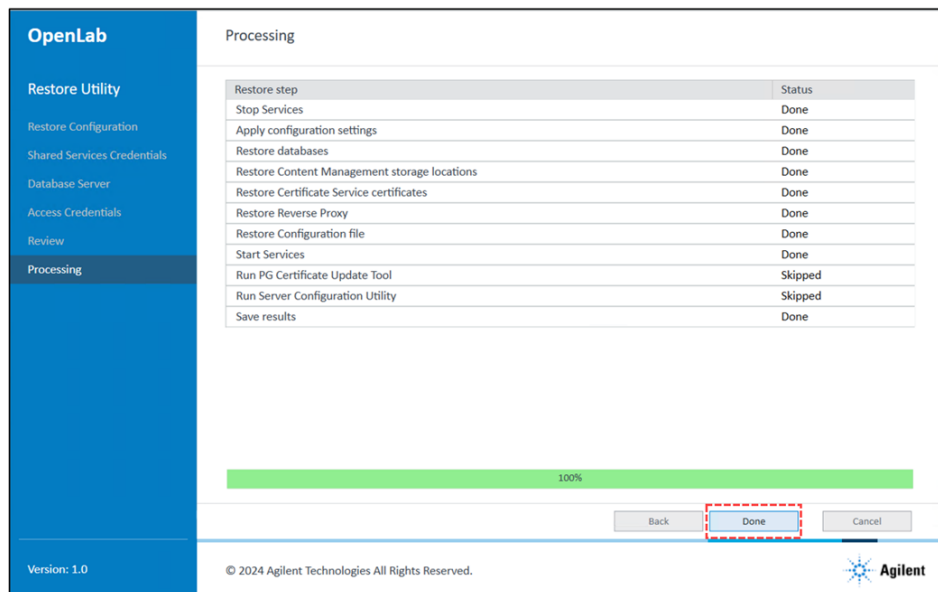
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## 5 System maintenance

Restoring a system with a different hostname as the one backed up

10 When the process completes, click **Done**.



## Installing Agilent OpenLab for VWorks\_2.8.0.1515.

See the [VWorks Automation Control 14.4 Installation Guide](#) for a procedure.

## Indexing the Activity Log

### To index the Activity Log:

- 1 Open the Command Prompt application as an Administrator and execute the following commands:
  - `cd C:\Program Files (x86)\Agilent Technologies\OpenLab\Services\Activity Log Service`
  - `Agilent.OpenLab.ActivityLog.Tools.Albit.exe rebuild-index --force`

```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.22621.1555]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\System32>cd C:\Program Files (x86)\Agilent Technologies\OpenLab\Services\Activity Log Service

C:\Program Files (x86)\Agilent Technologies\OpenLab\Services\Activity Log Service>Agilent.OpenLab.ActivityLog.Tools.Albit.exe rebuild-index --force
2024-07-08 15:49:45.963 +05:30 [INF] Checking if index exists.
2024-07-08 15:49:46.258 +05:30 [INF] Index exists, deleting now (attempt 1).
2024-07-08 15:49:46.476 +05:30 [INF] Index deleted.
2024-07-08 15:49:49.367 +05:30 [INF] Starting bulk indexing of ActivityLog entries...
2024-07-08 15:49:49.371 +05:30 [INF] Bulk indexing of ActivityLog entries is in progress...
2024-07-08 15:50:19.596 +05:30 [INF] Bulk indexing of ActivityLog entries is in progress...
2024-07-08 15:50:49.728 +05:30 [INF] Bulk indexing of ActivityLog entries is in progress...
2024-07-08 15:50:51.739 +05:30 [INF] Bulk indexing of ActivityLog entries is complete.
2024-07-08 15:50:51.741 +05:30 [INF] Successfully indexed ActivityLog entries into OpenSearch.

C:\Program Files (x86)\Agilent Technologies\OpenLab\Services\Activity Log Service>
```

- 2 Close the Command Prompt application.

## Verifying the data restoration

### To verify the data restoration:

- 1 Open the Restore utility application by selecting **All Apps > Agilent Technologies > Restore Utility**.



- 2 In the **Restore Configuration** dialog box, click the browse button, navigate to the backup folder, select **Verify only**, and then click **Next**.

**OpenLab**

Restore Utility

Restore Configuration

Shared Services Credentials

Database Server

Access Credentials

Review

Processing

Version: 1.0

**Restore Configuration**

Enter information about the backup location.

Backup location: File system

Backup folder: C:\Users\admin\Desktop\Backup

☐ Restore only  
☐ Restore and partial verification (no Activity Log records verified)  
 After the restore manual triggering of the Activity Log Index rebuild is necessary.  
☒ **Verify only**  
 Restore Utility will trigger rebuild of the Activity Log Index.  
 Time required for the rebuild is based on the amount of Activity Log records.  
 Verification is available only for systems on which the OpenLab software has already been installed.  
 Verification reports are located at C:\ProgramData\Agilent\Restore\Verification.

**Information**  
 Please find the details about how to manually trigger the rebuild of the Activity Log Index in the user documentation.  
 Before using "Verify only" option, make sure that Activity Log Index is not corrupted and rebuild it if necessary.

Back Next Cancel

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- 3 In the **Review** dialog, review the restore summary, and then click **Apply**. The Restore utility will begin to verify the data.

