
ABB MEASUREMENT & ANALYTICS | HOW TO GUIDE | 2108082MNAA

Load Pre-Compiled IEC Applications RMC-100, XSeries^{G5}

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Additional Information

Document	Document number
IEC 61131 Developer's Guide	2105857
IEC INI programmer's guide	2105858

1 Overview

This document describes how to load pre-compiled IEC applications on ABB Totalflow devices and how to add the application-specific file to PCCU for app management and configuration. This process requires two files:

- The pre-compiled application package (the file with .pkg extension). This file will be copied to the device itself. It contains the actual (executable) application functions. The file name may include the application name and the part number and revision.
- The PCCU .ini file for access to the application. This file will be copied to the host system with PCCU, the user interface to the device. This file will be incorporated into PCCU to allow the operator access to the IEC application. It defines the app-specific configuration groups and screens (tabs).

1.1 Available pre-compiled IEC apps

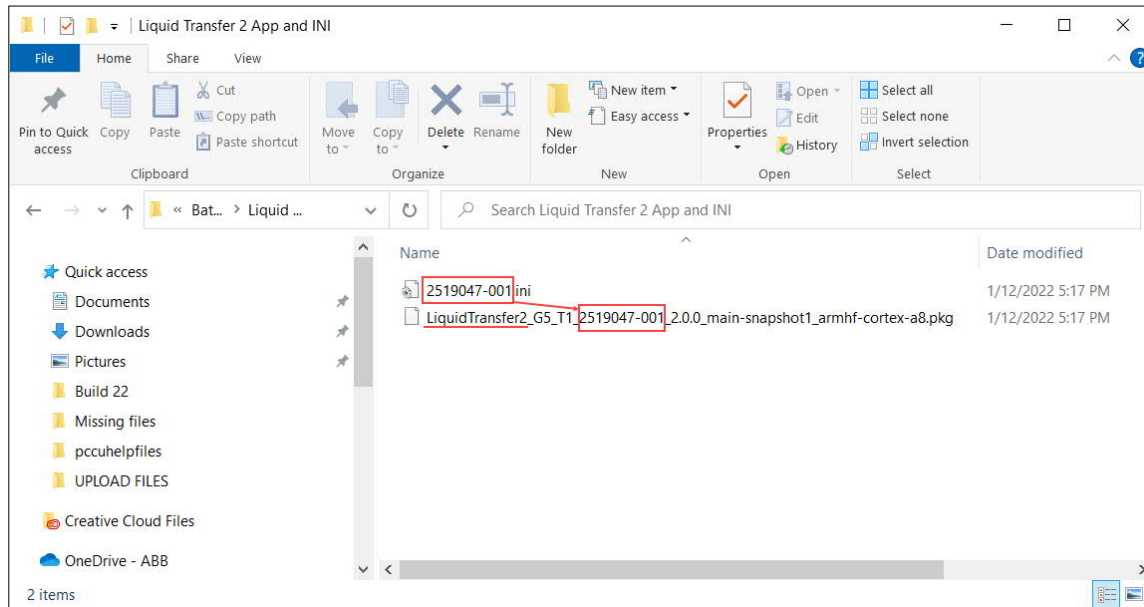
The following are pre-compiled IEC applications available for purchase from ABB:

- Chemical Injection
- Choke Control
- Oil Transfer
- Pump Control
- Pump Control 2
- Liquid Transfer
- Liquid Transfer 2
- Well Test

The procedures in this document apply to all the applications listed above.

When you purchase any of these applications, you will receive the specific application's package file and an INI file. [Figure 1-1](#) shows the files for the Liquid Transfer 2 app as an example. The application package file name includes the application name, the part number and the revision (in this example, LiquidTransfer2, 2519047-001). The INI file name has the application part number and the revision (2519047-001). If purchasing and loading several applications or later versions of existing ones, make sure to keep the pkg/ini file pairs for the same application and version together. The part number and version must match to ensure the correct screens and tabs display for application use.

Figure 1-1: IEC application files



IMPORTANT NOTE: This document assumes that you have received the required files for the purchased application (.pkg and .ini files).

1.2 Required licensing for IEC apps

Licenses are required to run the applications. Licenses available for IEC applications range from Tier 1 to Tier 4 IEC. Make sure these types of licenses are available in the device before attempting to load the application. A procedure to add required credits is included in this document.

