



ControlFLASH Plus Quick Start Guide



Important User Information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

In no event will Rockwell Automation, Inc. be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, Rockwell Automation, Inc. cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Rockwell Automation, Inc. with respect to use of information, circuits, equipment, or software described in this manual.

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Throughout this manual, when necessary, we use notes to make you aware of safety considerations.



WARNING: Identifies information about practices or circumstances that can cause an explosion in a hazardous environment, which may lead to personal injury or death, property damage, or economic loss.



ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss. Attentions help you identify a hazard, avoid a hazard, and recognize the consequence.

IMPORTANT Identifies information that is critical for successful application and understanding of the product.

Labels may also be on or inside the equipment to provide specific precautions.



SHOCK HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that dangerous voltage may be present.



BURN HAZARD: Labels may be on or inside the equipment, for example, a drive or motor, to alert people that surfaces may reach dangerous temperatures.



ARC FLASH HAZARD: Labels may be on or inside the equipment, for example, a motor control center, to alert people to potential Arc Flash. Arc Flash will cause severe injury or death. Wear proper Personal Protective Equipment (PPE). Follow ALL Regulatory requirements for safe work practices and for Personal Protective Equipment (PPE).

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Appendix A

ControlFLASH Plus error codes

Purpose of this manual This quick start guide describes how to use the ControlFLASH Plus™ software to upgrade device firmware.

Who should use this manual You should use this manual if you need to maintain firmware revisions. Refer to your product release notes to determine whether it supports firmware updates via ControlFLASH Plus.

You should also have the following knowledge:

- A basic understanding of networking concepts.
- A basic familiarity of FactoryTalk® Linx™ software.

Access help There is additional information in the help for this application. Access help by clicking [? Help](#) that appears at the top right corner of the ControlFLASH Plus software window.

Legal Notices Rockwell Automation publishes legal notices, such as privacy policies, license agreements, trademark disclosures, and other terms and conditions on the [Legal Notices](#) page of the Rockwell Automation website.

End User License Agreement (EULA)

You can view the Rockwell Automation End User License Agreement (EULA) by opening the license.rtf file located in your product's install folder on your hard drive.

The default location of this file is:

C:\Program Files (x86)\Common Files\Rockwell\license.rtf.

Open Source Software Licenses

The software included in this product contains copyrighted software that is licensed under one or more open source licenses.

You can view a full list of all open source software used in this product and their corresponding licenses by opening the index.html file located your product's OPENSOURCE folder on your hard drive.

The default location of this file is:

C:\Program Files (x86)\Common Files\Rockwell\Help\ControlFLASH Plus\Release Notes\OPENSOURCE\index.htm

You may obtain Corresponding Source code for open source packages included in this product from their respective project web site(s).

Alternatively, you may obtain complete Corresponding Source code by contacting Rockwell Automation via the **Contact** form on the Rockwell Automation website: <http://www.rockwellautomation.com/global/about->

[us/contact/contact.page](#). Please include "Open Source" as part of the request text.

Start with ControlFLASH Plus

This chapter helps you get started with using the ControlFLASH Plus software.

ControlFLASH Plus overview

ControlFLASH Plus™ is a software tool used for electronically changing firmware revisions in hardware devices. It provides an intuitive, easy-to-use interface that can:

- Flash one or multiple devices within a single operation.
- Manage firmware revisions and firmware locations.
- Download firmware revisions from the Product Compatibility and Download Center.
- Manage and use devices' revisions favorites.

Important: ControlFLASH Plus only supports the firmware update for devices supporting the Common Industrial Protocol (CIP). To perform updates of non-CIP devices, use the ControlFLASH tool.

System requirements

ControlFLASH Plus works within the system requirements of all Rockwell Automation® software products. For the latest information regarding software platform support, refer to Rockwell Automation [Product Compatibility and Download Center](#).

Hardware requirements

- An Intel® Core 2 Duo processor running at 2.8 GHz or faster or another processor with equivalent specifications
- 4 GB or more memory RAM
- At least 16GB of available hard drive space

Software requirements

Operating systems

ControlFLASH Plus has been tested on 64-bit versions of the following Windows® operating systems:

- Windows 10
- Windows 10 Enterprise LTSC 2019
- Windows Server® 2019
- Windows Server 2012 R2

- Windows Server 2012
- Windows Server 2016

Rockwell Automation Test Environment

Rockwell Automation tests software products under a standard configuration of operating systems and antivirus software. For additional information see the Knowledgebase Document ID: [PN24 - Rockwell Software Products and Antivirus Software](#).

Additional software

The following communications software must be installed before running ControlFLASH Plus:

- FactoryTalk® Linx™ version 6.20.00 or later.

We provide the installation package that includes FactoryTalk Linx in ControlFLASH Plus version 2.00.00 or later.

The installation package also includes FactoryTalk Updater, FactoryTalk Updater Agent is selected by default when installing ControlFLASH Plus. Install FactoryTalk Updater Client and Server as needed. Refer to [FactoryTalk Updater Release Notes](#) > Application Notes for more information.

Supported browsers

The following web browsers have been tested and are supported for use with this release:

- Google® Chrome™ browser
- Microsoft® Edge™
- Mozilla® Firefox®

Security requirements

To help meet secure system design requirements review these publications:

- [Configure System Security Features User Manual](#) (publication SECURE-UM001)
- [System Security Design Guidelines](#) (publication SECURE-RM001)

- [Converged Plantwide Ethernet \(CPwE\) Design and Implementation Guide](#) (publication ENET-TD001)

To learn about implementing CIP Security, see [CIP Security with Rockwell Automation Products](#) (publication SECURE-AT001).

Before you begin

Before using ControlFLASH Plus, you need to:

- Install FactoryTalk® Linx™ version 6.20.00 and FactoryTalk® Services Platform version 6.20.00.

Tip: We provide the installation package that includes FactoryTalk Linx and FactoryTalk Services Platform in ControlFLASH Plus version 2.00.00 and later.

- Configure communication drivers in the FactoryTalk Linx software.
- Verify that your communications drivers work correctly.

Tip: For more information about FactoryTalk Linx, refer to the *FactoryTalk Linx Getting Results Guide* at <http://literature.rockwellautomation.com/idc/groups/literature/documents/gr/lxent-gr001-en-e.pdf>.

Install ControlFLASH Plus

You can download the installation packages from [Rockwell Automation Product Compatibility and Download Center \(PCDC\)](#). We provide two installation packages:

- If you have installed FactoryTalk Linx 6.20.00 or later, download the stand-alone installation package.
Tip: To flash Micro810® or Micro820™ over USB, you need to download and install FactoryTalk Linx 6.10.00 or later.
- If you don't have FactoryTalk Linx installed, download the installation package with FactoryTalk Linx.

To install ControlFLASH Plus through the installation package, complete the following operations:

- Download and install FactoryTalk Linx version 6.20.00 or later
- [Locate and download the installation package](#) on [page 13](#)
- [Install ControlFLASH Plus](#) on [page 13](#)

Locate and download the installation package

Follow these instructions below:

1. From Internet Explorer, go to the PCDC website:
<http://compatibility.rockwellautomation.com/Pages/home.aspx>
 To use this site, you must register and log in.


2. In the **Downloads** area, click **Find Downloads**.



Download

Select one or more products to view the available downloads for those products.

- ▶ **Find Downloads**
- ▶ **Software Downloads by Serial Number**

3. In the **Find Downloads** page, enter **ControlFLASH Plus** and click **Search**.
4. Select the row of **ControlFLASH Plus** and click **Downloads** to continue.
5. In this page, click the **Show downloads** icon  to show the available downloads.
6. In the **Available Downloads** page, select **ControlFLASH Plus** and click **Downloads**.
7. Follow instructions on the web to download the installation package.

Install ControlFLASH Plus

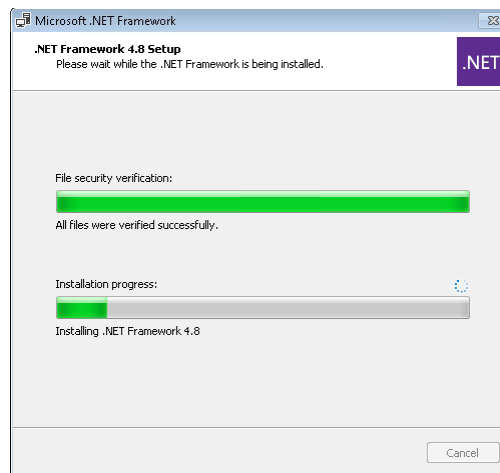
When the installation completes, FactoryTalk® Security is enabled by default. When started, ControlFLASH Plus logs on to the FactoryTalk Network Directory.

To install ControlFLASH Plus, follow the steps below:

- [Step 1: Launch the Setup wizard and start the installation](#) on [page 14](#)
- [Step 2: Read and accept license agreements](#) on [page 15](#)
- [Step 3: Start the installation](#) on [page 15](#)
- [Step 4: Finish the installation](#) on [page 15](#)
- [Step 5: View the release notes](#) on [page 16](#)

Step 1: Launch the Setup wizard and start the installation

1. Close all open programs.
2. In the ControlFLASH Plus installation package, double-click **Setup.exe**.
3. If Microsoft .NET Framework 4.8 is not installed on your computer, it will be automatically installed during the process of installation.



4. (Optional) On the **ControlFLASH Plus Setup** page, select a language to be shown during the installation process. By default, your system language is selected.

Click **Release notes** to view the ControlFLASH Plus Release Notes in your browser.

5. To install the software using the recommended installation location, click **Install now** and skip to [Step 2: Read and accept license agreements](#) on [page 15](#).
6. To select which components to install and change installation location, click **Customize**.

If you download the installation package that only includes ControlFLASH Plus and FactoryTalk Updater, the other components won't show.

Note: We provide the installation package that includes FactoryTalk Updater, FactoryTalk Updater Agent is selected by default. Install the Client and Server as needed. For more information about FactoryTalk Updater, refer to [FactoryTalk Updater Release Notes](#) > Application Notes.

7. On the **Customize** page, select the components. There may be three options shown:

- **Mandatory** (grayed-out and selected check box) indicates software that will be automatically installed as part of the selected application.
- **Recommended** (selected check box) indicates software that Rockwell recommends for the application. You may decide to clear the check box so the software does not install.
- **Optional** (clear check box) indicates software that you may wish to include depending on your system. Select the box to include the software during installation. To change the installation location, click **Customize**.

8. Click **Install**.

Step 2: Read and accept license agreements

End-user license agreements (EULA) spell out your rights and responsibilities. Depending on the components being installed, there may be more than one license agreement on this page. The individual license agreements are listed above the text box.

Some software products may be delivered or made available only after you agree to the terms and conditions of each of the license agreements.

1. On the **End User License Agreements** page, select each agreement and read the agreement carefully.
2. When all license agreements have been read, click **Accept All**.

Tip: If you click **Decline**, you will return to the **ControlFLASH Plus Setup** page.

Step 3: Start the installation

After accepting the license agreements, the Setup wizard automatically installs the software and does not require any input.

Step 4: Finish the installation

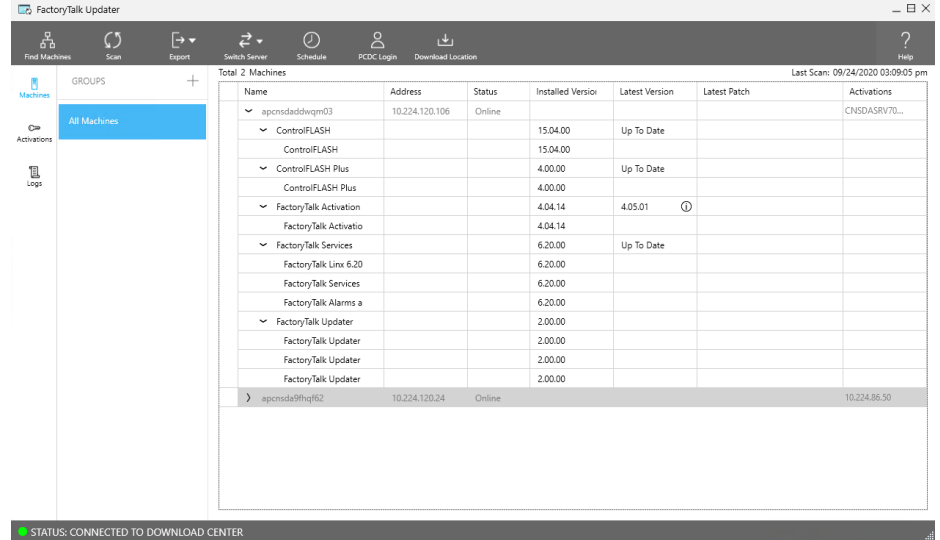
The installation completes.

- To view the installation details, click **Installation Summary**.
- To receive the latest product updates and patch notification, click **Register for updates**.
- To install the latest version of Adobe® Acrobat® Reader®, click **Download it free** and follow the on-screen instructions.

Restart the computer to complete the installation.


Tip: After installing the software, you can repair, modify, or uninstall the software from the Setup wizard or Windows Control Panel.

If you also install FactoryTalk Updater Client on your computer, use it to check the latest version of ControlFLASH Plus from the Product Compatibility and Download Center.



Step 5: View the release notes

After ControlFLASH Plus is installed, view the release notes to learn about the system requirements, system features, anomalies, and application notes for this release.

1. Click **Start > All Programs > FLASH Programming Tools > ControlFLASH Plus**.
2. After ControlFLASH Plus is opened, click  **Settings**.
3. In the **Settings** dialog box, click **About > ControlFLASH Plus Release Notes**.
4. The release notes will be opened with the browser.

Install ControlFLASH Plus with command-line parameters

ControlFLASH Plus supports silent or unattended installation using command-line parameters. Silent installation runs in a quiet mode without any user interface, while unattended installation runs in a quiet simple mode and shows progress through the UI. Unattended installation does not accept any input, but still shows error or restart messages.

Perform silent or unattended installation

Use command-line parameters to perform a silent or unattended installation of ControlFLASH Plus.

The command-line installation requires the administrator permission. The steps may vary slightly depending on your operating system.

To perform silent or unattended installation:

1. Close all Windows programs.
2. Open the **Command Prompt** window.
3. In the **Command Prompt** window, navigate to *D:*, where *D:* is the drive containing the ControlFLASH Plus installation package.

In this example, type *D:* and press **Enter**.

Tip: If **User Account Control** dialog box shows, click **Yes**.

4. Type a command with the following syntax and press **Enter**.

```
Setup.exe {/Q | /QS} /IAcceptAllLicenseTerms
[/AutoRestart] [/SetupLanguage=language] [/Record]
[/Playback] [/InstallDrive=drive]
```

For more information about parameters, type **Setup.exe /?** or see [Command-line parameters for silent or unattended installation](#) on [page 17](#).

Command-line parameters for silent or unattended installation

Unattended or silent install

Use command-line parameters to perform an unattended or silent installation of the software.

Command-line parameters

The following table identifies the installation command-line parameters. Command-line parameters are case-insensitive. However, if a specified value includes a space, be sure to enclose the value in quotation marks (for example, "value with spaces").

Parameter	Description
/?	Displays the usage options for installation parameters.
/Q	Silent Install, install runs in a quiet mode without any user interface. This parameter is recommended if you are deploying the software installation using an IT tool or script, and don't expect to see any error or restart messages. When using this parameter, your IT tool or script should check the error codes, and respond as needed. For example, if the installation returns error code 1641, then the IT tool or script should restart the computer and relaunch the installation after restart. This parameter is required if /QS or /Record is not specified.
/QS	Unattended Install, install runs in a quiet simple mode and shows progress through the UI, it does not accept any input but still shows error or restart messages. When using this parameter, you will not have to check the error codes, and the installation will stop and display a prompt if there are error or restart messages. For example, if an immediate restart is required to complete the install, a restart message will be displayed for you to confirm the restart. Installation resumes automatically from the point of interruption after restart. This parameter is required if /Q or /Record is not specified.
/IAcceptAllLicenseTerms	Acknowledges acceptance of the license terms. This parameter is required for /Q or /QS parameters.
/AutoRestart	Automatically restarts the computer after the installation is complete. Used when a restart is required to complete the installation. This parameter is optional. If this parameter is not used silent install (/Q) will return either error code 1641 or 3010 if a restart is required, and unattended install (/QS) will result in a confirmation prompt that must be agreed to before the installation is completed.