**OpenLab**

Restore Utility

Restore Configuration

Shared Services Credentials

Database Server

Access Credentials

Review

Processing

Version: 1.0

**Review**

OpenLab Content Management server restore summary

**Restore settings**  
 Backup location type: File System  
 Backup location: C:\Users\admin\Desktop\Backup  
 Launch option: Verify only

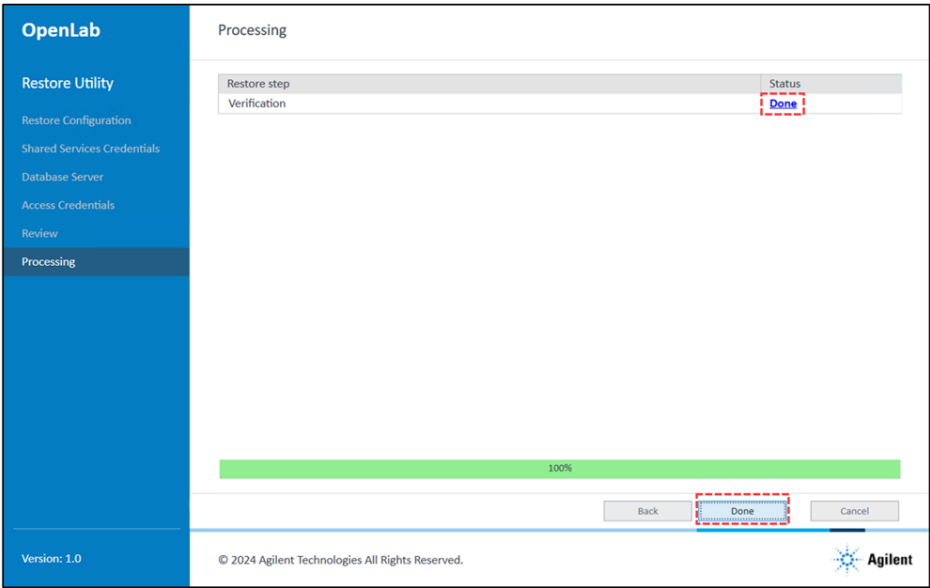
Back Apply Cancel

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- 4 When the verification process is complete, you can obtain the verification report by clicking the **Done** link under the **Status** column.
- 5 Click **Done** at the bottom of the Processing dialog to close the Restore utility.

5 System maintenance

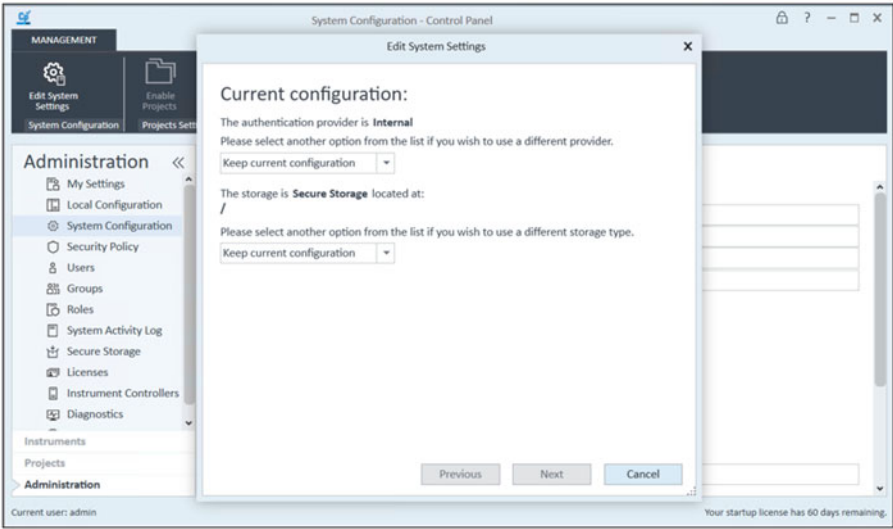
Restoring a system with a different hostname as the one backed up



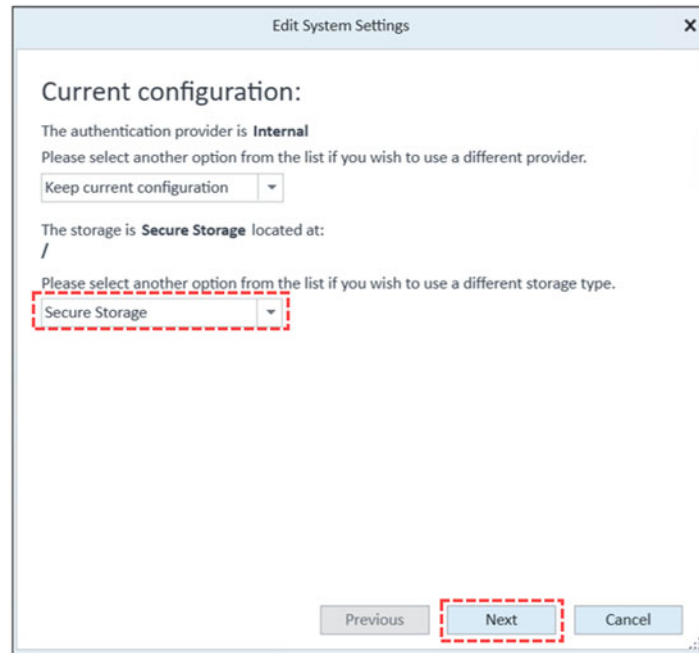
Configuring the secure storage server

To configure the secure storage server:

- 1 Open the Control Panel software and login as an administrator.
- 2 Click the **Administration** tab and then click **System Configuration** to open the **Edit System Settings** dialog.