1.3 Number of IEC apps supported per device

The number of IEC applications supported depends on the type of device:

- RMC-100 Lite devices support a maximum of 2 IEC applications.
- RMC-100 standard devices support a maximum of 10 IEC applications.
- XSeries^{G5} devices (XRC^{G5} and XFC^{G5}) support only one (1) IEC application.

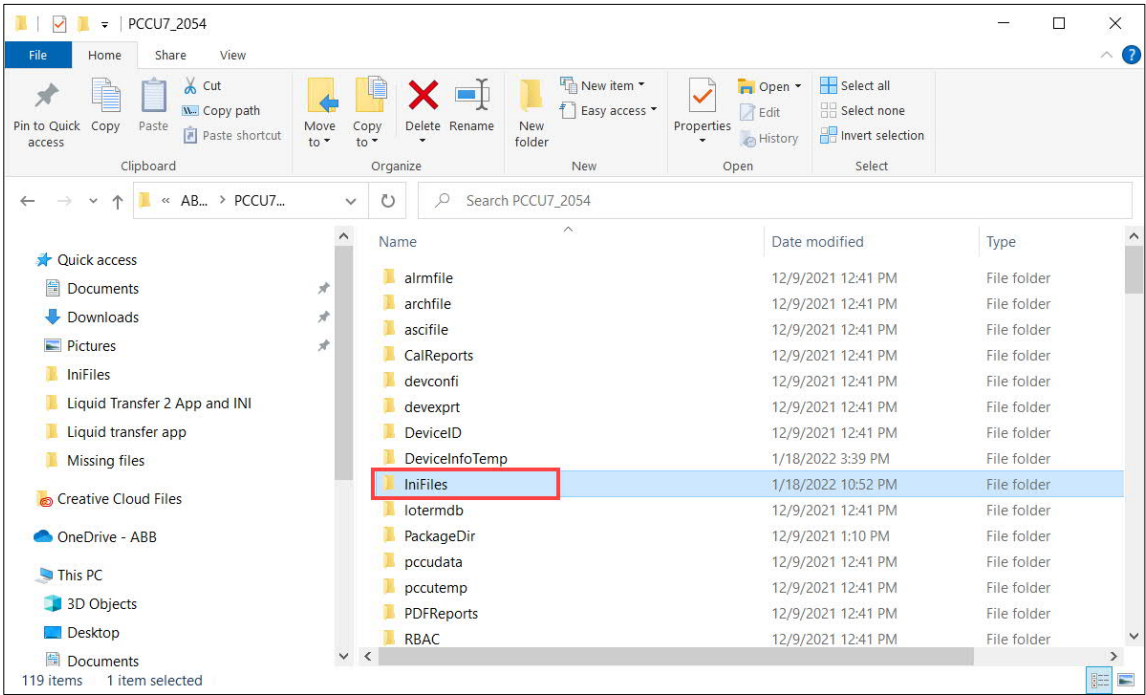
2 Add application ini file to PCCU

This procedure copies the application-specific ini file into the PCCU installation directory. The ini file ensures that PCCU displays the necessary screens for the configuration and management of the IEC application. Close PCCU before copying the file. Locate the PCCU version you will use for access to the IEC application if more than one PCCU version is installed in the system.

To install the file:

1. Using file manager, locate the installation directory for the desired PCCU version.
2. Locate the PCCU ini file subfolder. For example. C:\Program Files\ABB Totalflow\PCCU7\IniFiles ([Figure 2-1](#)).

Figure 2-1: IniFiles subfolder in PCCU installation folder



3. Copy the provided .ini file (Figure 2-2) to the IniFiles subfolder (Figure 2-3).

Figure 2-2: Example of ini file (for use with Liquid Transfer 2)