Parameter	Description
/SetupLanguage="value"	<p>Specifies which language will be displayed during install process.</p> <p>The value must be the one of the following:</p> <ul style="list-style-type: none"> • ENU • CHS • DEU • ESP • FRA • ITA • JPN • KOR • PTB <p>This parameter is optional. If this parameter is not used, the default language is the current user or operating system user interface language.</p>
/Record	<p>Records the installation options chosen to a recording file.</p> <p>This parameter is optional.</p>
/Playback	<p>Plays back a recording file to specify the installation options.</p> <p>This parameter is optional.</p>
/IgnoreWarning	<p>Specifies that the setup ignores warnings and continues.</p> <p>This parameter is optional. If it is not specified, the setup exits when a warning occurs.</p>
/Uninstall	<p>Uninstalls the product.</p>
/Repair	<p>Runs a repair operation on the installed products.</p> <p>This parameter is optional.</p>
/InstallLocation="value"	<p>Specifies the install location.</p> <p>This parameter is optional. If this parameter is not used, the default install location is "C:\Program Files (x86)\Rockwell Software".</p> <p>Some software restricts the installer to only change the drive the software is installed on. Use /? to determine which parameter is supported.</p>
/InstallDrive="value"	<p>Specifies the install drive.</p> <p>This parameter is optional. If this parameter is not used, the default install drive is C:.</p>

Error codes

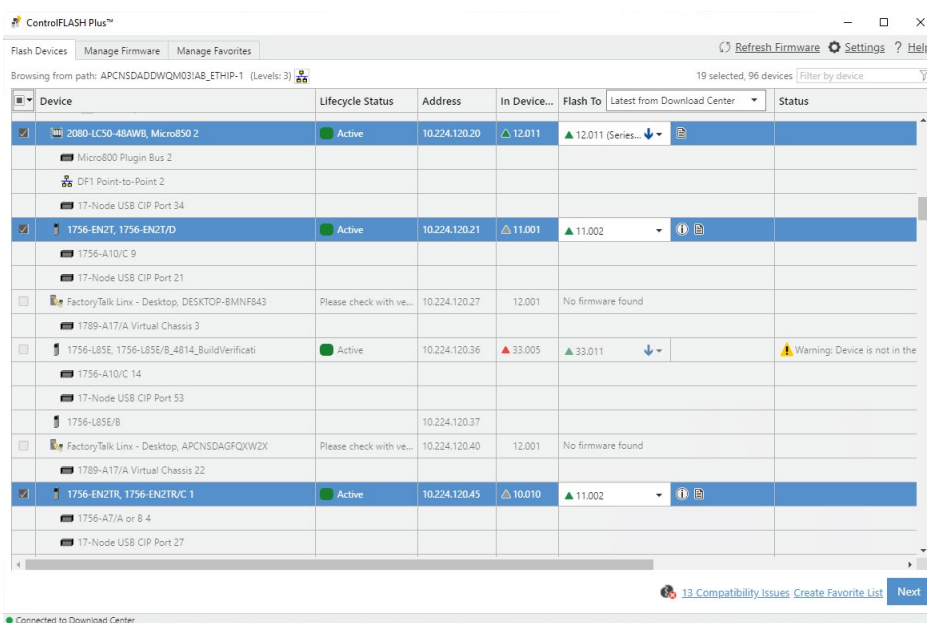
The following table identifies the error codes that can be returned by an installation.

Error Code	Value	Description
ERROR_SUCCESS	0	The installation completed successfully.
ERROR_INVALID_PARAMETER	87	One of the parameters was invalid.
ERROR_INSTALL_USEREXIT	1602	The installation was cancelled by the user.
ERROR_INSTALL_FAILURE	1603	A fatal error occurred during installation.
ERROR_BAD_CONFIGURATION	1610	The configuration data for this product is corrupt. Contact your support personnel.
ERROR_SUCCESS_REBOOT_INITIATED	1641	The installer has initiated a restart. After restart installation will continue.
ERROR_SUCCESS_REBOOT_REQUIRED	3010	A restart is required to complete the installation. After restart the product is successfully installed.
ERROR_SUCCESS_RELAUNCH_REQUIRED	3012	Restart pending. Restart computer for installation to continue.
ERROR_SUCCESS_NOT_APPLICABLE	3013	The installation cannot proceed because the products are already installed.

Explore the ControlFLASH Plus user interface







This chapter introduces the user interface of ControlFLASH Plus, including:

- Components on the ControlFLASH Plus window
- **Settings** dialog box
- **Flash Devices** tab
- **Manage Firmware** tab
- **Manage Favorites** tab



The following table explains the items in the ControlFLASH Plus window and their meanings.

Item	Description
Flash Devices tab	Allows you to browse devices, select firmware revisions, and start a flash operation. When ControlFLASH Plus can access the Product Compatibility and Download Center, you can select a device's firmware revisions from the Product Compatibility and Download Center. You can also access up to date hardware and firmware lifecycle states, release notes, important notices, and copyright information. To download the firmware revisions, sign in to the Product Compatibility and Download Center.

Item	Description
Manage Firmware tab	Shows devices' firmware revisions in the monitored folders. When ControlFLASH Plus can access the Product Compatibility and Download Center, you can select the firmware revisions from the Product Compatibility and Download Center. You can also access up to date hardware and firmware lifecycle states, release notes, important notices, and copyright information. To download firmware revisions, sign in to the Product Compatibility and Download Center. It also allows you to delete one or multiple unused firmware revisions.
Manage Favorites tab	Allows you to create, view, manage, and make changes to the favorite lists.
? Help	Opens the ControlFLASH Plus online help. Tip: To access the ControlFLASH Plus Quick Start Guide, click Start > All Programs > FLASH Programming Tools > ControlFLASH Plus Quick Start Guide.
 Settings	Opens the Settings dialog box.
 Refresh Firmware	Refreshes the firmware as found in the monitored folders. Tip: To save time, refresh firmware after installing all non-DMK firmware kits.
 Disconnected from the Download Center. No internet connection.  User doesn't have permission to connect to Download Center.  Connected to Download Center  Download Center available. Sign in	Shows the connection status indicator to the Product Compatibility and Download Center with different colors. <ul style="list-style-type: none"> Red <ul style="list-style-type: none"> Disconnected from Download Center ControlFLASH Plus cannot access the Product Compatibility and Download Center. In most cases, when you don't have the Internet connectivity, this will occur. User doesn't have permission to connect to Download Center The current user has no access to device revision on the Product Compatibility and Download Center. Green ControlFLASH Plus can access the Product Compatibility and Download Center, you have signed in, and it allows you to download firmware revisions. Yellow ControlFLASH Plus can access the Product Compatibility and Download Center and Sign in shows. To download firmware revisions, sign in to the Product Compatibility and Download Center.

Settings dialog box

Use the **Settings** dialog box to configure the settings for ControlFLASH Plus, including:

- General
- Reports
- Security
- Firmware Locations
- Options
- About

Sign in to the Product Compatibility and Download Center

When connected to the Internet, sign in to the Product Compatibility and Download Center to download firmware revisions and view firmware revisions' Important Notice.

Prerequisites

- Make sure the currently logged on user has the permission to connect to the Product Compatibility and Download Center. For how to configure the connection permission, refer to [FactoryTalk Security System Configuration Guide](#).


To sign in to the Product Compatibility and Download Center

1. In the lower left of the ControlFLASH Plus window, select **Sign in**.
Tip: In the **Settings** dialog box, select **General**, and then select **Sign in**.
2. In the **Sign in** webpage, enter a registered account and its password.
3. (optional) To view firmware revisions' Important Notice easily, select **Keep me signed in** to enable single signed on.
4. Select **Sign in**.

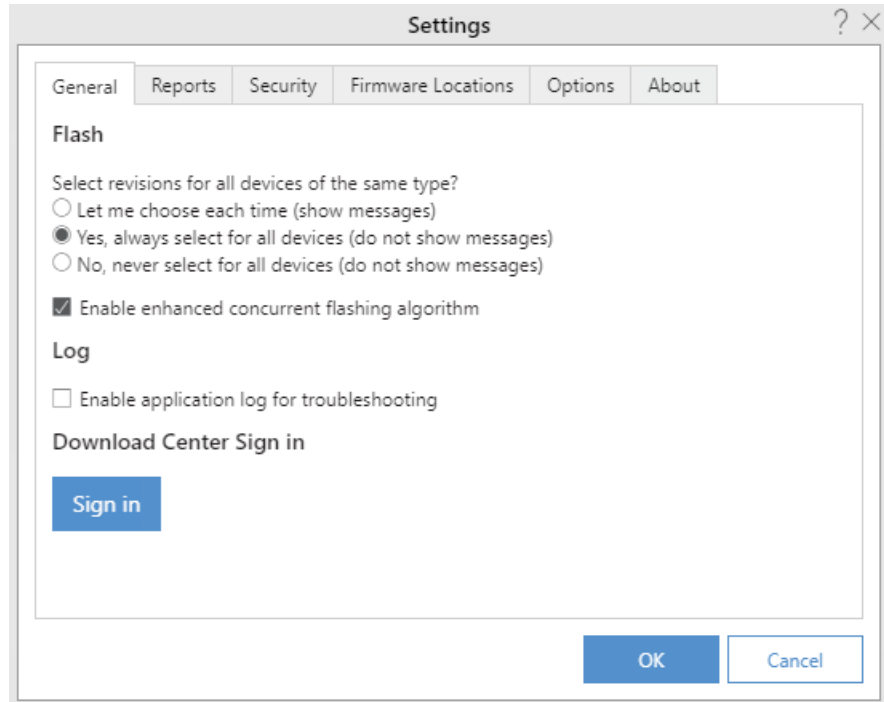
Sign out of the Product Compatibility and Download Center

After signing out of the Product Compatibility and Download Center, downloading firmware revisions and viewing firmware revisions' Important Notice from the Product Compatibility and Download Center is not allowed.

To sign out of the Product Compatibility and Download Center

1. In the ControlFLASH Plus window, select  **Settings**.
2. In the **Settings** dialog box, select **General**.
3. Select **Sign out**.

General tab



The following table lists the options in the **General** tab and their meanings.

Options	Description
Flash	Uses Flash to configure whether one selected revision will always be applied to all devices of the same type and the default behavior of the Select Revision for All dialog box.
Let me choose each time (show messages)	When selecting a firmware revision in the Flash To column of the Flash Devices tab, with this option selected, a confirmation dialog box always opens giving you options to decide if you want to apply the revision to all devices of the same type.
Yes, always select for all devices (do not show messages)	When selecting a firmware revision in the Flash To column of the Flash Devices tab, with this option selected, the selected revision will always be applied to all devices of the same type without showing a confirmation dialog box.
No, never select for all devices (do not show messages)	When selecting a firmware revision in the Flash To column of the Flash Devices tab, with this option selected, the selected revision will not be applied to other devices of the same type without showing a confirmation dialog box. The confirmation dialog box has a check box used to turn off this function.
Enable enhanced concurrent flashing algorithm	With this check box selected, the enhanced concurrent flashing is turned on to flash up to 20 devices regardless of the topology. With this mode turned on, devices in parent/children relationships and the ones connected on Ethernet linear/DLR topologies are also flashed concurrently. This check box is selected by default.
Enable application log for troubleshooting	With this check box selected, the default path for application logs appears and ControlFLASH Plus generates logs anytime it is started and stopped. Tip: When application errors occurred during operations, you can view the application logs to find causes of the errors.
Sign in	Selects this button to open the Product Compatibility and Download Center sign-in webpage. When you are signed in, the account shows.

Options	Description
Sign out	Selects this button to sign out of the Product Compatibility and Download Center.


Enable application log

When an application error occurred during operations, view the application log to check causes of the error.

Prerequisites

- In **Settings > General**, select **Enable application log for troubleshooting** and restart ControlFLASH Plus.

To enable application log

1. In the ControlFLASH Plus window, select  **Settings**.
2. In the **Settings** dialog box, select the **General** tab.
3. On the **General** tab, select the **Enable application log for troubleshooting** check box.

The default path for application logs shows and you are prompt with a dialog box indicating that when launching ControlFLASH Plus next time, application logging will begin.

4. Select **Close**.
 - Tip:** The application logs will be created on application start and stopped at application stop. Select the path link to open the default folder for application logs.

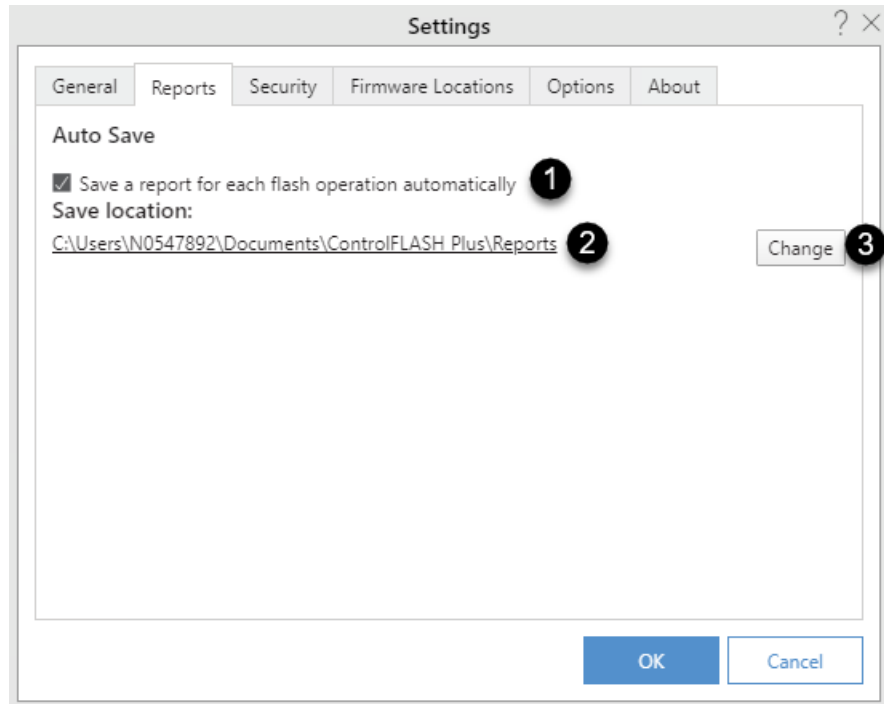
Reports tab

Use the **Reports** tab to configure the automatic saving settings for reports of each flash operation, including:

- Option to turn on or off the automatic saving
- Location of the saved report

With the **Save a report for each flash operation automatically** check box selected, a report summarizing the flash result is automatically saved when a flash operation completes.

To change the report location, click **Change**. The default location is C:\Users\



The following table explains each item on the **Reports** tab.

Item	Description
1	Turns on or off the automatic save of reports.
2	Shows the location of automatically saved reports.
3	Changes the location of automatically saved reports.

View a flash report

Once a flash operation completes, you can view the CSV report file summarizing the result of the operation.

To view a flash report

1. After a flash operation completes, click **Close** when you are prompted with the **Flash Results** dialog box.
2. If auto-save is off, click **Create Report**.
If auto-save is on, go to step 5.
3. In the **Save as** dialog box, navigate to the location used to save the report.
Tip: The default name of the report follows the format as *ControlFLASH Plus Report <year_month_day_hour_minute_second>*.
4. Click **Save**.
5. Click **Show Reports**.
6. Double-click the report to open it.

Security tab

Use the **Security** tab to log on to or off from FactoryTalk Security and view the current user. ControlFLASH Plus uses the FactoryTalk Security single sign-on feature. Single sign-on logs on as the Windows-linked user currently logged on to the computer. If single sign-on is disabled, a notification message shows at the top of the **Flash Devices** tab. Clicking the message opens the **Security** tab prompting the user to log on.

You can log on as another user by logging off and then logging back on.