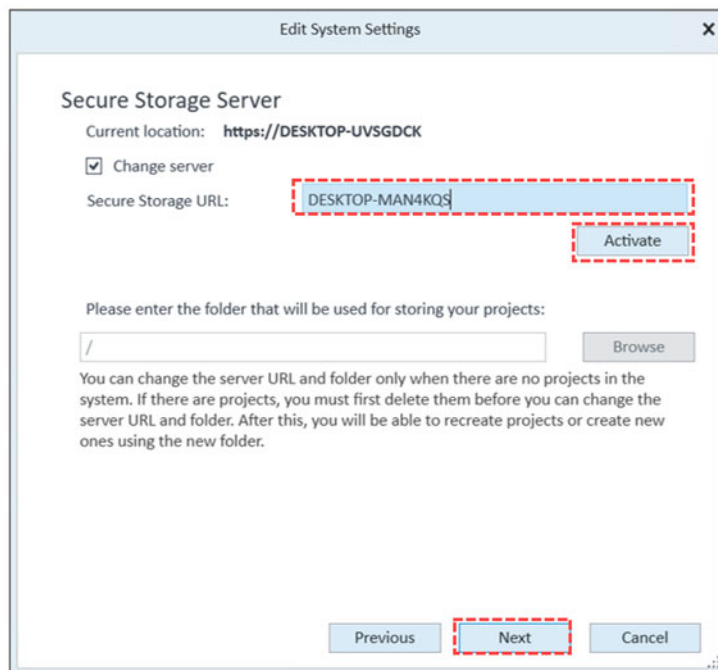


- 3 Select **Secure Storage** as the storage type and then click **Next**.



- 4 In the **Secure Storage Server** dialog, select the **Change server** check box and in the **Secure Storage URL** field, type the hostname of the system you are restoring.

*Note:* To identify the hostname of your system, open the Command Prompt software and execute the command **hostname**.

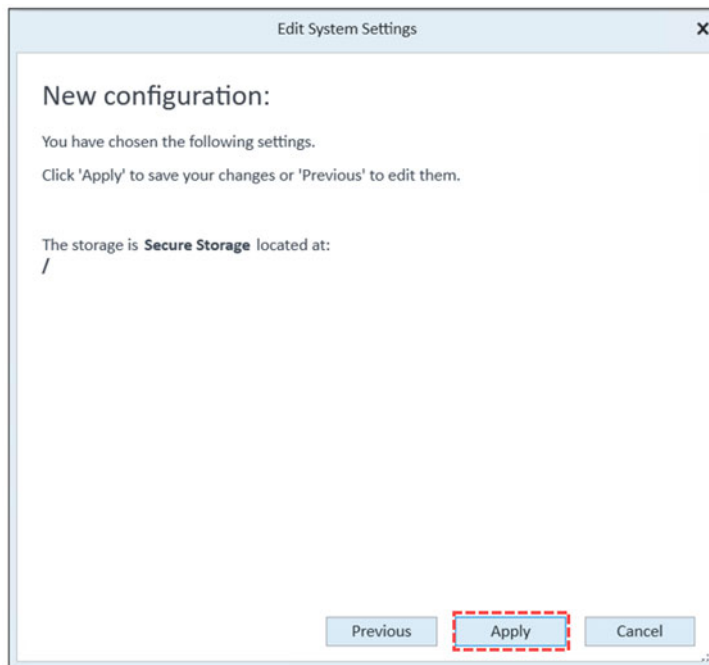


- 5 Click **Activate**.
- 6 Click **Next**. In the **New Configuration** dialog, click **Apply**.

OpenLab Control Panel will automatically reopen with the modified storage configuration. Close the OpenLab Control Panel.

## 5 System maintenance

Restoring a system with a different hostname as the one backed up



### Installing the VWorks 14.4 software

Follow the instructions in the [VWorks Automation Control 14.4 Installation Guide](#) to install the VWorks software.

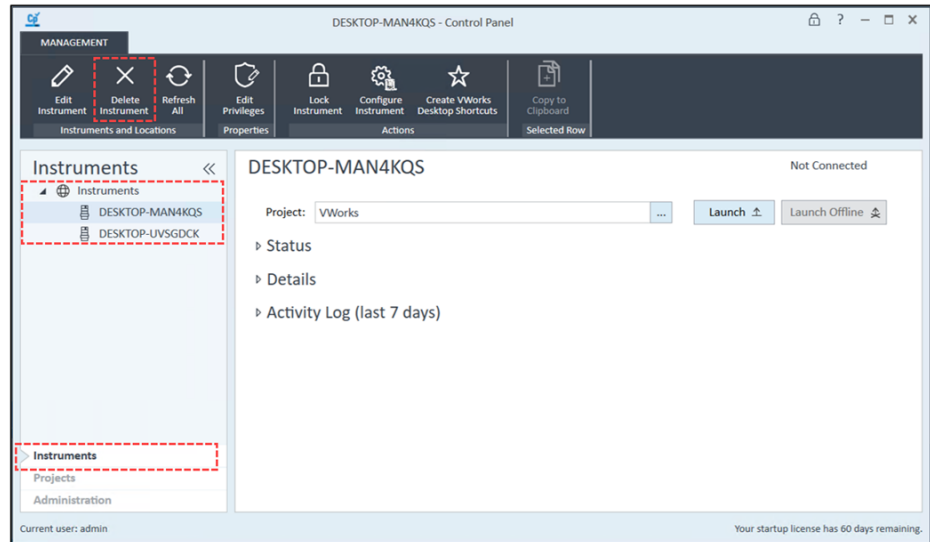
After VWorks 14.4 software installation, proceed to [“Configuring the Instruments and Instrument Controllers” on page 74](#) to delete non-restored Instruments and Instrument Controllers.