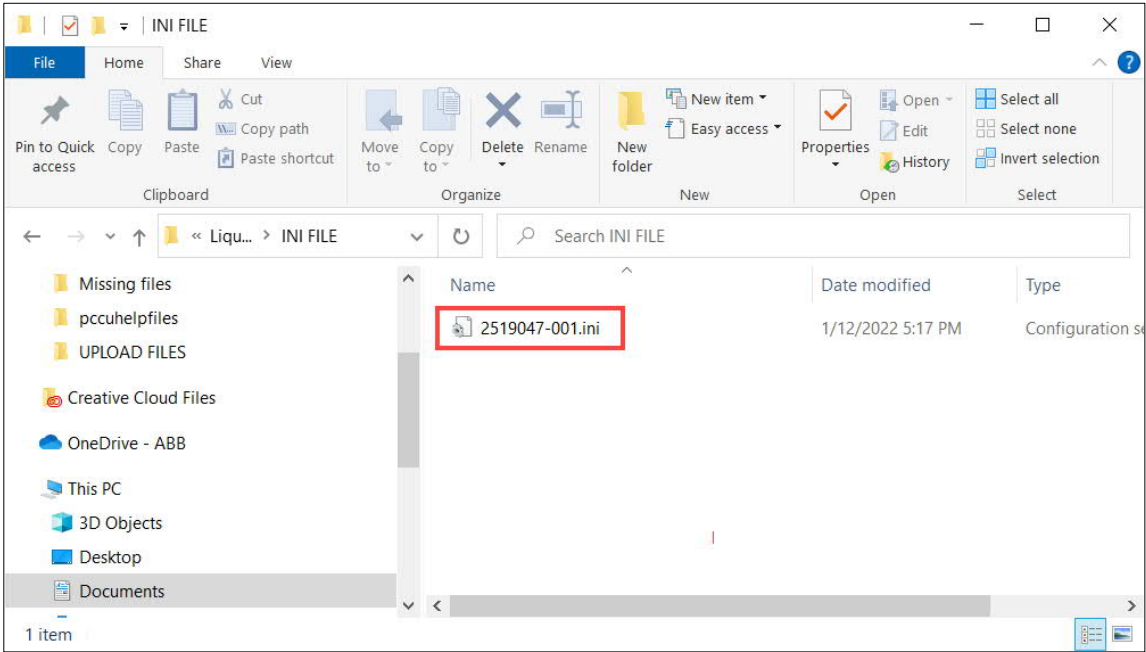
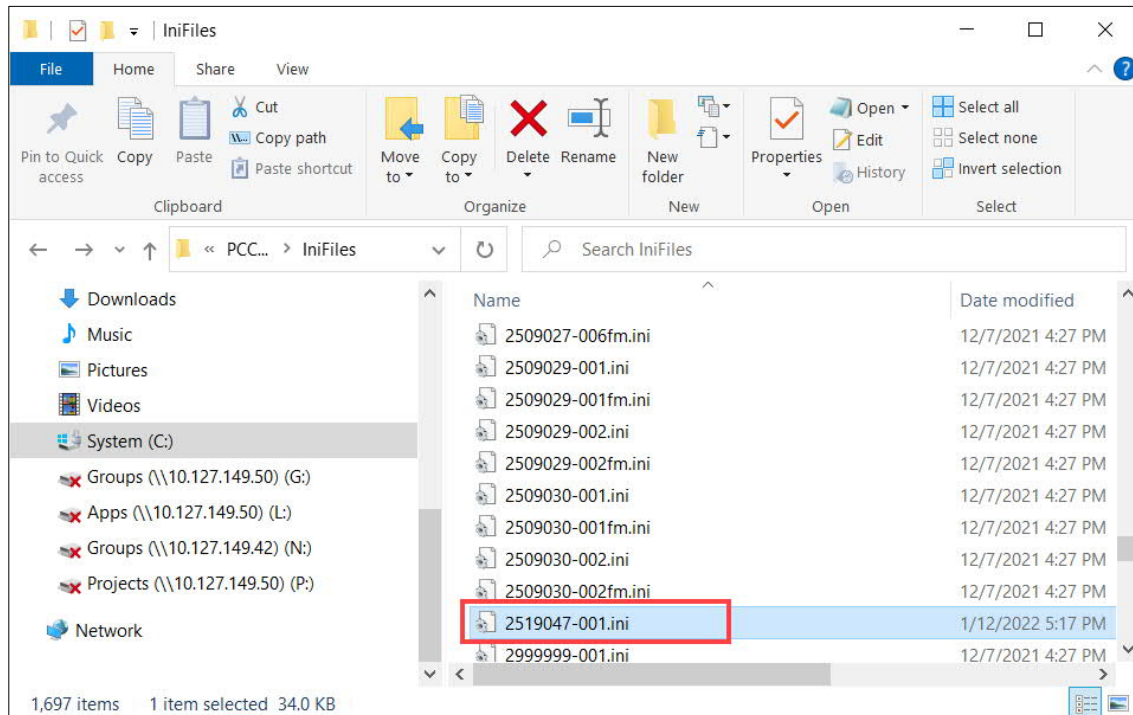


Figure 2-3: IEC app ini file in IniFiles folder in the PCCU installation directory