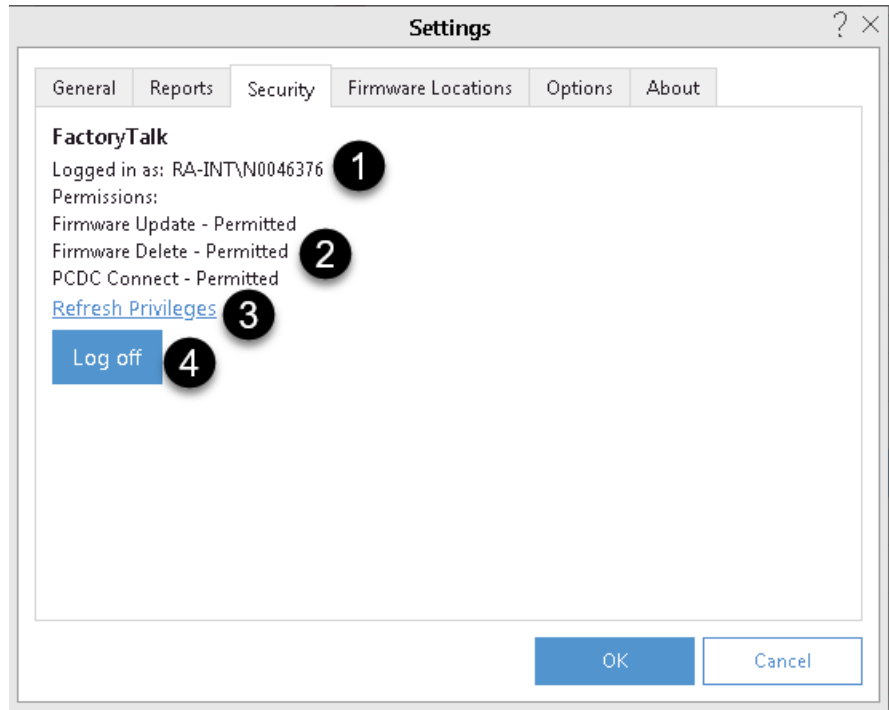
- To log off, click **Log off**. Once logged off, no flash operations can be performed.
- To log on, enter the user name and password, then click **Log on**.

The **Security** tab displays the following permissions of the current user.

- Update firmware
Users with this permission denied cannot perform flash operations.
- Delete firmware revision
Users with this permission denied cannot delete firmware revisions.
- Product Compatibility and Download Center connection.
Users with this permission denied have no access to device revision on the Product Compatibility and Download Center.

For more information on single sign-on, see the *FactoryTalk Services Platform Help*.

The new policies are only configurable and applicable when using FactoryTalk Services Platform version 6.20 and higher and that we default to allow for both when using FactoryTalk Services Platform version 6.11 or earlier.



The following table explains each item on the **Security** tab.

Item	Description
1	Shows the logged-on user name.
2	Shows the authenticated status.
3	Refreshes the information of the logged-on user authentication.
4	Logs off from the system.

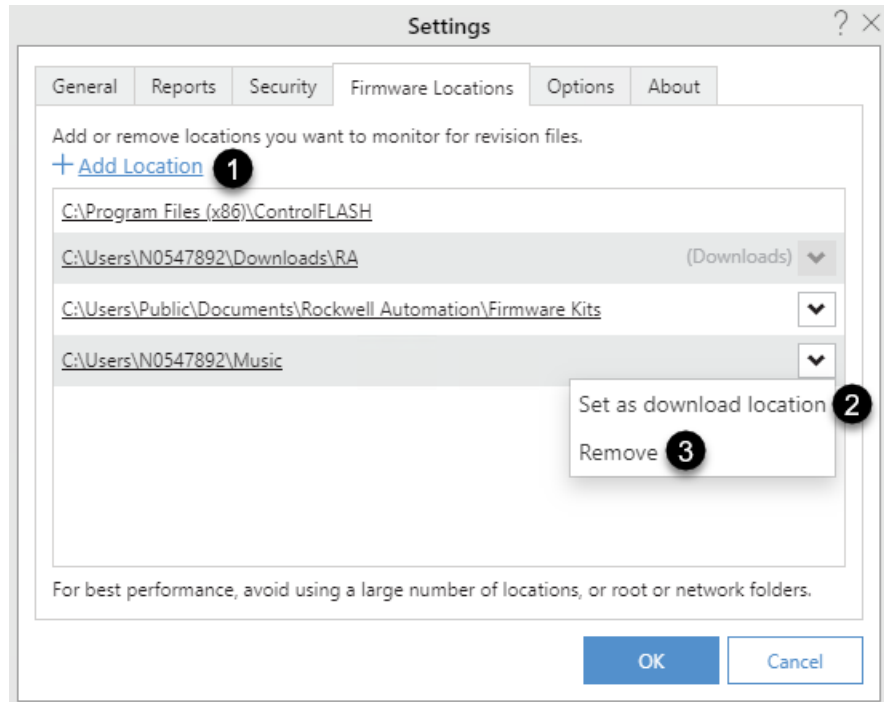
Firmware Locations tab

Use the **Firmware Locations** tab to view and manage the file locations that ControlFLASH Plus monitors for revision files.

- To add a monitored location, click **Add Location**, select the target folder, and then click **OK**. Click **OK** in the **Settings** dialog box to save the change.
 - Tip:** If you use the download manager to download firmware revisions from the [Product Compatibility and Download Center](#), the default or customized path of the firmware revisions will be added to the location list automatically.
- To set a default monitored location, click at the end of the location. Select **Set as download location**, and then click **OK** in the **Settings** dialog box to save the change.
- To remove a monitored location, in the location list, click at the end of the location. Select **Remove**, and then click **OK** in the **Settings** dialog box to save the change.

- To open a monitored download location, click the location in the location list.

- Tip:**
- Once a monitored download location is set as default, its is disabled.
 - The following locations are listed by default and cannot be removed:
 - C:\Program Files (x86)\ControlFLASH\
 - C:\Users\\Downloads\RA\
 - C:\Users\Public\Documents\Rockwell Automation\Firmware Kits



The following table explains each item on the **Firmware Locations** tab.

Item	Description
1	Adds a monitored location.
2	Sets a monitored location as default download location.
3	Removes a monitored location.

Add a monitored folder to customize the path for saving the firmware revisions.

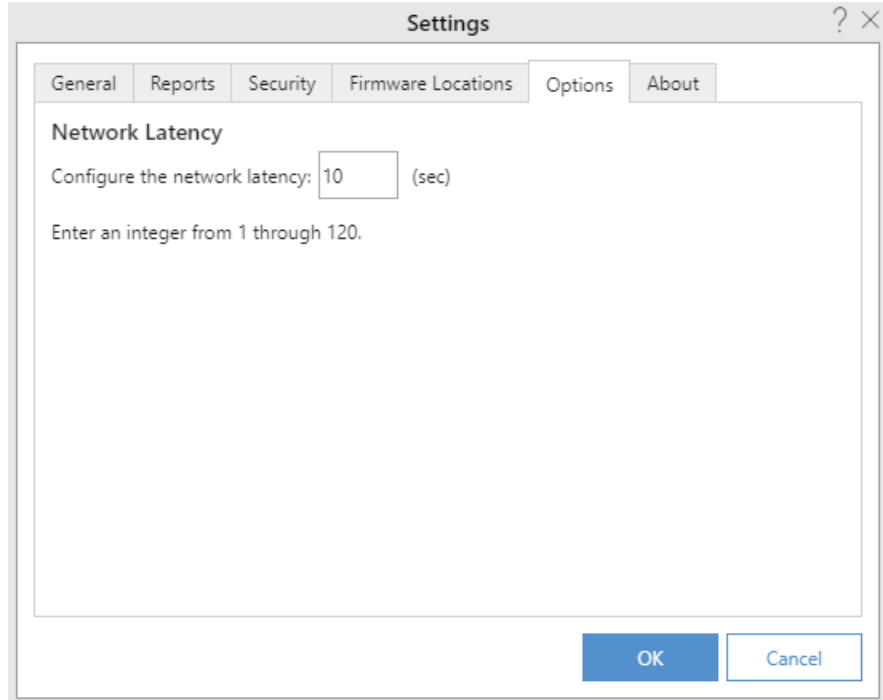
To add a monitored folder

- Select **Settings**.
- In the **Setting** dialog box, click the **Firmware Locations** tab.
- Click **Add Location**.
- In the **Browse For Folder** dialog box, select a folder.
- Select **OK**.

Options tab

Use the **Options** tab to configure the network latency.

Network latency indicates how much time it takes for a packet of data to transfer from one designated point to another. The latency is measured by sending a packet to FactoryTalk Linx that is returned to the sender. The default value is 10 seconds. It is not recommended to change the value unless the network is very slow and FactoryTalk Linx needs more time to send a response message.

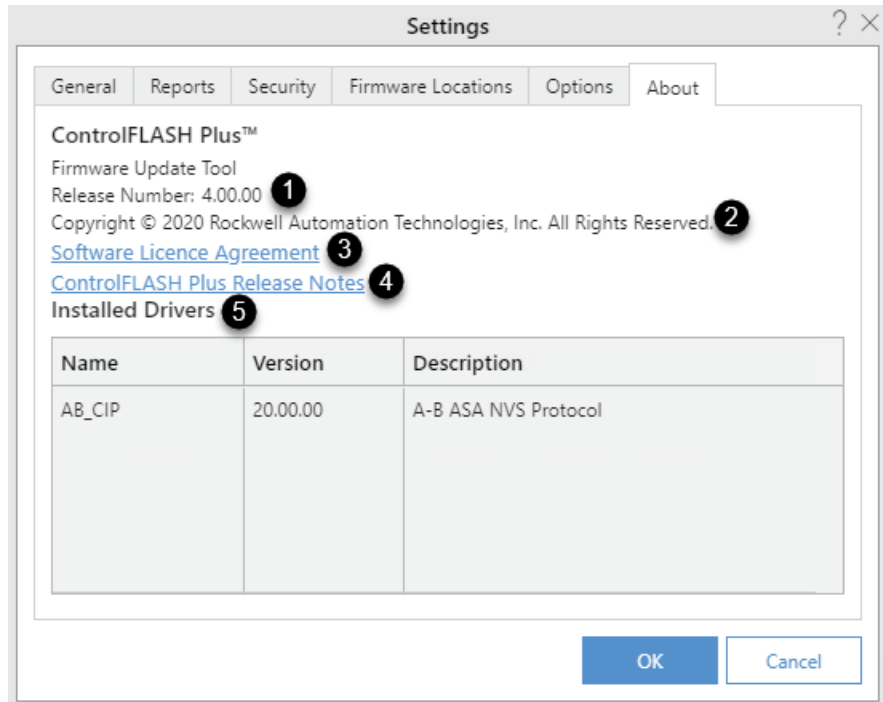


About tab

Use the **About** tab to view the software version, copyright information, Rockwell Automation end user license agreement, ControlFLASH Plus Release Notes, and the installed drivers.

- To view the Rockwell Automation end user license agreement, click **Software License Agreement**.

- To view the release notes, click **ControlFLASH Plus Release Notes**.



The following table explains each item on the **Security** tab.

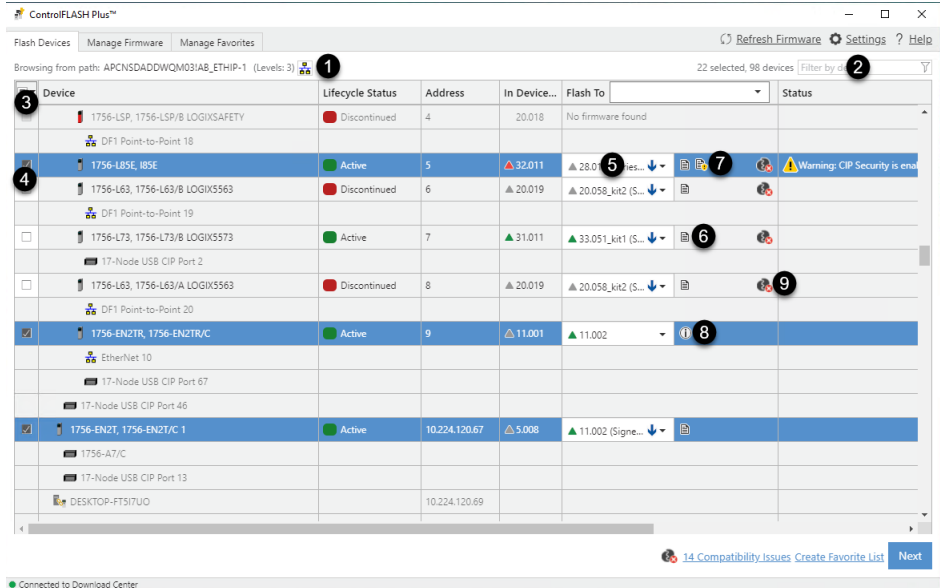
Item	Description
1	Shows the software version.
2	Shows the copyright.
3	Opens the Rockwell Automation end user license agreement.
4	Opens the ControlFLASH Plus Release Notes.
5	Lists the installed drivers, including driver name, version, and description.

Flash Devices tab

The **Flash Devices** tab shows by default when ControlFLASH Plus is opened. Use the **Flash Devices** tab to:





- Open the Network Browser to configure a starting browse path and select the number of levels to browse.
- Download firmware revisions from the Product and Compatibility and Download Center.




- Upgrade or downgrade device firmware.



The following table explains each item on the **Flash Devices** tab when ControlFLASH Plus can access the Product Compatibility and Download Center.

Item	Description
1	Shows the starting browse path as configured in the Network Browser. By default, it shows the highest node of the network topology. For subsequent uses, it shows the last selected path in the previous session.
2	Filters one or more device types in a flashing session. The device list is filtered immediately as text included in the device name is entered. The amount of selected devices, filtered devices, and all devices shows on the left of the Filter by device box. An orange highlight indicates that a filter is active.
3	Accelerates the device selection in the list with the following options: <ul style="list-style-type: none"> • All Selects all devices whose selected Flash To revisions are equal to, greater than, or less than the current revision. • Upgrades Only Selects devices whose selected Flash To revisions are greater than the current revision. • Upgrades and Downgrades Selects devices whose selected Flash To revisions are greater or less than the current revision. This option doesn't select devices whose selected Flash To revisions are equal to their current ones, which avoids unnecessary firmware updates. Make sure the Flash To revisions are set before using the selection accelerator.
Device	The Device column shows the network topology as returned by the browsing path. Network and chassis node names are shown in lighter gray to maintain the hierarchy. An orange highlight on the left border of this column indicates that a filter is active.

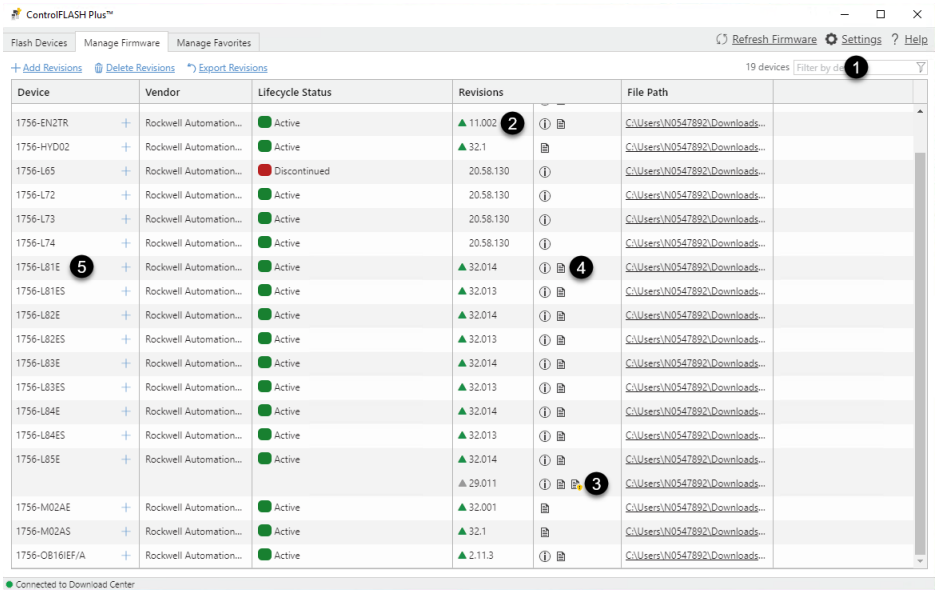
Item	Description
Lifecycle Status	<p>Shows the device's lifecycle status found in the Product Compatibility and Download Center.</p> <ul style="list-style-type: none"> • Active This is the most current offering with a product category. • Active Mature The product is fully supported, but a newer product or family exists. Gain value by migrating. • End Of Life The product's discontinued date was announced. Actively execute migrations and last time buys. Products are generally orderable until the discontinued date. • Discontinued New products are no longer manufactured or procured. Repair or exchange services may be available. • Product lifecycle status There are several lifecycle statuses found for a device. Click to find more details of these lifecycle statuses. • Please check with vendor This device's lifecycle status is unknown because it isn't a Rockwell Automation or Allen Bradley device. Find more lifecycle status information from the device's vendor. <p>Tip: When no internet connectivity to the Product Compatibility and Download Center, the lifecycle statuses are not shown.</p> <p>You can visit https://www.rockwellautomation.com/global/support/product-compatibility-migration/lifecycle-status/overview.page for more information.</p>
Address	<p>The Address column shows the address of the device, for example, slot number for devices located in backplanes. The complete address will be shown as a tooltip when hovering over a device's address or slot number.</p>
In Device	<p>The In Device column shows each device's current firmware revision.</p> <p>When ControlFLASH Plus can access the Product Compatibility and Download Center, the firmware revision lifecycle states are shown.</p> <ul style="list-style-type: none"> •  Indicates that the current firmware revision is a Preferred revision. Preferred firmware revisions are less than three years or belong to non-discontinued catalog numbered products. •  Indicates that the current firmware revision is a Limited revision. Limited firmware revisions have some limitations in anomaly fix or operating system support. •  Indicates that the current firmware revision is a Managed revision. Managed firmware revisions are used for compatibility reasons or during the transition time to the Limited version lifecycle state. •  Indicates that the current firmware revision is a Retired revision. Retired firmware revisions cannot be downloaded from Product Compatibility and Download Center. This icon is only shown for firmware revisions in the current computer. • Blank Indicates that the current firmware revision is an Engineering revision. Engineering firmware revisions do not have lifecycle states available in the Product Compatibility and Download Center. This icon is only shown for firmware revisions in the current computer. <p>Visit Product Compatibility and Download Center for more information.</p>
Flash To	<p>The Flash To column shows the revisions available on the computer and from the Product Compatibility and Download Center.</p> <p>When ControlFLASH Plus is disconnected to the Product Compatibility and Download Center, the firmware revisions that you select from the Product Compatibility and Download Center will be remained but unavailable. Once connected to the Internet, the firmware revision becomes available.</p> <p>When ControlFLASH Plus can access the Product Compatibility and Download Center, the firmware revision lifecycle states are visible.</p>