### Configuring the Instruments and Instrument Controllers

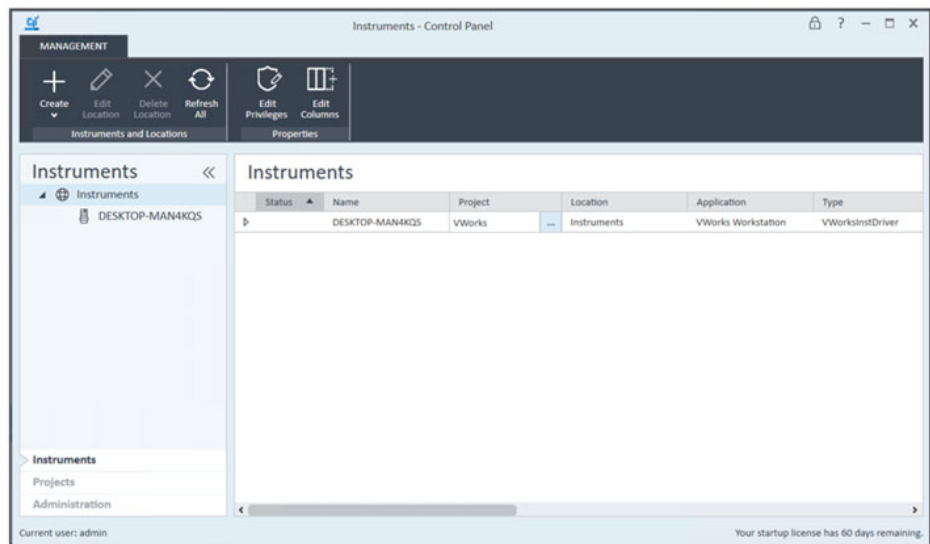
**To configure the Instruments and Instrument Controllers:**

- 1 Open the OpenLab Control Panel software and login as an administrator.
- 2 Click the **Instruments** tab and expand the list of **Instruments**.

## Restoring a system with a different hostname as the one backed up



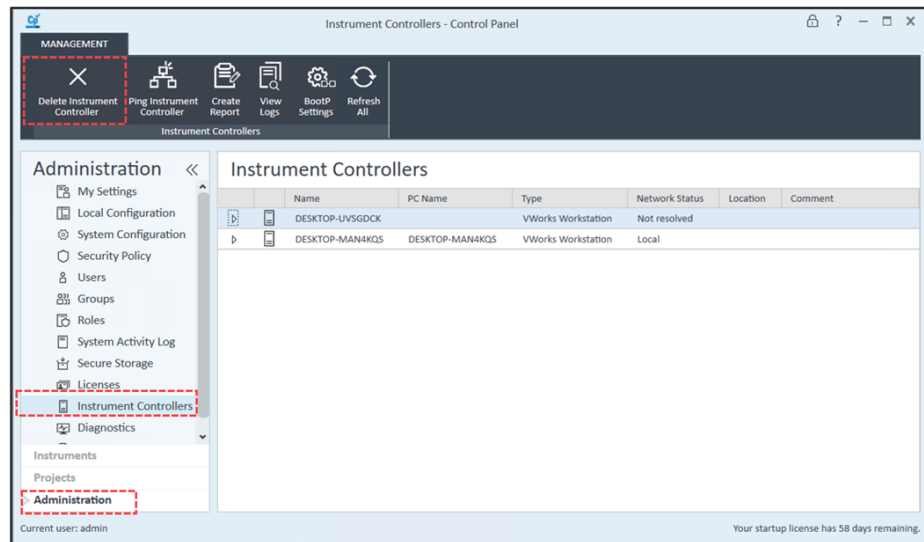
- 3 Delete all instruments except for the one you are restoring:  
 Note: The instrument of interest has the hostname of the restored system.
  - a Select each instrument that is not the restored instrument.
  - b Click **Delete Instrument** in the top-left side of the ribbon.  
 Only the restored instrument should be listed.



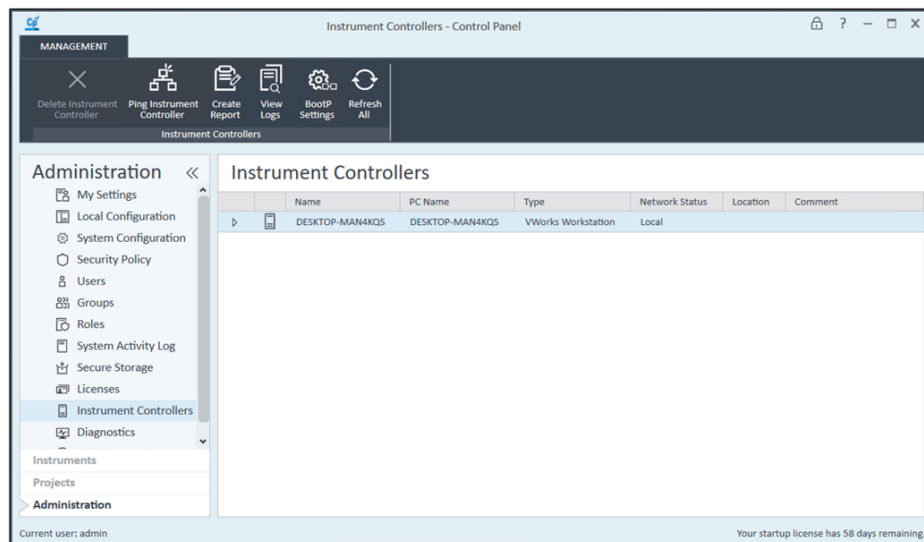
- 4 Click the **Administration** tab in the **Control Panel** window and select **Instrument Controllers**.