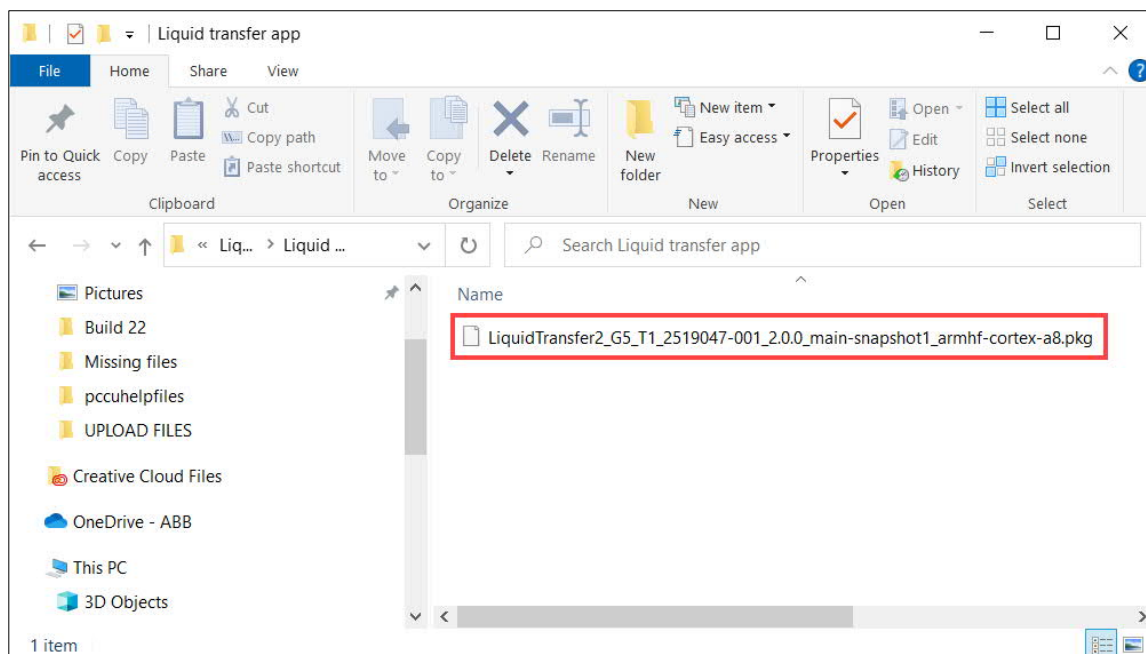


3 Load the IEC resource

This procedure loads the IEC application (resource) package (.pkg file) to the device using the device loader. Note that application packages will have the name of the application, part number and revision. To load the package:

1. Copy the provided application .pkg file to your Windows Desktop or other convenient location ([Figure 3-1](#)).

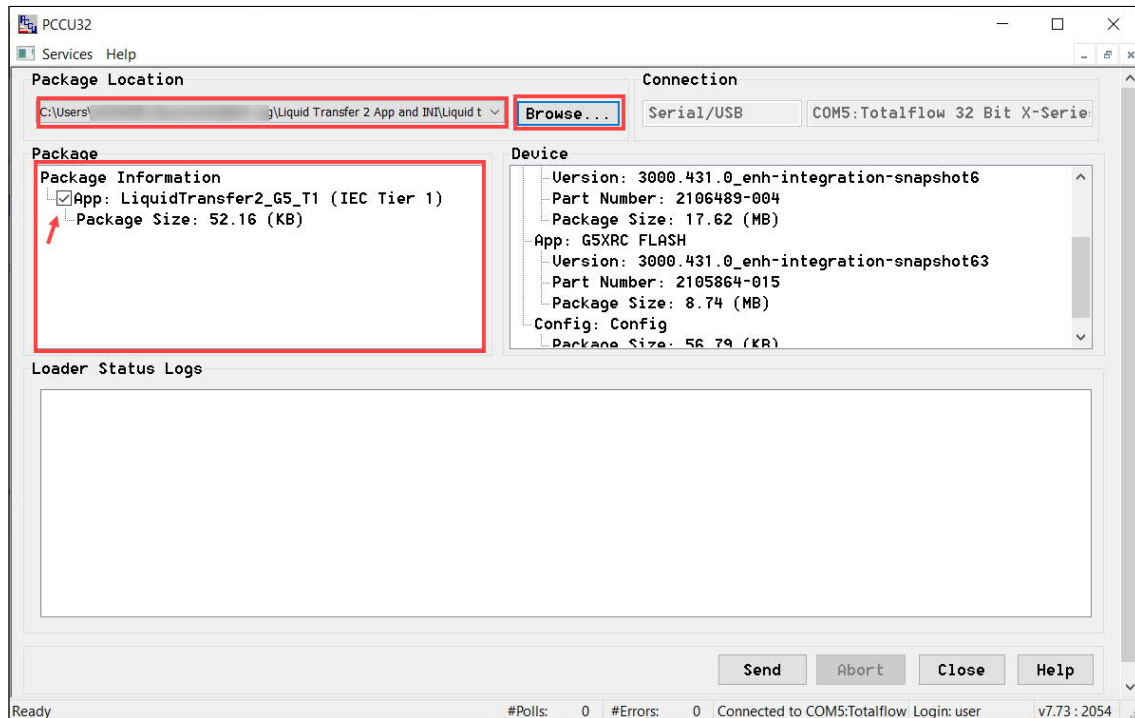
Figure 3-1: Copy the IEC application package file to host system for upload