Item	Description
Latest on Computer	Accelerates the revision selection in the Flash To column with the following options: <ul style="list-style-type: none"> • Latest from Download Center Selects all the latest firmware revisions from the Product Compatibility and Download Center. When you have not signed in to the Product Compatibility and Download Center or you don't have internet connectivity to the Product Compatibility and Download Center, the connection status indicator with the Product Compatibility and Download Center will be shown next to Latest from Download Center. • Latest on Computer Selects all the latest firmware revisions found in the monitored folders that can include remote computers. • Favorite lists Selects a combination of devices and revisions as specified in one of the favorite lists.
4	Allows you to select the row of device.
5	Lists the available firmware revisions on the computer and from the Product Compatibility and Download Center. When firmware revisions are found in the Product Compatibility and Download Center, the download arrow shows. <ul style="list-style-type: none"> • When the download arrow is blue, it indicates that you are signed in to the Product Compatibility and Download Center and you can download the firmware revisions. • When the download arrow is gray, it indicates that ControlFLASH Plus can access the Product Compatibility and Download Center and you are signed out. To download firmware revisions, sign in to the Product Compatibility and Download Center.
6	Views the firmware revisions' Release Notes found in the Product Compatibility and Download Center.
7	Views the firmware revisions' Important Notice found in the Product Compatibility and Download Center. Tip: To view the firmware revisions' Important Notice, sign in to the Product Compatibility and Download Center.
8	Views the copyright information of the firmware revision.
9	ControlFLASH Plus check In Device firmware revisions and Flash To firmware revisions compatibility and provide compatibility information based on data from the Product Compatibility Download Center. When compatibility issues appear, the following icons are shown. <ul style="list-style-type: none"> •  Indicates that the current firmware revision is not compatible with other firmware revisions. •  Indicates that the current firmware revision may be compatible with other firmware revisions. •  Indicates that there is no compatibility information of the current firmware revision.
Compatibility issues	Shows the total number of compatibility issues that occurred during the compatibility check process.
Create Favorite List	Creates a favorite list based on the current device and revision selections. This is turned on only when at least one device is selected.
Next	Starts the flash workflow. This is turned on only when at least one device is selected.

Manage Firmware tab


Use the **Manage Firmware** tab to manage firmware revisions located in the monitored folders. When you are signed in to the Product Compatibility and Download Center, it also allows you to download firmware revisions and view

the firmware revisions' Important Notice from the Product Compatibility and Download Center.



The following table explains each item on the **Manage Firmware** tab when ControlFLASH Plus can access the Product Compatibility and Download Center.

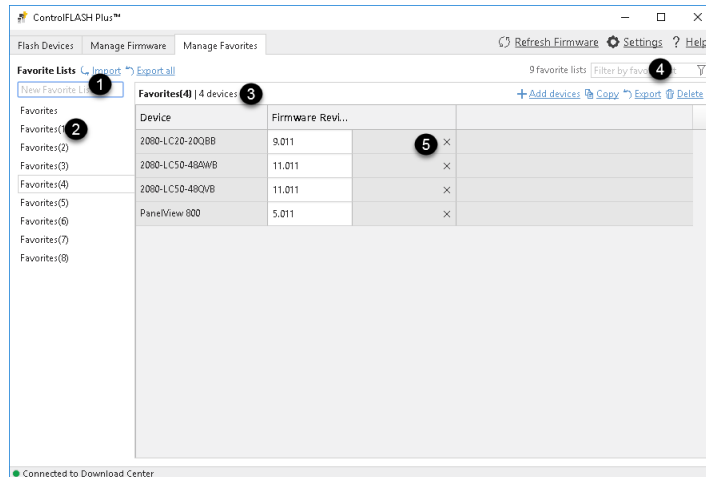
Item	Description
Add Firmware Revisions	Opens the Add Firmware Revisions dialog box to download firmware revisions from the Product Compatibility and Download Center. When ControlFLASH Plus loses connection to the Product Compatibility and Download Center, Add Firmware Revisions doesn't show.
Delete Revisions	Turns on the delete firmware revisions mode. Deleting unused firmware revisions improves application's inventory building performance.
Export Revisions	Opens the Save As dialog box to export the firmware inventory.
Device	Shows the individual catalog number of the device. When ControlFLASH Plus can access the Product Compatibility and Download Center and a device's firmware revisions was found in the Product Compatibility and Download Center, + shows: <ul style="list-style-type: none"> • If signed in to the Product Compatibility and Download Center, you can use the Add Firmware Revisions dialog box to search, select, and download firmware revisions. • If signed out of the Product Compatibility and Download Center, you are allowed to use the Add Firmware Revisions dialog box to search and select firmware revisions only. Tip: When a device's firmware revisions are all downloaded from the Product Compatibility and Download Center, + disappears after refreshing firmware. An orange highlight on the left border of this column indicates that a filter is active.
Vendor	Shows the name of the device vendor.

Item	Description
Lifecycle Status	<p>Shows the device's lifecycle status found in the Product Compatibility and Download Center.</p> <ul style="list-style-type: none"> • Active This is the most current offering with a product category. • Active Mature The product is fully supported, but a newer product or family exists. Gain value by migrating. • End Of Life The product's discontinued date was announced. Actively execute migrations and last time buys. Products are generally orderable until the discontinued date. • Discontinued New products are no longer manufactured or procured. Repair or exchange services may be available. • Product lifecycle status There are several lifecycle statuses found for a device. Click to find more details of these lifecycle statuses. • Please check with vendor This device's lifecycle status is unknown because it isn't a Rockwell Automation or Allen Bradley device. Find more lifecycle status information from the device's vendor. <p>Tip: When no internet connectivity to the Product Compatibility and Download Center, the lifecycle statuses are not shown.</p> <p>You can visit https://www.rockwellautomation.com/global/support/product-compatibility-migration/lifecycle-status/overview.page for more information.</p>
Revisions	<p>Shows the following information:</p> <ul style="list-style-type: none"> • The device's available firmware revisions as found in the monitored folders • The current available firmware revisions lifecycle states in the Product Compatibility and Download Center. • The firmware revisions' Release Notes and Important Notice found in the Product Compatibility and Download Center. <p>When ControlFLASH Plus loses connection to the Product Compatibility and Download Center, the firmware revisions and firmware revisions lifecycle states from the Product Compatibility and Download Center and the icons of the Release Notes and Important Notice don't show.</p>
File Path	<p>Shows the file location of each firmware revision. Click a path link in the File Path column to show the file in a folder. When download starts, a progress bar appears. Select Cancel to cancel the download. Select Retry to restart a cancelled download.</p>
1	<p>Filters one or more device types in a flashing session. The device list is filtered immediately as text included in the device name is entered.</p> <p>The amount of filtered devices and all devices shows on the left of the Filter by device box.</p> <p>An orange highlight indicates that a filter is active.</p>
2	<p>Click  to view the copyright information of the firmware revision.</p>
3	<p>Opens the firmware revision's Important Notice found in the Product Compatibility and Download Center.</p> <p>Tip: To view the firmware revisions' Important Notice, sign in to the Product Compatibility and Download Center.</p>
4	<p>Opens the firmware revision's Release Notes found in the Product Compatibility and Download Center.</p>
5	<p>Opens the Add Firmware Revisions dialog box for a specific device.</p>

Manage Favorites tab

Use the **Manage Favorites** tab to manage favorite lists. A favorite list includes devices and corresponding revisions that can be used to quickly select target

revisions during flash operations. Use the import and export functions to share favorite lists with others.



The following table explains each item on the **Manage Favorites** tab.

Item	Description
Favorite Lists	Shows the favorite lists.
Export all	Creates a CFF (ControlFLASH Favorites) file including all the favorite lists.
Import	Imports a CFF file that is exported with one or more favorite lists. If an imported list has the same name as an existing one, the imported list name is appended with a number to ensure uniqueness.
1	Allows you to create a favorite list.
2	Shows the favorite list or lists.
3	Shows the name of the selected favorite list and the amount of included devices.
4	Filters the favorite lists immediately as text included in the favorite list name is entered. The amount of filtered and all favorite lists shows on the left of the Filter by favorite list box. An orange highlight indicates that a filter is active.
Add devices	Adds devices to the selected favorite list.
Copy	Creates a copy of the selected favorite list.
Export	Creates a file including the selected favorite list.
Delete	Deletes the selected favorite list.
Device	Shows the catalog number of the device.
Firmware Revision	Shows the device's available firmware revisions as found in the monitored folders. Click the revision to select another one for the device in the favorite list.
5	Click X to remove the device from the favorite list.

Browse devices

When ControlFLASH Plus is started for the first time, the **Browsing from path** is not configured. You need to configure the browsing path in the **Network Browser**. After you set the path for the first time, ControlFLASH Plus will use the last selected path setting.

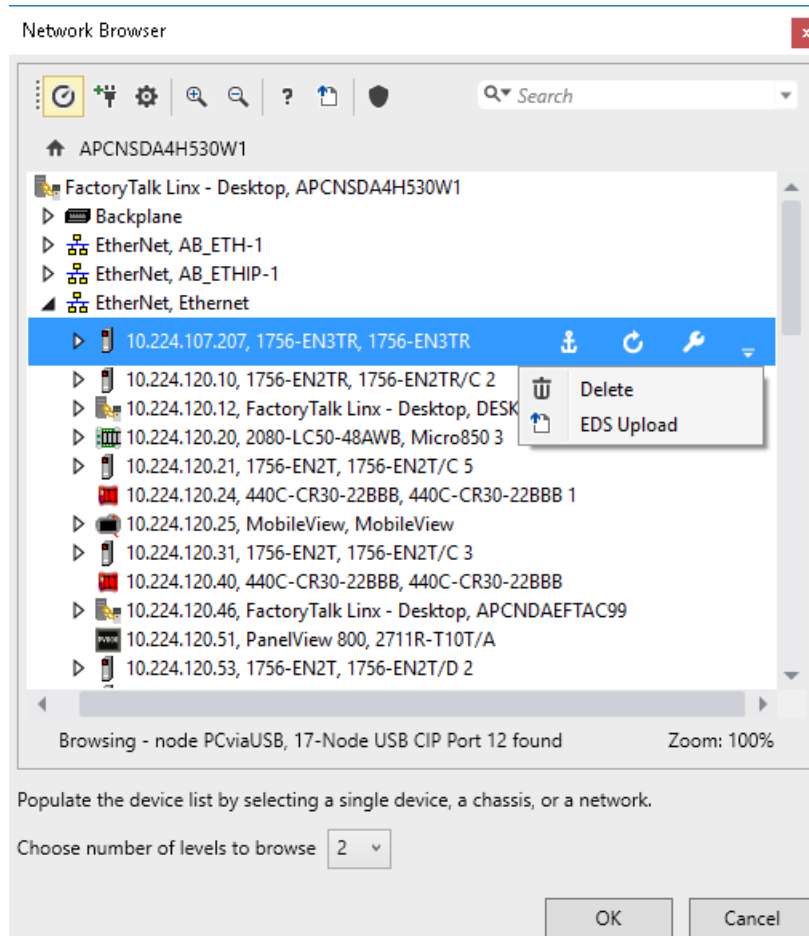
Once a starting browse path is configured, ControlFLASH Plus uses the configured browsing path and number of levels to populate the devices list. The devices are shown with the current versions of firmware and available compatible firmware versions are shown in the **Flash To** column. The topology is refreshed when opening ControlFLASH Plus or changing the browsing path in the **Network Browser**.

When updating topology and devices, you may cancel progress by clicking the **Cancel** button. Clicking the **Cancel** button opens the **Network Browser** for you to select another **Browsing from path**.

Network Browser








Use the general settings of the **Network Browser** to specify network configuration items and browser display information. Resize the **Network Browser** to see more or less of a network topology. For more information about **Network Browser**, visit

<https://literature.rockwellautomation.com/idc/groups/literature/documents/gr/lxent-groo1-en-e.pdf>.




The following table explains each item in the **Network Browser** and their meanings.

Settings	Icon	Description
Auto discover		Enables the Network Browser to continuously discover the selected device or network branch.
Add Driver		Adds a driver on the computer to provide communications to a network.
Advanced Settings		Opens Advanced Settings to configure network discovery settings.
Zoom		Increases (zoom in) or decreases (zoom out) the view of the network topology tree.
Help		Opens the help topics.
Auto upload		Enables the Network Browser to automatically upload and register EDS files for unknown devices in the selected device and its child devices.
Search		Provides a filtered list of devices upon the searching criteria.
Anchor		Re-roots a view in the network topology tree to give focus on a specific node and the corresponding children of that node.

Refresh		Instructs the browser to perform a discover cycle of the selected device or network branch immediately and update the network topology tree with the results. Refresh is only active when Auto discover is not activated.
Property		Used to perform the following: <ul style="list-style-type: none"> • Show properties for a selected device. • Launch driver configuration for a selected driver. • Launch the bridged network configuration for the selected bridged network configuration. • Adjust device settings in the topology, such as editing the name of the driver, adjusting the discovery method, and copying and pasting Device List/Range items.
Delete	 Delete	Used to remove a device from the network topology view in a computer. Observe these guidelines to gain a better understanding of the delete command: <ul style="list-style-type: none"> • Deleting a device from the network topology tree does not remove the device from the network. After closing the Network Browser, all devices on the network return to the view when the Network Browser launches and discovers the devices. • Deleting a driver from the network topology tree permanently removes the driver and all its child nodes. • Deleting a module with a network branch also removes the child nodes.
Manual upload	 EDS Upload	Uploads and registers the EDS file from a selected device.
CIP Security Indicator		When the icon is in the tool bar, it works as a switch to show or hide the CIP Security configuration status of a device. When the icon is in front of a device, it shows the device supports CIP Security and no configuration has been taken yet.
CIP Security Indicator		Means the device is in the CIP security configuration process.
CIP Security Indicator		Means the device is successfully configured with CIP security.
Choose number of levels to browse	2 ▾	Expands the number list to choose the level number for browsing multiple devices. A network node or a device node will not be identified as a level. The default number is 2 .

Starting browse path and number of browse levels

Clicking  on the **Flash Devices** tab opens the **Network Browser**. Use this dialog box to select a node in the **Network Browser** tree as a starting point for browsing devices. Clicking **OK** refreshes the device list on the **Flash Devices** tab.

The dialog box allows you to choose the number of levels that should be browsed. The maximum number of levels to browse is 3. The default value of levels to browse is 2.