## 5 System maintenance

Restoring a system with a different hostname as the one backed up



- 5 Delete all of the instrument controllers except for the one having the hostname of the current system (on which the restore was done). To do this:
  - a Select each instrument controller that is not the restored controller
  - b Click **Delete Instrument Controller** in the top-left corner of the ribbon. Only the restored Instrument Controller should be listed.



- 6 Close the OpenLab Control Panel software.

# Routine maintenance

## About this topic

This topic assumes that you have an understanding of database management.

VWorks Plus uses a PostgreSQL database, which is installed with the software. To maintain the database, you should preform the following procedure on a regular basis. The frequency depends on the usage of the system. As a guideline, you should at least do this every time you perform a full system backup.

## Updating statistics for PostgreSQL database

### Before you start:

- Ensure that your Windows System Environment Variables **Path** settings include the following path in order to run a Python script:

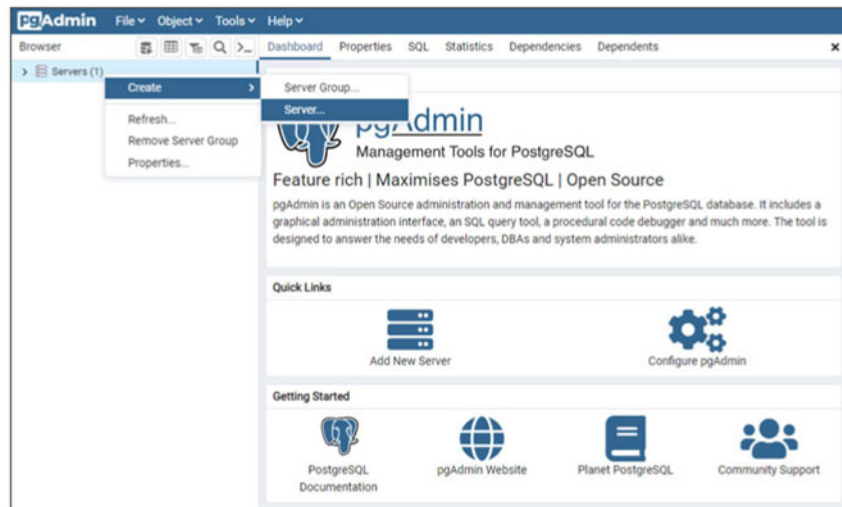
`C:\Program Files (x86)\pgAdmin4\python`

- If this is the first time you are updating or backing up a database, you need to create and configure a server to host the databases. See [“Creating and configuring a server for the PostgreSQL databases” on page 77](#).

### Creating and configuring a server for the PostgreSQL databases

#### *To create and set up the server for the first time:*

- 1 Open pgAdmin software as an administrator (Windows > pgAdmin > Run as Administrator).  
The default username is **postgres** and the password set during installation is **superadmin**.
- 2 In the navigation pane, right-click **Servers** and then select **Create > Server**.



- 3 On the Connection tab, enter/verify the following:
  - a **Host name/address** is *localhost*
  - b **Password** is *superadmin*

- c Port is set to 5432

The screenshot shows the 'Register - Server' dialog box with the 'Connection' tab selected. The fields are as follows: Host name/addresses: localhost; Port: 5432; Maintenance database: postgres; Username: postgres; Kerberos authentication?: unchecked; Password: masked with dots; Save password?: checked; Role: empty; Service: empty. The 'Save' button at the bottom right is highlighted with a red dashed box.