Important:

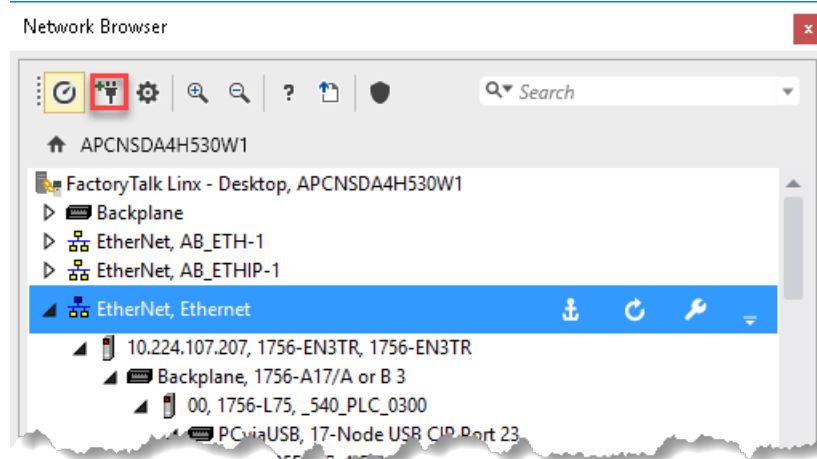
In the **Network Browser**, you must expand each level of the node that includes the devices you need in order for the devices on that level to be shown on the **Flash Devices** tab.

When selecting the root node in the **Network Browser** tree, **OK** is disabled by default.

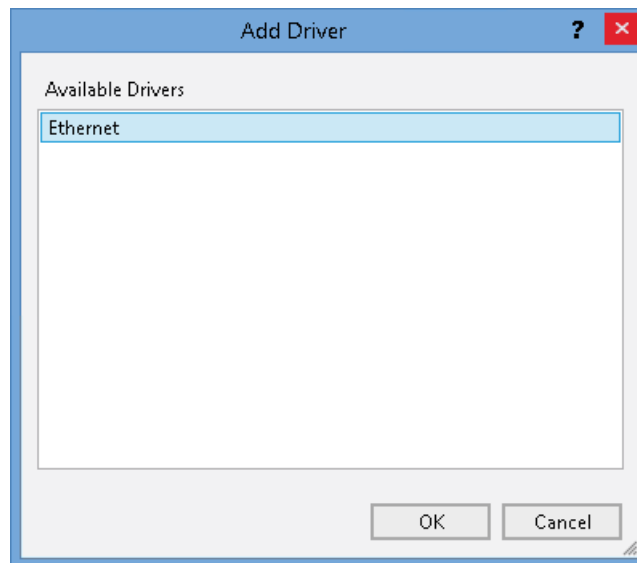
Add a driver for Local or Remote Broadcast

To add a driver for Local or Remote Broadcast

1. In the **Network Browser**, select .

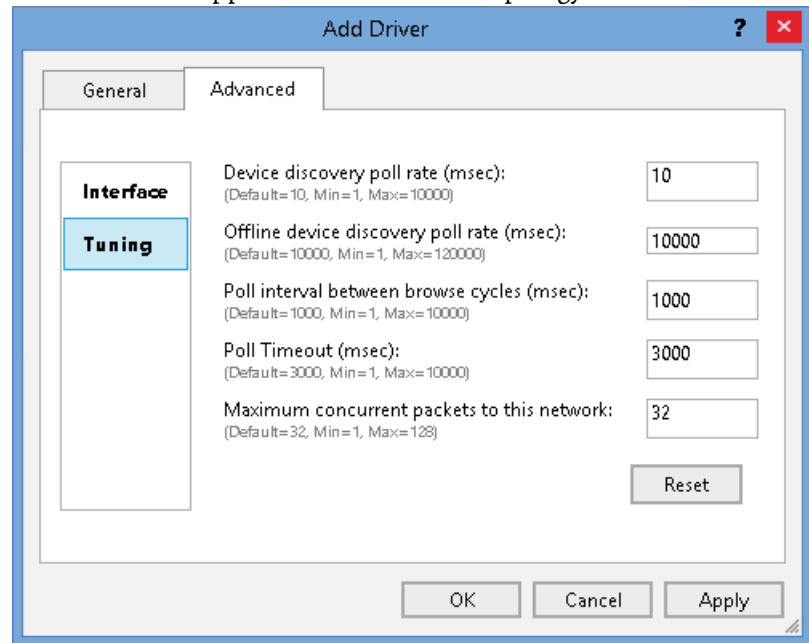


2. In the **Add Driver** dialog box, select a driver, and then select **OK**.

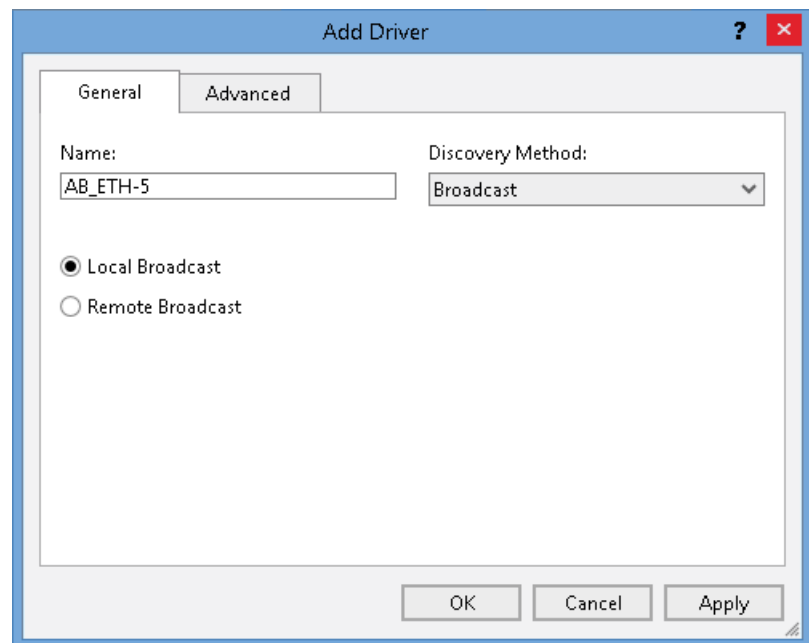


3. To configure the physical port of the computer and the tuning settings, select the **Advanced** tab.
4. Select **Apply**.

The new driver appears in the network topology tree.



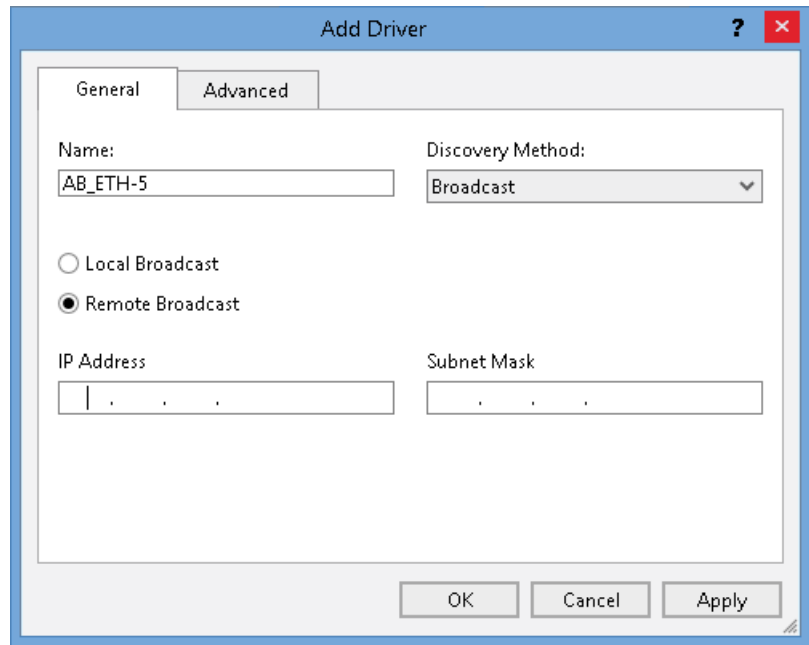
5. Select the **General** tab, and in the **Name** box, enter a name for the driver.
6. In the **Discovery Method** list, select **Broadcast**.
7. To add a driver for Local Broadcast, select **Local Broadcast**. Skip to step 9.



To add a driver for Remote Broadcast, select **Remote Broadcast**.

8. (optional) With **Remote Broadcast** selected, in the **IP Address** and the **Subnet Mask** fields, enter the addressing information for the driver distribution.

9. Select **OK**.

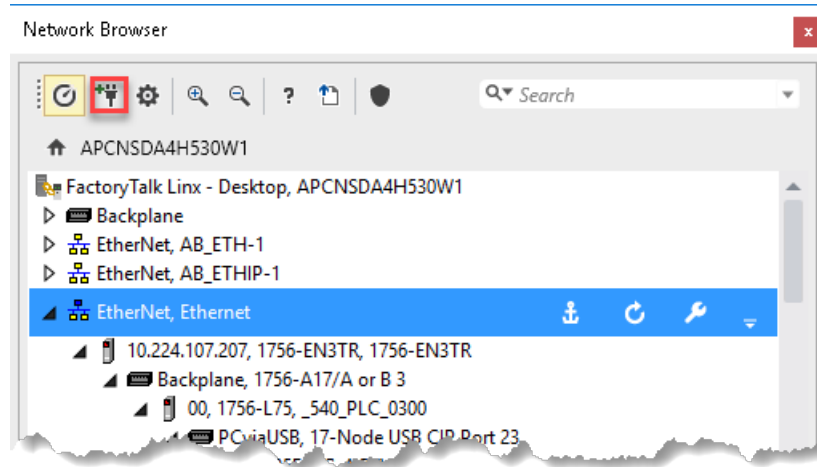


Add a driver with a Device List/Range

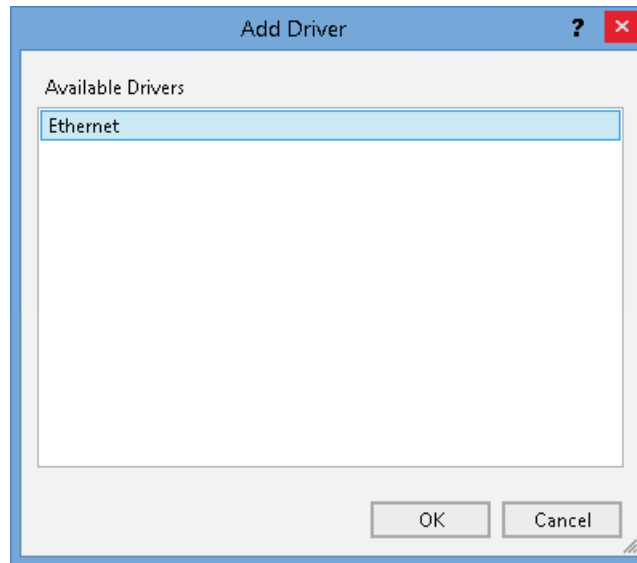
When adding a driver, use a list or range of IP addresses to make sure broadcast messages reach the desired devices.

To add a driver with a Device List/Range

1. In the **Network Browser**, select .

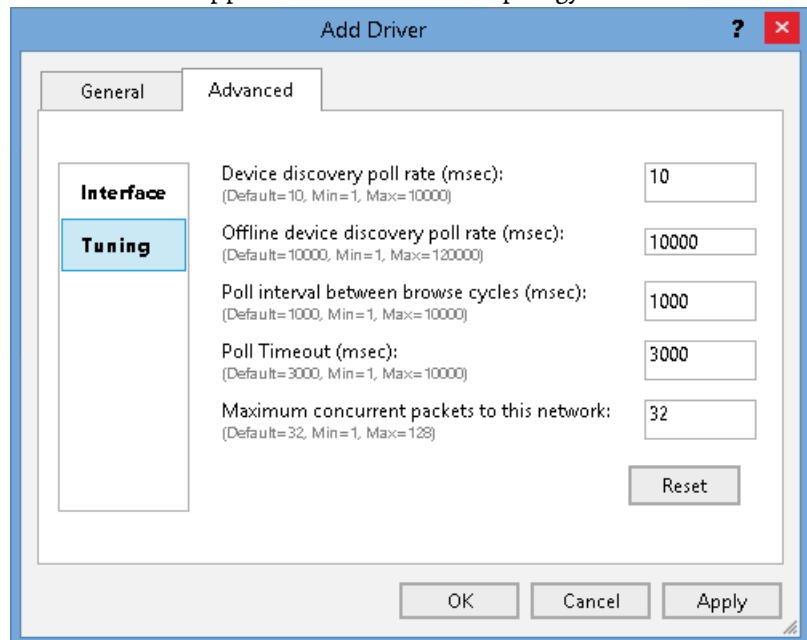


- In the **Add Driver** dialog box, select a driver, and then select **OK**.



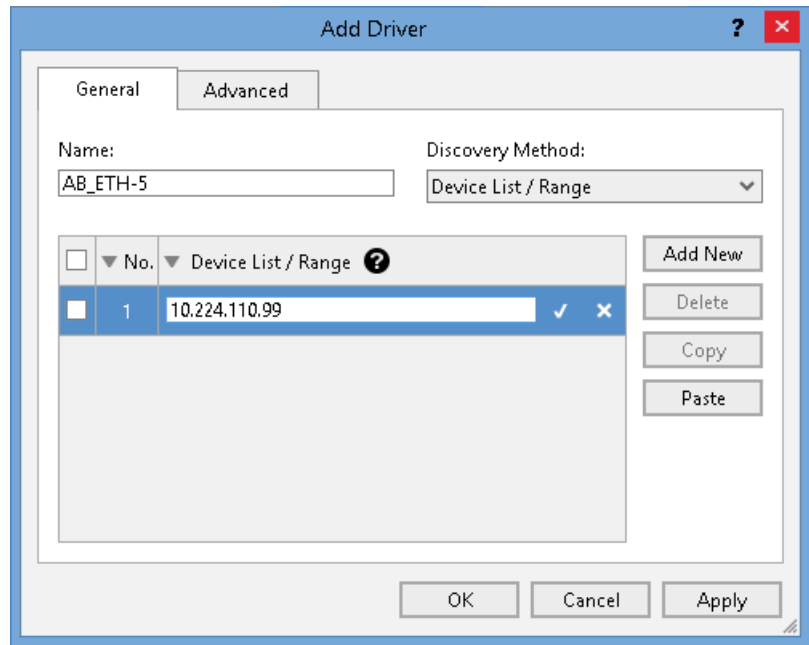
- To configure the physical port of the computer and the tuning settings, select the **Advanced** tab.
- Select **Apply**.

The new driver appears in the network topology tree.



- Select the **General** tab, and in the **Name** box, enter a name for the driver.
- In the **Discovery Method** list, select **Device List/Range**.
- Select **Add New**, and then in the box under **Device List/Range**, enter the desired subnet range.
- Select .

9. Select **OK**.



Open the Configure Driver dialog box

Open the **Configure Driver** dialog box to edit the properties for a driver.


To open the Configure Driver dialog box

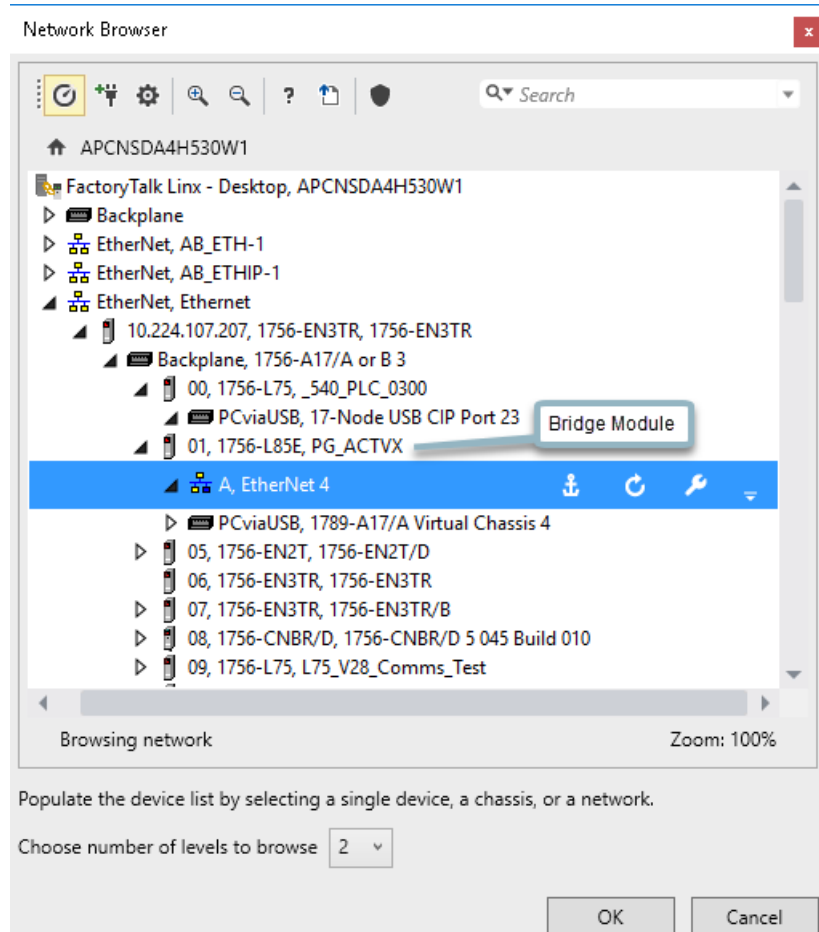
1. In the **Network Browser**, select a driver.
2. Select .

Add a bridge

Create a bridge to enable **Network Browser** to detect devices on another network and perform diagnostic and configuration functions on those devices.

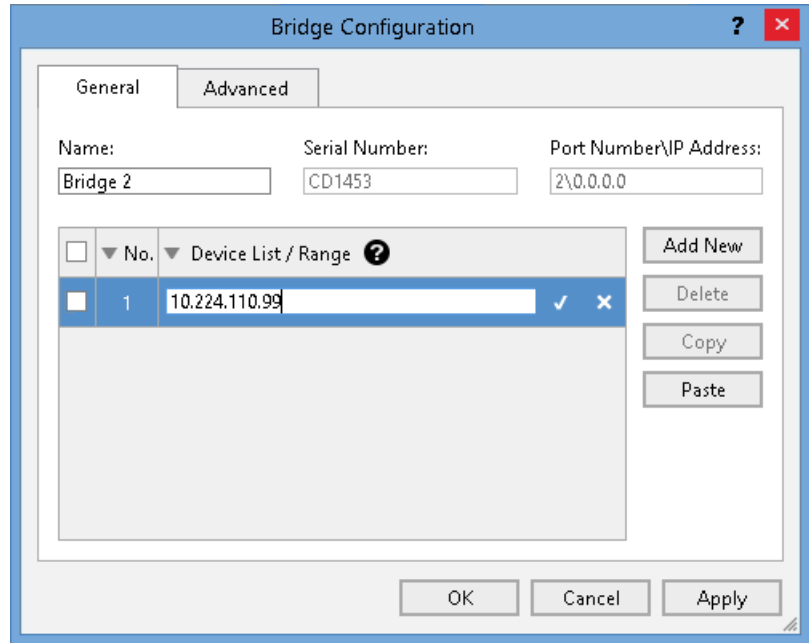
To add a bridge

1. In the **Network Browser** dialog box, below a bridged module, select the Ethernet network, and then select .



2. In the **General** tab, enter a name for the bridge, and then select **Add New**.
3. In the address box, enter the addressing information.

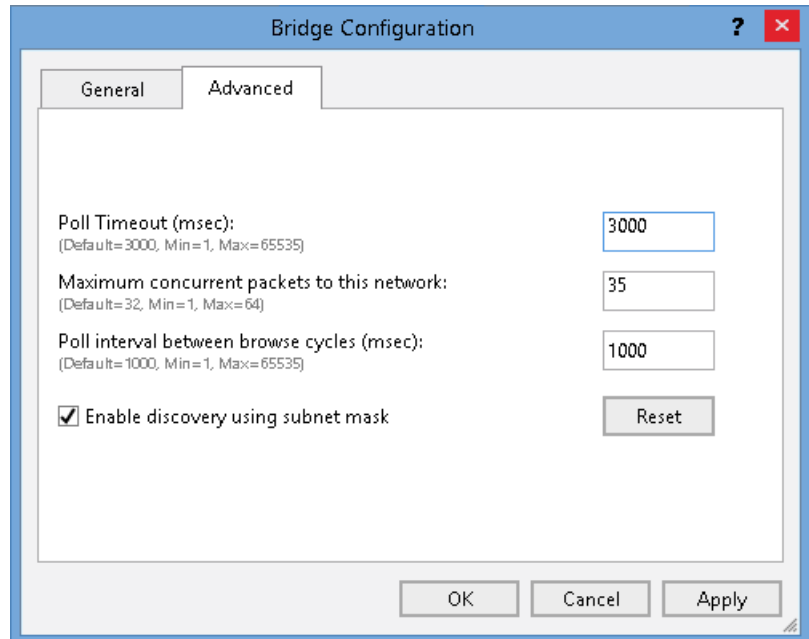
4. Select .



5. Select the **Advanced** tab to configure the browsing discovery options for the bridge.

- Poll Timeout
- Maximum current packets to this network
- Poll interval between browse cycles
- Enable discovery using subnet mask
- Reset the tuning


6. Select **OK**.



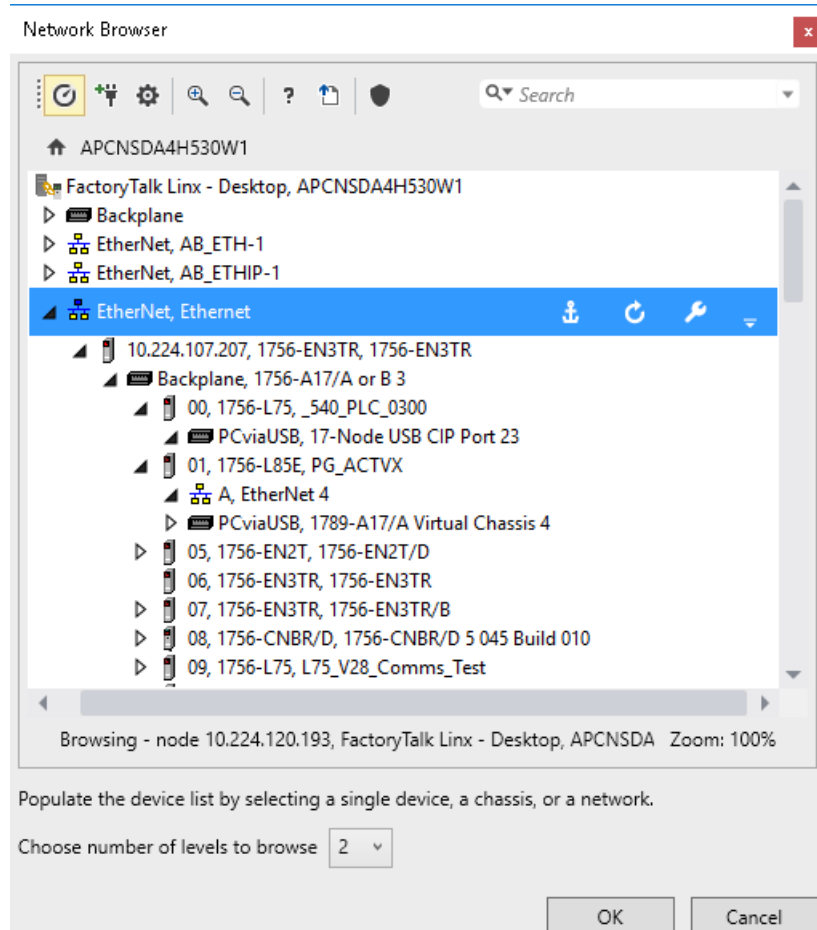
Populate the devices list

Use the **Network Browser** to browse a single device or multiple devices.

To populate the device list

1. On the **Flash Devices** tab, select  to open the **Network Browser**.
2. Expand each level of the node which contains the node you want in order for the devices on that level to be shown on the **Flash Devices** tab.
3. To browse a single device, select a device node. Skip to step 5.

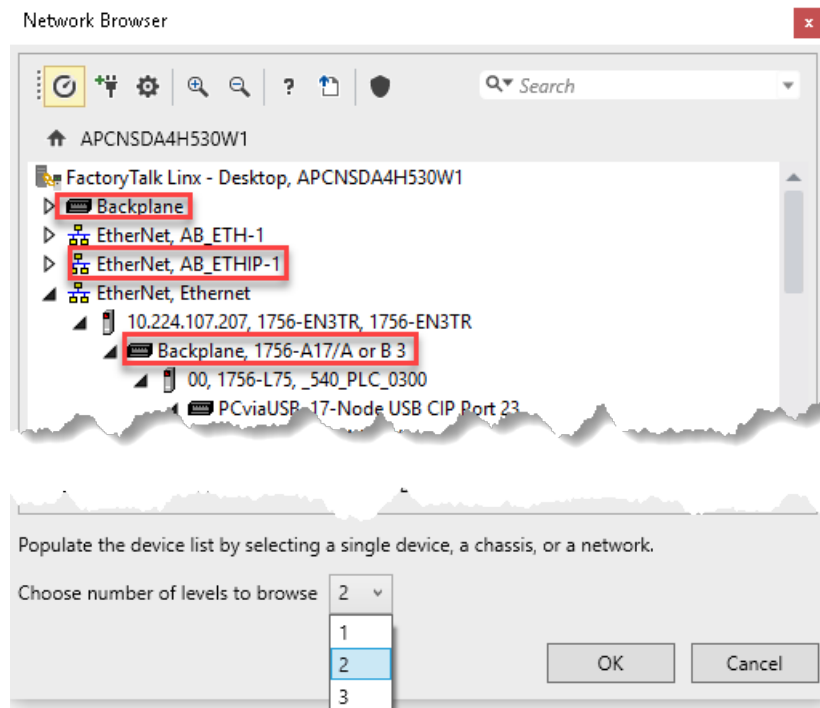
Tip: The SERCOS interface node is identified as a single device, but it has sub-devices when shown on the **Flash Devices** tab.



To browse multiple devices, select a network or a backplane node.

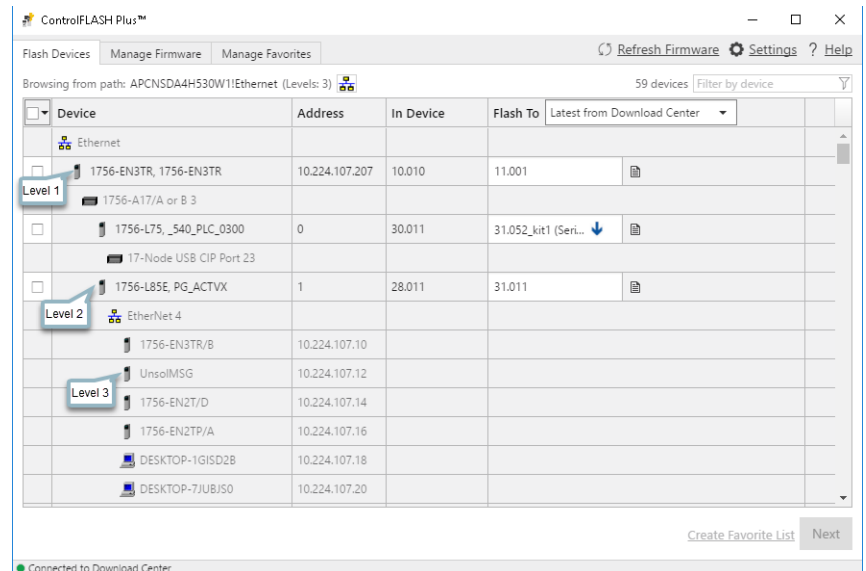
4. (optional) When browsing multiple devices, in the **Choose number of levels to browse** list, select the number of levels.

Tip: When the browsed devices are shown on in the **Flash Devices** tab, a backplane or a network node will not be identified as a level, but the devices under them.



5. Select **OK**.

The following example shows that when you select **3**, devices of the first three levels are shown on the **Flash Devices** tab.



Generating the device topology

The devices list is generated differently depending on what is chosen as the starting node.

When a device (for example 1756-L85E) is selected, only the device itself is shown in the devices list.

Tip: A bridge node is also treated as a device node, for example, 1756-ENBT/A.

When a bus is selected, such as a backplane ("1756-A10/A"), a network ("Ethernet"), or a FactoryTalk Linx driver ("AB_ETH-2"), all items under the bus, up to the number of levels configured, are shown in the devices list.

Prepare the networks for flashing

1. Choose an appropriate time after all processes can be stopped to remove the device or devices from service.
2. Verify that the device or devices on the network are properly connected and that communications bandwidth is available.

Tip: It's not recommended to perform the flash operation while running a process. Before flashing, choose an appropriate time to remove your device or devices from service.

Flash scheduling

ControlFLASH Plus determines the flash scheduling depending on the devices' flashing configuration, their topology and parent-child relationships.

ControlFLASH Plus version 4.00.00 supports enhanced concurrent flashing of up to 20 devices regardless of their topology. This capability is turned on by default. The enhanced concurrent flashing extends the sorts of devices that can be flashed concurrently compared to earlier versions of the tool.

ControlFLASH Plus resets these devices after the flash operation. Specifically:

- Devices with parent-child relationships are now flashed concurrently.
- Devices on Ethernet linear/DLR topologies are now flashed concurrently.

Exceptions are automatically managed by ControlFLASH Plus:

- Parent/children devices are flashed sequentially (For example, 1756-DNB).
- Devices on Ethernet linear/DLR topologies are flashed sequentially (For example, PowerFlex Drives).
- Devices on a SERCOS network are updated sequentially.

Note: Future versions of the PowerFlex firmware will allow for concurrent flashing.

When using ControlFLASH Plus version 2.00.00 or earlier, or when the enhanced concurrent flashing is turned off, the tool can flash up to 20 devices concurrently based on their topology except for the following cases:

- Parent/children devices are updated sequentially. First the parent devices are flashed concurrently, and then the children devices are flashed. Children devices may be flashed concurrently depending on their topology.
- Peer devices on linear buses are updated sequentially. Examples of linear buses include Ethernet Linear/DLR (not Star) and SERCOS.
- Devices with multiple active ports in a chassis are updated sequentially. Example of a device with multiple active ports would be a 1756-EN2TR with two network connections.

Flash devices

This chapter tells you how to update firmware by using ControlFLASH Plus.


Before you begin, make sure that you have prepared your system for flashing. If you need help, refer to the back cover of this publication for support information.

Use ControlFLASH Plus to update firmware

Use ControlFLASH Plus to flash firmware revisions on one or multiple devices.

Important:	<ul style="list-style-type: none"> ControlFLASH Plus only supports the firmware update for devices supporting the Common Industrial Protocol (CIP). To perform updates of non-CIP devices, use the legacy ControlFLASH tool. Make sure to specify the correct revision that you want to upgrade for your device. Otherwise, an unpredictable result may occur. Check on the Rockwell Automation Product Compatibility and Download Center or with your technical support representative if you are unsure about making the update. To avoid the flash operation from being interrupted, make sure the computer is powered to run throughout the operation and is not configured to enter or manually put into sleep mode.
-------------------	--

To flash devices

- (optional) On the **Flash Devices** tab, click  to set up the browsing path on the network. The last selected path will be selected by default for subsequent uses.
- On the **Flash Devices** tab, select one or multiple devices by selecting the check box on the left column.

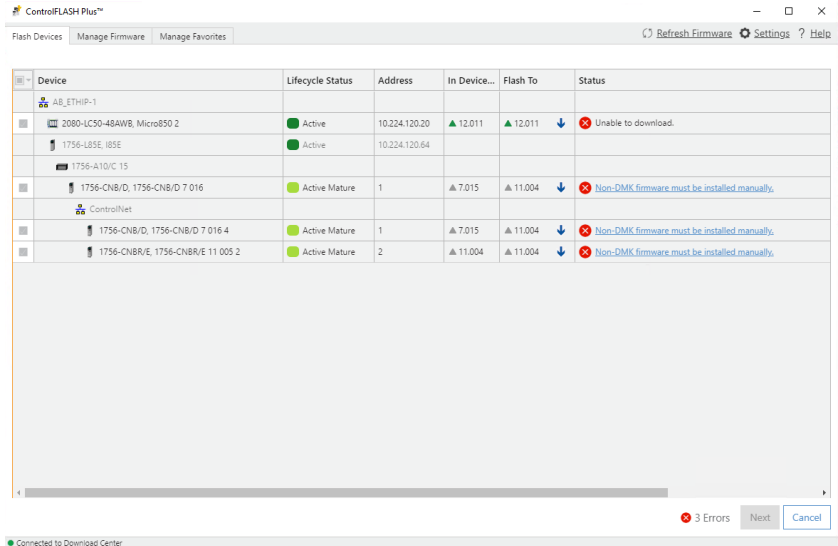
Tip: To select devices, enter the device name in the **Filter by device** text box. Devices are filtered as you enter text.
- In the **Flash To** column, select the revisions to update the selected device.