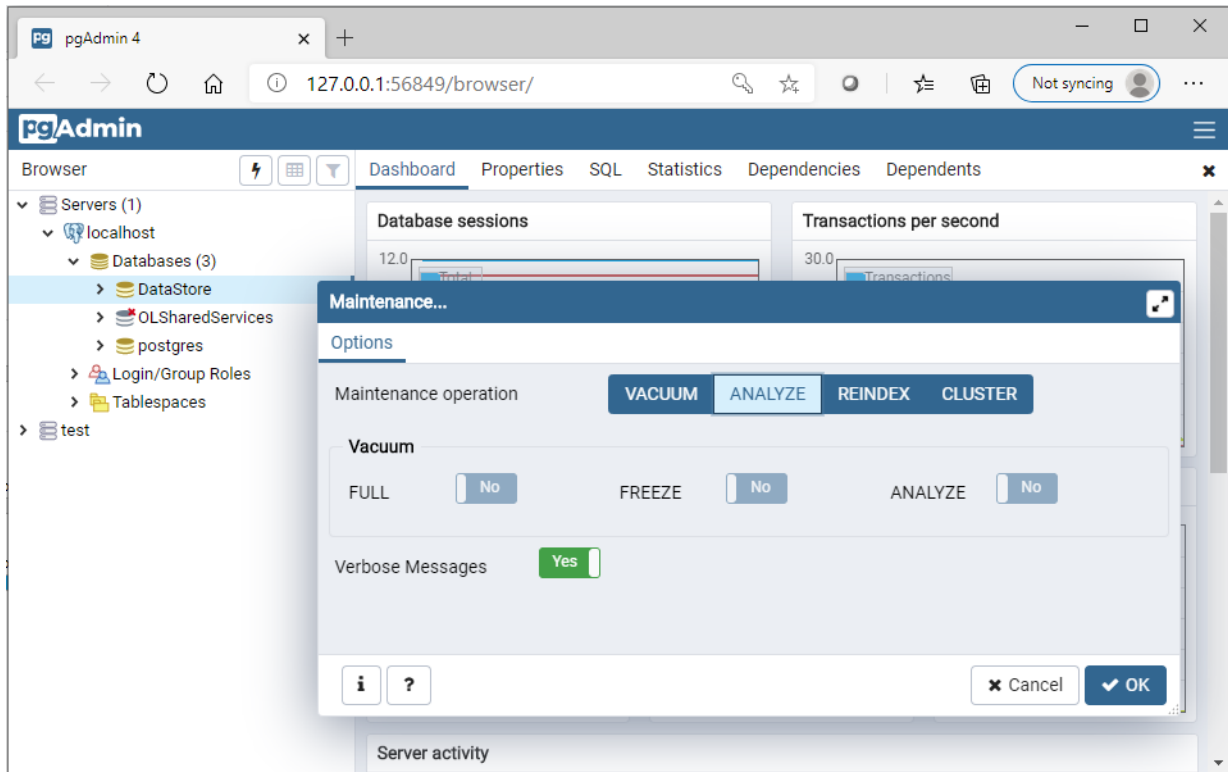
- 4 Click **Save**.

## Updating the PostgreSQL database statistics

### *To update the PostgreSQL database statistics:*

- 1 Start **PostgreSQL pgAdmin** and connect as the database administrator.  
The default database administrator user name is *postgres* and the password set during installation is *superadmin*.
- 2 In the **pgAdmin** page that opens, select the database for which you want to update the statistics.  
*Note:* If this is the first time you are updating the database, you need to create a server. See ["Creating and configuring a server for the PostgreSQL databases" on page 77](#) for a procedure.
- 3 Right-click the database of interest in the server, for example, **DataStore**, and select **Maintenance**.
- 4 In the Maintenance dialog box, click **ANALYZE** and click **OK** to analyze the database. See the following figure.





### Additional maintenance for PostgreSQL database

PostgreSQL supports some additional maintenance commands that can be beneficial to helping keep your database system running smoothly. These include VACUUM and REINDEX. See the PostgreSQL documentation for additional details about these commands.

#### CAUTION

Only apply Agilent-provided service packs or Hotfixes to your Agilent PostgreSQL server.

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## A Optional configuration

This appendix provides procedures that are not required:

- [“About Control Panel projects” on page 82](#)
- [“Optional instrument configuration” on page 84](#)

## About Control Panel projects

By default, the VWorks software is automatically configured to use the project  
/VWorks Project/VWorks

No other projects are required.



The Control Panel enables you to create additional projects using the following procedure. However, the following should be considered:

- The VWorks shortcuts on the desktop and in the Windows start menu are configured for the default VWorks project. If you create another project, see [“About the Create VWorks Desktop Shortcuts feature” on page 84](#).
- Any project edits apply only to the project you are editing. For example, you would configure project privileges, audit comment settings, and signature level settings for each project.

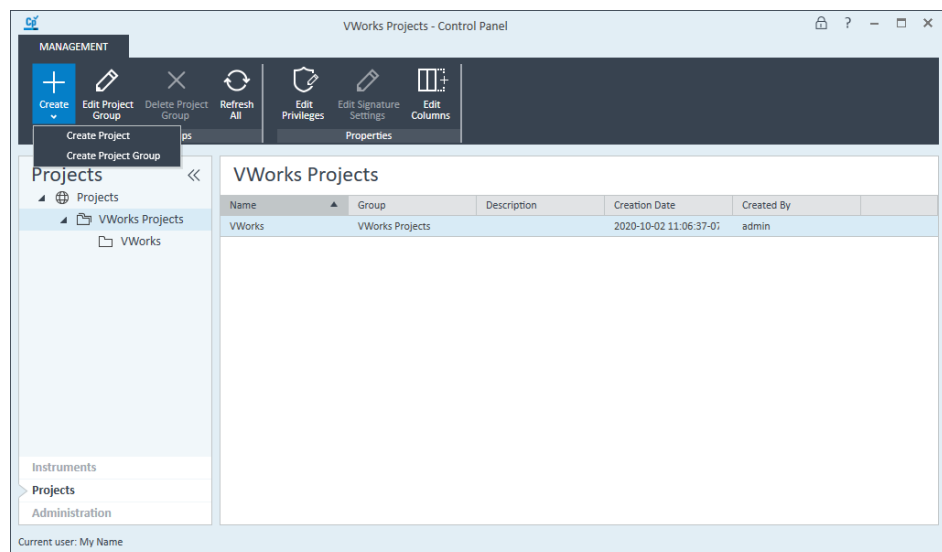
### Creating a project

Optionally, you can create additional projects at the same level as /VWorks Projects or as subfolders under /VWorks Projects.