Note:

 - When a Safety controller is selected, the check box of its partners will be selected and disabled automatically, and the revision of its partner will be changed as the Safety controller's.
 - When there are wrong mode warnings, change the device mode in Studio 5000 Logix Designer or Connected Components Workbench and click the refresh button.
- (optional) In the **Compatibility** dialog box, select compatible firmware revisions.
- Click **Next**.

Note: If any of the selected revisions need to be downloaded from the Product Compatibility and Download Center, the **Download Center License Agreement** dialog box opens. Select **Accept**.

After the download completes, check the non-DMK firmware revisions and the incompatible ones. Select **Non-DMK firmware must be installed manually** to locate the file in the monitored folder and install all the non-DMK firmware kits manually, and then select **Refresh Firmware**. Select **Next**.



6. Read and understand all warning messages shown before proceeding.
7. Click **Flash**.

Tip: When a dialog box prompts you to confirm whether to trust the publisher of a DMK during the update, you can choose to trust it to continue. When the operation completes:

- Click **Done** to return to the beginning of the flash workflow.
- Click **Retry** to flash devices whose flash operations have failed or were canceled.

Compatibility dialog box

How do I open the Compatibility dialog box?



- On the **Flash Devices** tab, click , , or **Compatibility Issues**.

ControlFLASH Plus provides compatibility information after selecting firmware revisions to flash. Incompatible firmware revisions may cause some issues to the devices. Use the **Compatibility** dialog box to:

- Check compatibility information.
- Select compatible firmware revisions to flash.
- Ignore incompatible devices as needed.

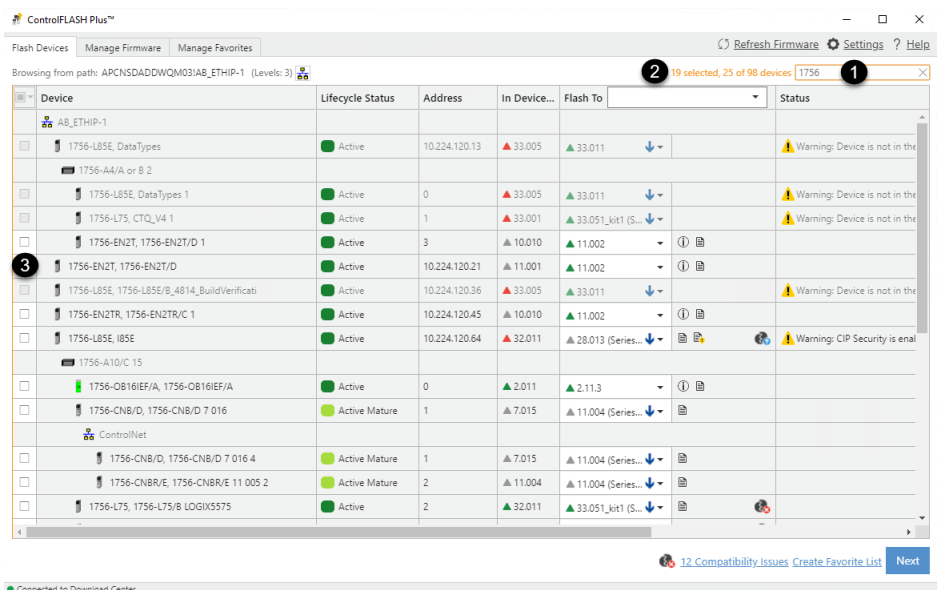
Components in the Compatibility dialog box

The following table explains the items in the **Compatibility** dialog box and their meanings.

Item	Description
Lock Revision	This column shows the current device's locked or unlocked status. Hover over the blank cell and click  to lock the current device revision. The unlocked devices' compatible choices will be updated to ensure compatibility with the locked device revision. Lock one or multiple devices as needed. Unlock the locked devices if there are no compatible firmware revisions.
Current Choices	This column shows the following sub-columns: <ul style="list-style-type: none"> • Device shows devices with compatibility issues. • In Device shows each device's current firmware revision. • Flash To shows each device's firmware revision selected on the Flash Devices tab.
Compatible Choices	This column shows suggested compatible firmware revisions. <ul style="list-style-type: none"> • Closest Compatible shows all compatible firmware revisions which are closest to the current firmware revisions. <p>Note: The closest compatible firmware revision won't be lower than the selected revision.</p> <p>Latest Compatible shows all compatible firmware revisions which are latest from the Product Compatibility and Download Center. Indications appear if there are locked devices and no compatible firmware revisions.</p>
Ignore incompatible firmware revisions	This column shows the delete icons. Click  to ignore the current incompatible device. Ignored devices will be removed from this dialog box and still listed on the Flash Devices tab.

Filter devices on the Flash Devices tab

The device list is filtered immediately as text included in the device name is entered in the **Filter by device** box.



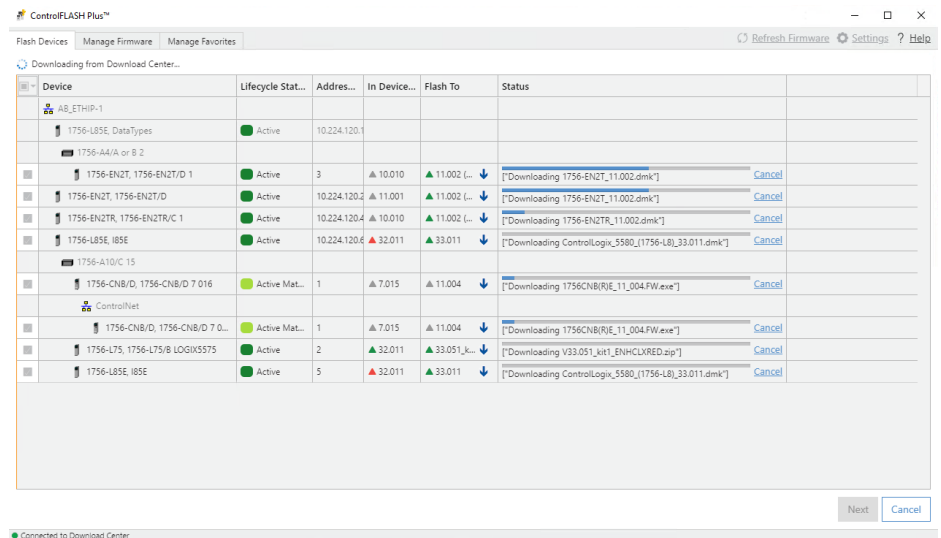
The following table explains each item when filtering the devices on the **Flash Devices** tab.

Item	Description
1	Shows the text you are entering.
2	Shows the amount of filtered and total devices.
3	Highlights the filtered devices in orange. Devices whose name includes the entered text will be shown.

Cancel download operations

After the download starts, clicking [Cancel](#) on the bottom right of the **Flash Devices** tab will cancel all firmware revisions' download and clicking [Cancel](#) at the end of the progress bar will cancel a firmware revision's download.

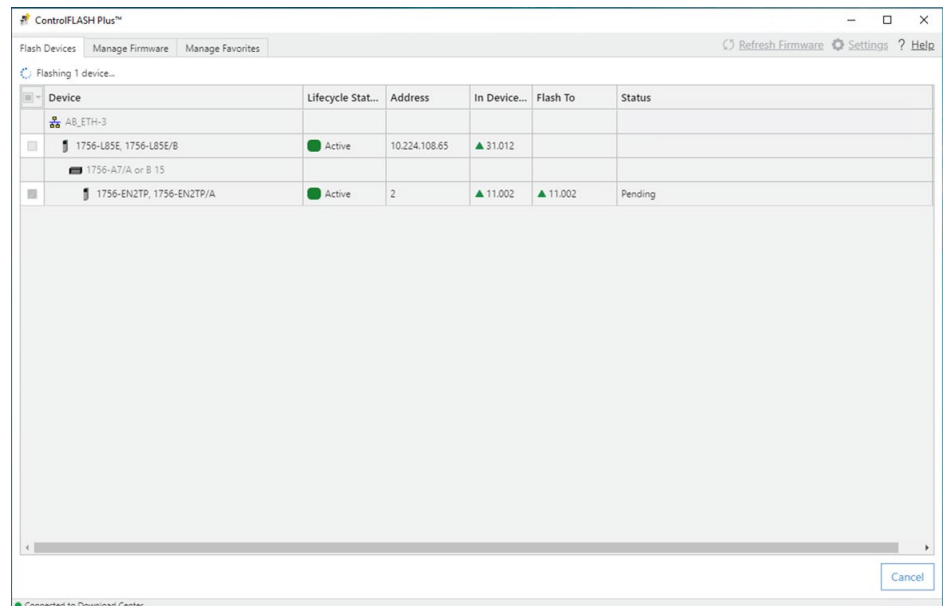
When you cancel a download operation, all the downloaded files will be removed.



Cancel flash operations

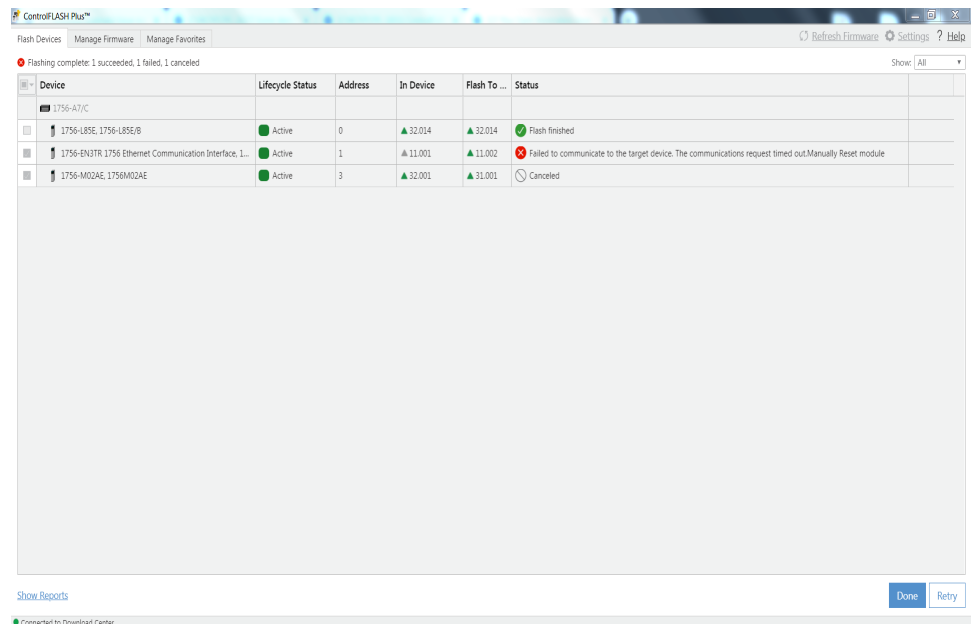
After the flash operation starts, clicking the **Cancel** button will cancel all pending device updates. All device updates already started will not be cancelled, but will proceed to completion as normal.

In the following example, the update of *1756-L85E* is in progress while the rest of the devices are pending. Clicking **Cancel** will only cancel the updates of devices in the **Pending** status.



Retry canceled or failed flash operations

The following example shows that three devices are updated successfully, while the update of *1756-EN3TR* failed and the update of *1756-M02AE* was canceled.



Click **Retry** will restart canceled and failed flash operations.

Manage firmware

Use the **Manage Firmware** tab to manage firmware revisions located in the monitored folders. When you are signed in to the Product Compatibility and Download Center, it also allows you to download firmware revisions and view the firmware revisions' Important Notice from the Product Compatibility and Download Center.

For more information about this tab, refer to [Manage Firmware tab](#) on [page 32](#).

Filter devices on the Manage Firmware tab

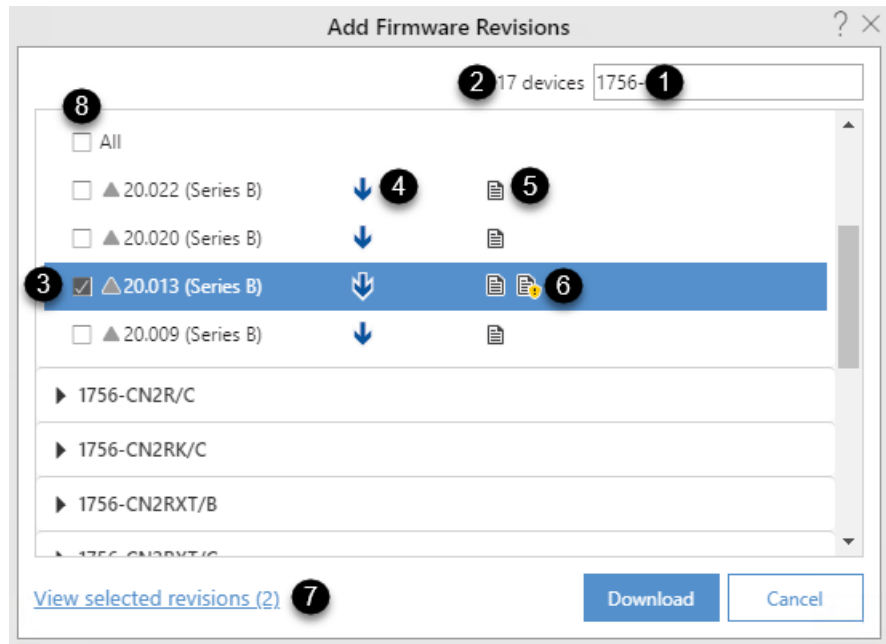
The device list is filtered immediately as text included in the device name is entered in the **Filter by device** box.

Device	Vendor	Lifecycle Status	Revisions	File Path
1756-EN2TR	Rockwell Automation...	Active	▲ 11.002	C:\Users\N0547892\Downloads--
1756-HYD02	Rockwell Automation...	Active	▲ 32.1	C:\Users\N0547892\Downloads--
1756-L65	Rockwell Automation...	Discontinued	20.58.130	C:\Users\N0547892\Downloads--
1756-L72	Rockwell Automation...	Active	20.58.130	C:\Users\N0547892\Downloads--
1756-L73	Rockwell Automation...	Active	20.58.130	C:\Users\N0547892\Downloads--
1756-L74	Rockwell Automation...	Active	20.58.130	C:\Users\N0547892\Downloads--
1756-L81E	Rockwell Automation...	Active	▲ 32.014	C:\Users\N0547892\Downloads--
1756-L81ES	Rockwell Automation...	Active	▲ 32.013	C:\Users\N0547892\Downloads--
1756-L82E	Rockwell Automation...	Active	▲ 32.014	C:\Users\N0547892\Downloads--
1756-L82ES	Rockwell Automation...	Active	▲ 32.013	C:\Users\N0547892\Downloads--
1756-L83E	Rockwell Automation...	Active	▲ 32.014	C:\Users\N0547892\Downloads--
1756-L83ES	Rockwell Automation...	Active	▲ 32.013	C:\Users\N0547892\Downloads--
1756-L84E	Rockwell Automation...	Active	▲ 32.014	C:\Users\N0547892\Downloads--
1756-L84ES	Rockwell Automation...	Active	▲ 32.013	C:\Users\N0547892\Downloads--
1756-L85E	Rockwell Automation...	Active	▲ 32.014	C:\Users\N0547892\Downloads--
1756-M02AE	Rockwell Automation...	Active	▲ 29.011	C:\Users\N0547892\Downloads--
1756-M02AS	Rockwell Automation...	Active	▲ 32.001	C:\Users\N0547892\Downloads--
1756-OB16IEF/A	Rockwell Automation...	Active	▲ 32.1	C:\Users\N0547892\Downloads--
1756-OB16IEF/A	Rockwell Automation...	Active	▲ 2.11.3	C:\Users\N0547892\Downloads--

The following table explains each item when filtering the devices on the **Manage Firmware** tab.

Item	Description
1	Shows the text you are entering.
2	Shows the amount of filtered and total devices.
3	Highlights the filtered devices in orange. Devices whose name includes the entered text will be shown.

Add Firmware Revisions dialog box



The following table explains each item in the **Add Firmware Revisions** dialog box.