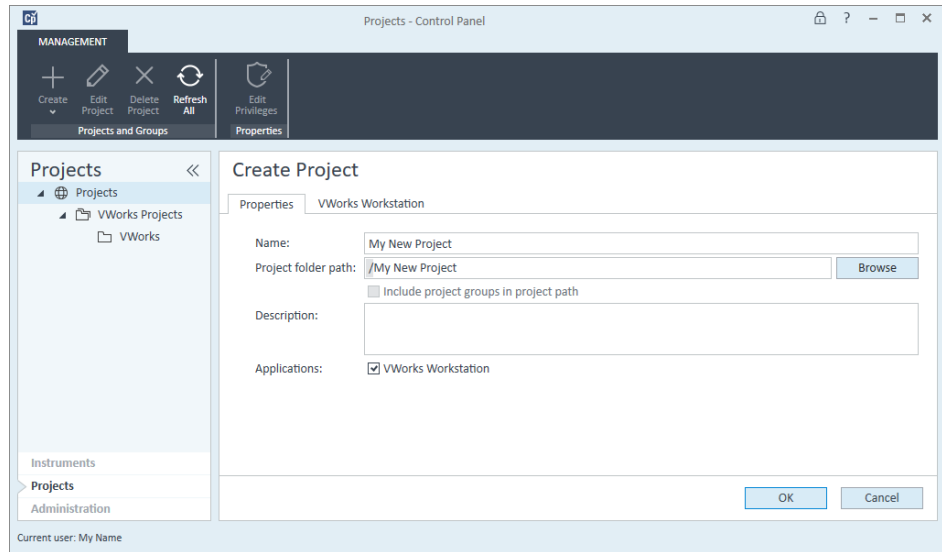
**To create a project:**

- 1 In the Control Panel  navigation pane, click **Projects**.
- 2 In the **Projects** page select one of the following:
  - **Projects**. To create a project at the same level as /VWorks Projects.
  - **VWorks Projects**. To create a project under /VWorks Projects.
- 3 Click **Create**  in the ribbon, and then click **Create Project** or click **Create Project Group**.

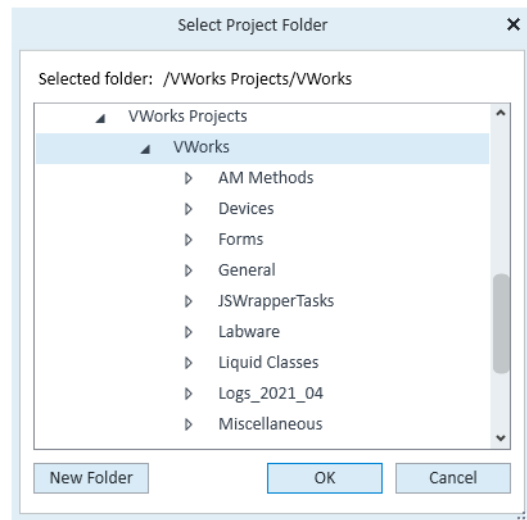
*Note:* A project group is a collection of projects, for example, VWorks Projects is a project group that contains the VWorks project.



- 4 Specify the following project properties, and then click **OK**.  
Note: Use the default settings on the VWorks Workstation tab.



Property	Description
Name	Type the name of the project.
Project folder path	Click <b>Browse</b> to specify the path. In the Select Project Folder dialog box, specify the folder. The folder path must be at the root level of the Shared Services storage repository, for example, Secure Storage for VWorks Plus.



Description	Optional. Type any comments about this instrument.
Application	Select the VWorks Workstation check box.


- 5 Click **OK** to save the project.

- 6 In the **VWorks Workstation** tab, edit the project audit trail settings using the following procedure.
- 7 Edit the project signature level settings. See [“Editing project signature level settings” on page 29](#).

## Optional instrument configuration

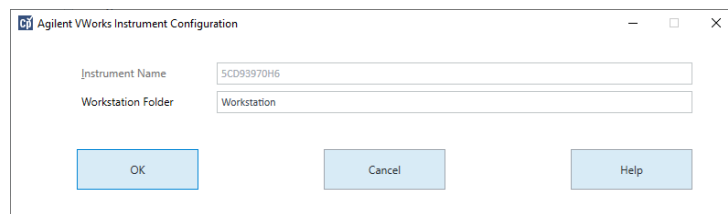
### About configuring an instrument

#### *To configure an online instrument*

- 1 In the Control Panel **Instruments** page, select the instrument in the navigation pane, and click **Configure Instrument**  in the ribbon.


- 2 In the **VWorks Instrument Configuration** dialog box, type the name of the **Workstation Folder**, such as `Workstation`.

The Workstation Folder stores the VWorks global option settings, the device profiles, the log activity files, and so forth that are specific to this VWorks instrument.



For details on instrument properties, see [“\(Optional\) Editing instrument properties” on page 38](#).

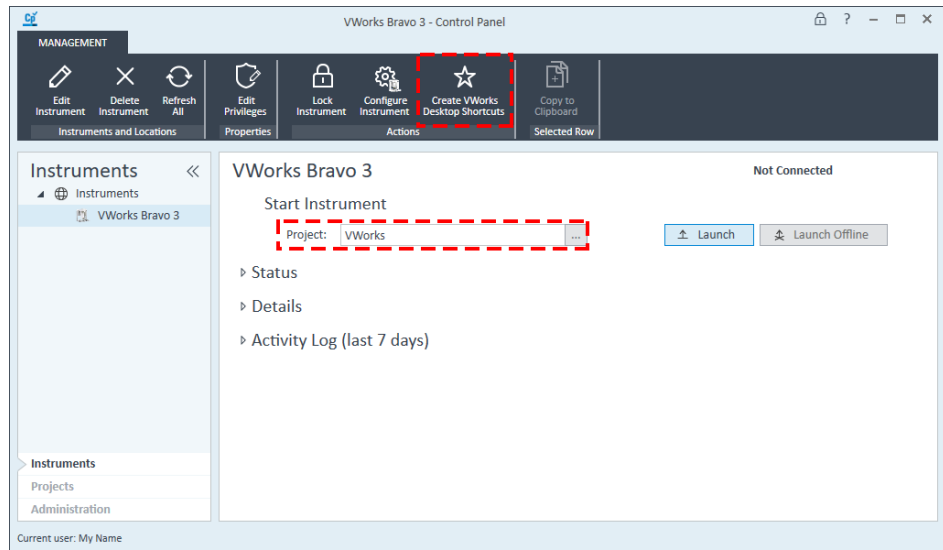
### About the Create VWorks Desktop Shortcuts feature

The VWorks installer automatically places a VWorks shortcut  on the Windows desktop. This shortcut specifies the default instrument and VWorks project when starting the VWorks software.

The Control Panel includes a Create VWorks Desktop Shortcuts feature that allows you to create additional shortcuts. If you have created projects in addition to the VWorks project in the Control Panel, you may want to have different shortcuts for those projects.

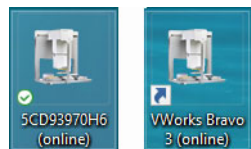
#### *To create a customized VWorks desktop shortcut:*

- 1 In the Control Panel **Instruments** page, select the instrument, and then click **Create VWorks Desktop Shortcuts** in the ribbon.

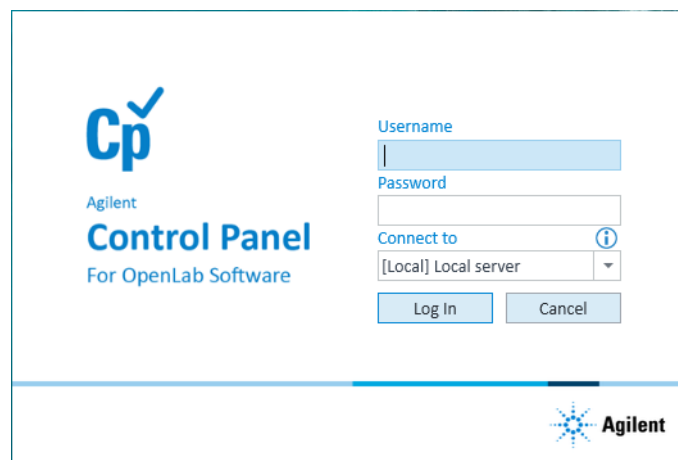


- 2 Notice that the shortcut label matches the name of the instrument. The following examples show a shortcut with the default computer name as the label and a shortcut for an instrument named VWorks Bravo 3.

**Figure** Examples of customized VWorks shortcuts



When you use a customized shortcut to start the VWorks software, the Control Panel login window appears. After you enter your login credentials, the VWorks software opens.

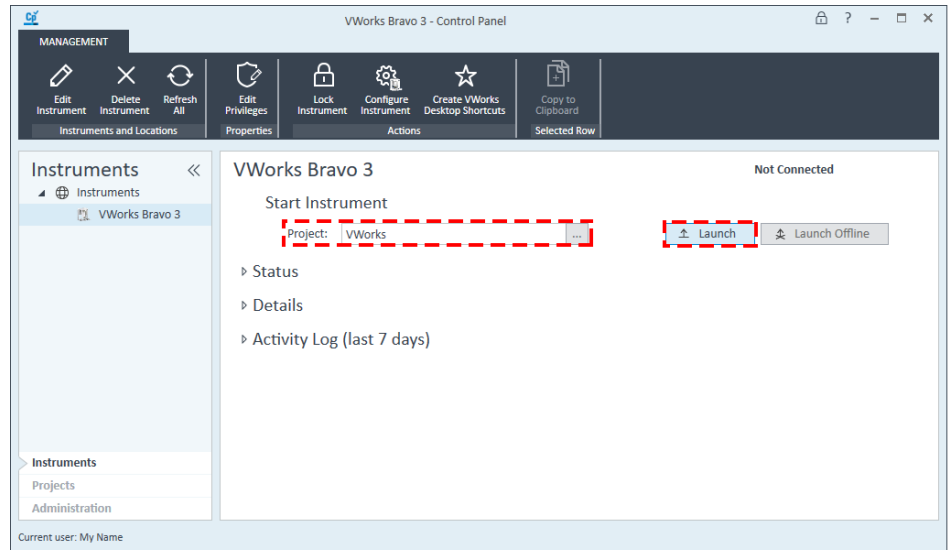


## Launching VWorks from the Instruments page

If you are already logged in to the Control Panel, you are not prompted for login credentials when you start VWorks from the Instruments page using the Launch button.

#### *To launch VWorks from the Control Panel:*

- 1 In the **Instruments** page, select the instrument.
- 2 Under **Start Instrument**, select the **Project**.
- 3 Click **Launch**.





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## In this Guide

This guide provides configuration and administration instructions for the VWorks Plus edition.

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