Item	Description
1	Shows the text you are entering.
2	Shows the number of the filtered devices.
3	Allows you to select the firmware revision.
4	Indicates that the firmware revision is found in the Product Compatibility and Download Center. To download the firmware revision, sign in to the Product Compatibility and Download Center.
5	Opens the firmware revision's Release Notes found in the Product Compatibility and Download Center.
6	Opens the firmware revision's Important Notice found in the Product Compatibility and Download Center. Tip: To view the firmware revisions' Important Notice, sign in to the Product Compatibility and Download Center.
7	Views the firmware revisions you selected.
8	Selects a device's all firmware revisions from the Product Compatibility and Download Center.
9	Shows the firmware revisions lifecycle states.
Download	Selects this button to download the selected firmware revisions from the Product Compatibility and Download Center.
Cancel	Selects this button to returns to the Manage Firmware tab.

Add firmware revisions

After signing in to the Product Compatibility and Download Center, use the **Add Firmware Revisions** dialog box to download firmware revisions and view firmware revisions' Important Notice.

To add firmware revisions

1. On the **Manage Firmware** tab, select **Add Firmware Revisions** or **+** in the **Device** column.
2. In the **Add Firmware Revisions** dialog box, search devices, and then select firmware revisions as needed.

3. (optional) Select  to view the firmware revisions' Release Notes or select  to view the firmware revisions' Important Notice.
4. (optional) Select **View selected revisions** to view the firmware revisions you select.
5. Select **Download**.
 - Tip:** When the operation completes:
 - If it is a DMK file, the revision will appear in the **Revisions** column automatically.
 - If it is a non-DMK file, select **Non-DMK firmware must be installed manually** to locate the firmware in the monitored folder, and then install the firmware manually. The revision will appear in the **Revisions** column after refreshing firmware.


Delete firmware revisions

Delete one or multiple unused firmware revisions in a single operation to improve inventory building performance.

Prerequisites

- Make sure the currently logged on user has the permission to delete firmware revisions.

To delete firmware revisions

1. On the **Manage Firmware** tab, select  [Delete Revisions](#) to turn on the delete mode.
2. Select the check boxes of firmware revisions you want to delete.
 - Tip:** Select a device's check box to select all its firmware revisions. Check box will appear dimmed, if you don't select all the firmware revisions of a device.
3. Select **Delete**.

The **Delete** is turned off when flashing devices or downloading firmware revisions.


4. When prompts, confirm the firmware revisions list.
5. Select **Delete**.

If the deletion fails, check the permissions of the firmware.

Export firmware inventory

Export firmware inventory to create a backup for the firmware revisions' information.

To export firmware inventory

1. On the **Manage Firmware** tab, select  [Export Revisions](#).
2. In the **Save As** dialog box, select a path and enter a name for the exported file.
3. Select **Save**.

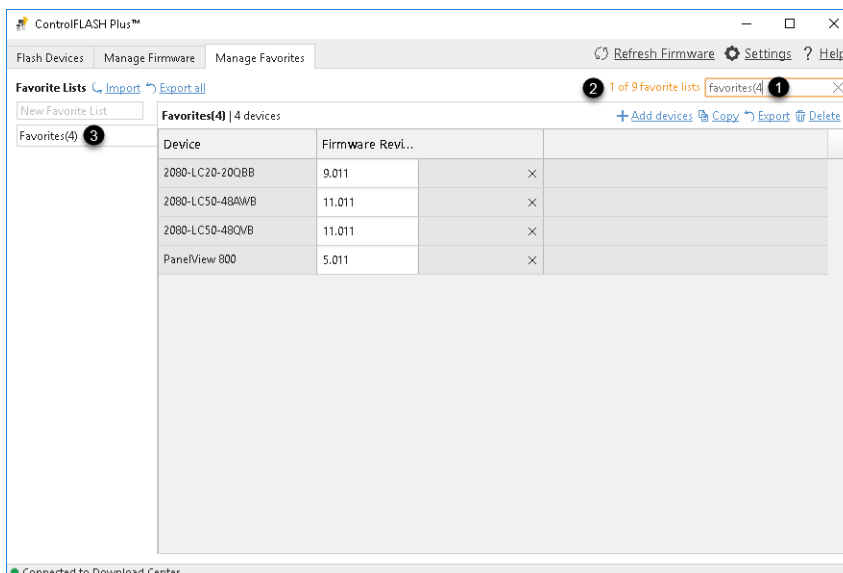
Manage favorite lists

Use the **Manage Favorites** tab to manage favorite lists. A favorite list includes devices and corresponding revisions that can be used to quickly select target revisions during flash operations. Use the import and export functions to share favorite lists with others.

For more information about the **Manage Favorites** tab, refer to [Manage Favorites tab](#) on [page 34](#).

Filter favorite lists on the Manage Favorites tab

The favorite list is filtered immediately as text included in the favorite list name is entered in the **Filter by device** box.



The following table explains each item when filtering the favorite list on the **Manage Favorites** tab.

Item	Description
1	Shows the text you are entering.
2	Shows the amount of filtered and total favorite lists.
3	Shows the filtered favorite list or lists. Favorite lists whose name includes the entered text will be shown.

FactoryTalk security in ControlFLASH Plus

FactoryTalk® security is designed to provide a layer of application security. Its purpose is to protect against internal threats that are either malicious or accidental by limiting access to only those individuals who legitimately need access to specific automation assets.

FactoryTalk security allows centralized administration of user accounts and access permissions. Security information, including user authentication and authorization, can be shared across all software products and hardware devices on a particular computer, throughout a plant, or across an entire enterprise.


FactoryTalk security services are fully integrated into the FactoryTalk Directory. When the ControlFLASH Plus installation completes, FactoryTalk Security is enabled by default. When launched, ControlFLASH Plus logs on to the FactoryTalk Network Directory.

In case you need to configure security policies for ControlFLASH Plus, use the following steps to do so.

Configure ControlFLASH Plus policy

To configure ControlFLASH Plus policy

1. Select **Start > All Programs > Rockwell Software > FactoryTalk Administration Console**.
2. In the **Select FactoryTalk Directory** dialog box, select **Network**, and click **OK**.
3. In FactoryTalk Administration Console, expand **System > Policies > Product Policies > ControlFlash** and double-click **Feature Security**.

Tip: ControlFLASH Plus and ControlFLASH™ use the same product policy settings.
4. In the **Feature Security Properties** dialog box, click the browse button  next to the **Firmware: Update** item.
5. In the **Configure Securable Action** dialog box, view or configure the permissions for a user or group.
 - ControlFLASH and ControlFLASH Plus can be installed and run on the same computer.
 - ControlFLASH and ControlFLASH Plus share the same product policy setting in FactoryTalk Administration Console that is **ControlFlash**.
 - Uninstalling ControlFLASH will cause legacy MSI firmware kits to become inaccessible to ControlFLASH Plus. To recover legacy firmware

About the co-existence of ControlFLASH and ControlFLASH Plus

kits that have become inaccessible to ControlFLASH Plus, simply install the latest version of ControlFLASH.

Device Management Kit

A Device Management Kit (DMK) is a file that contains firmware update files for one or more devices.

A DMK file contains:

- All files necessary to perform firmware upgrade of a single or multiple catalogs.
- Digital signature files for validation.
- Release Notes if it was included in the file.

Place DMK files in folders monitored by ControlFLASH Plus and the software will search all the monitored folders whenever it looks for available revisions. The monitored folders can be added on the **Firmware Locations** tab of the **Settings** dialog box.

Tip: We don't recommend that you store DMK files in the legacy ControlFLASH installation folder, because in rare cases, DMK files in that folder can be deleted.

Verification of DMK's publisher

The certificate of Rockwell Automation has changed since November 2019.

The new DMK is either:

- Signed by Rockwell Automation with a new certificate.
- Signed by a third party company.

If the new DMK's publisher is not in your system's trusted publisher list, you can log in as an administrator to choose to trust the publisher.

ControlFLASH Plus and FactoryTalk AssetCentre interaction

ControlFLASH Plus uses FactoryTalk AssetCentre to log user actions such as flashing a device or starting the application. The following information is included in the log:

- Windows credentials
- Device being flashed
- Path to the device being flashed
- Status of the operation

The following information is also available in the ControlFLASH Plus log file.

Information monitoring

In FactoryTalk-enabled software products, information such as system events and user actions are recorded in the Event Log and Audit Log.

Event Log

The Event Log shows database information regarding events that occur in the system. Events are generally system-initiated. For example, an upload occurred as scheduled, or an alarm condition occurred. Only events that occur in FactoryTalk-enabled products are recorded in the Event Log.

Audit Log

The Audit Log shows database information regarding actions that users perform in the system, such as editing a Logix Designer project or checking-out a file from the FactoryTalk AssetCentre database. Audit records are generated by FactoryTalk-enabled products.

FactoryTalk AssetCentre

FactoryTalk AssetCentre offers a centralized repository for tracking and auditing the changes made to a plant-wide system. Any information related to an application is logged in to the FactoryTalk AssetCentre server.

The details of the log usually contain the following fields:

- Date/Time
- User Name
- User Description (full user name, based on user information held in a security token or domain name; required for audit messages)
- Severity of message (error, warning, information, audit)
- Audience for message (operator, engineer, developer, FactoryTalk AssetCentre)
- Message text (text or resource ID that resolves to text when retrieved or passed between machine boundaries)
- Argument list (optional placeholders in message text)

Any additional details, apart from the basic fields listed here, can also be logged on to FactoryTalk AssetCentre server. For example, the *resource* field of the Audit log is not a part of the basic message format and is considered an additional field.

The following ControlFLASH Plus activities are logged:

- Flash burn started. Includes the following details:
 - Date/Time the flash began
 - Firmware Revision, both From and To
 - Username
 - Path to the device being flashed
 - Device Target Module Name and Identifier
- Flash Burn Status (Success/Failure)

The ControlFLASH Plus activities are logged only if the client is properly configured with FactoryTalk AssetCentre server. ControlFLASH Plus logs the current windows user login. ControlFLASH Plus software activities are logged into the log_AuditEventLog table of the FactoryTalk AssetCentre server.

If the connection between the client and server is lost while ControlFLASH Plus is used, all of the events are cached into a local log and are then updated into FactoryTalk AssetCentre server when the connection resumes.

The connectivity of the client to FactoryTalk AssetCentre server, if present, is identified with the help of the following registry entry.

```
HKEY_LOCAL_MACHINE\SOFTWARE\Rockwell
Software\FactoryTalk AssetCentreClient\EventLog
Key- Server
Value- (Server Name)
```

This registry search is done during the launch of the ControlFLASH Plus application.

Logging the device update status

The update status (Success or Failure) is logged into the FactoryTalk AssetCentre server. You can view the reasons for the Success or Failure in the ControlFLASH Plus log. The status of the update process is logged into FactoryTalk AssetCentre with the following details:

Field	Description
Date and Time	Date and Time at which the update process has finished for the device.
Source	Application name, for example, ControlFLASH Plus
Location	Computer name on which ControlFLASH Plus is being executed.
Resource	Name of the resource that is ControlFLASH Plus.
Username	FTAssetSecurity Login, if present, else Windows login

Field	Description
Message Text	If update succeed: The device "device name" is SUCCESSFULLY updated from version "x.x" to "y.y" and the path to the device being flashed is "device path". If update failed: The update process of the device "device name" from version x.x to y.y FAILED and the path to the device being flashed is "device path".

ControlFLASH Plus error codes

This appendix describes common error messages you may see when running the ControlFLASH Plus software.

Error Message	Description
Application Internal Error	Occurs when a critical error appears. For example, the installation is corrupted.
Application is already running.	An error occurred while more than one ControlFLASH Plus application is running.
URL Port Error	An error occurred when no free URL ports exist.
Application Close Error	An error occurred when closing the application during the flashing process.
Communication Error	An error occurred while the ControlFLASH Plus software tried to communicate with the target device. Verify that: <ul style="list-style-type: none"> • All cable connections are secure. • The target device has power. • FactoryTalk Linx software is properly configured.
Data File Error	The data file used in programming could not be read. Check with a technical support representative to obtain a new data file.
Failed to communicate to the target device. You do not have the permission to perform this operation.	The error might be caused because that: <ul style="list-style-type: none"> • The security authority identifier of the target device does not match the identifier in FactoryTalk Services Platform. Make sure you have the permission to perform the operation. • The slot used for the controller is not a trusted slot. Make sure to use a trusted slot for the controller.
DMK digital signature verification	The digital signature of the DMK file is not valid. Verify that: <ul style="list-style-type: none"> • The DMK file contains a valid digital signature. • The root certificate of the DMK file is trusted. • The DMK file is signed by a trusted publisher and issuer.
Instance Validation Error	The target device did not report enough information to be properly identified. Check with a technical support representative for help in resolving this problem.
Load Driver Error	The ControlFLASH Plus software could not find an essential support file for the selected catalog number. Check with your technical support representative to verify that the correct drivers is loaded.
Load Device Error	The ControlFLASH Plus software could not load properties from devices.
Mode Error	The target device is in a mode in which it cannot be programmed. Place the device into the appropriate mode.
FactoryTalk Security Error	The error occurred when failed to verify the user in the FactoryTalk Security service.
FactoryTalk Linx not installed	Make sure FactoryTalk Linx version 6.00.00 or later is installed.
FactoryTalk Linx Load Error	An error occurred while the ControlFLASH Plus software tried to install the network protocol driver (DTL32.DLL). Verify that FactoryTalk Linx software is properly installed and configured.
Script File Error	The script file associated with the selected upgrade is corrupt. Check with a technical support representative to obtain a new script file.
Could not fetch dynamic install driver information.	An error occurred when data about the installed driver cannot be obtained.
Could not fetch configuration.	Configuration of the application is not valid. Try to reinstall the application.
Could not fetch the current user of FactoryTalk Security.	Cannot obtain information about the logged-on user in FactoryTalk Security. Check the FactoryTalk Security installation.
Could not fetch determination if the user has permissions.	Cannot obtain user permissions from FactoryTalk Security.

Appendix A ControlFLASH Plus error codes

Error Message	Description
Could not fetch determination if single sign-on is enabled.	Cannot obtain information if single sign-on (SSO) is enabled on the machine.
Could not parse response of single sign-on logging.	The information obtained from FactoryTalk Security about the single sign-on user is not valid.
Could not log on the single sign-on user.	The single sign-on user cannot log onto FactoryTalk Security.
Could not parse response of the user's logging.	The information obtained from FactoryTalk Security about the user is not valid.
Could not log on the user.	The user cannot log onto FactoryTalk Security.
Could not log off the current user.	The user cannot be logged off from the FactoryTalk Security.
User <Username> cannot be authenticated. Contact your administrator for more information.	Wrong credentials are passed to FactoryTalk Security logon.
Could not open a file.	The referred help file does not exist or is not accessible.
Could not get the help folder.	The folder with help files does not exist or is not accessible.
Could not open the folder.	The folder for reports is not accessible.
The favorite lists cannot be imported.	Cannot import favorite lists (the favorite lists are probably corrupted).
The favorite lists cannot be exported.	Cannot export favorite lists (the target folder is probably not accessible).
A favorite list's name cannot contain any of the following characters: <, >, ", /, \, , ?, *	Invalid characters are used in the favorite list name.
Cannot apply the favorite list to all devices. Please check the list before proceeding with the flash operation.	Warns users that not all revisions used in the favorite list are available on the computer or compatible with particular devices.
Multiple Flash To revisions are selected for a single device type. Select one revision for each device type to create a favorite list.	This error occurs when creating a favorite list with the selected devices and for one device type there are multiple selected devices with different revisions.
The name of the favorite list is already used.	This error occurs when the given name of the favorite list already exists.
The firmware you want to delete cannot be deleted.	The firmware files to be deleted are not accessible.

Rockwell Automation support

Use these resources to access support information.

Technical Support Center	Find help with how-to videos, FAQs, chat, user forums, and product notification updates.	rok.auto/support
Knowledgebase	Access Knowledgebase articles.	rok.auto/knowledgebase
Local Technical Support Phone Numbers	Locate the telephone number for your country.	rok.auto/phonesupport
Literature Library	Find installation instructions, manuals, brochures, and technical data publications.	rok.auto/literature
Product Compatibility and Download Center (PCDC)	Get help determining how products interact, check features and capabilities, and find associated firmware.	rok.auto/pcdc

Documentation feedback

Your comments help us serve your documentation needs better. If you have any suggestions on how to improve our content, complete the form at rok.auto/docfeedback.

Waste Electrical and Electronic Equipment (WEEE)



At the end of life, this equipment should be collected separately from any unsorted municipal waste.





Rockwell Automation maintains current product environmental information on its website at rok.auto/pec.

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