2. Start PCCU.
3. Click the 32-Bit Loader icon on the top menu. The Connection Setup window displays. Select appropriate communication ports as required.

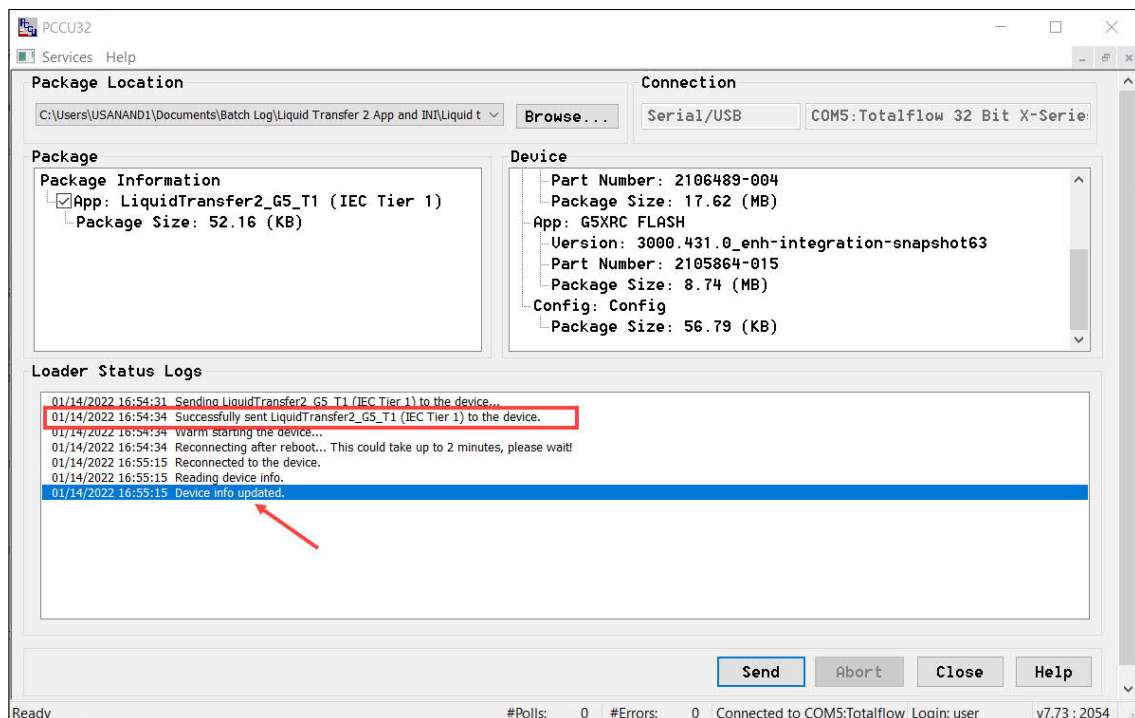
4. Click Connect at the connection setup window. The device loader screen displays.
5. Click Browse.
6. Locate and select the IEC resource file (pkg file) copied earlier.

Figure 3-2: Locate the IEC application pkg file from the main Loader screen



7. Click Send.
8. Verify the IEC resource loaded successfully by looking in the Status Log and finding the line that states: "Successfully sent <Resource> to the Device." See [Figure 3-3](#).

Figure 3-3: Load the IEC app on the device



9. Click Close to exit the device loader. The main PCCU screen displays again.
10. Remain on PCCU.

4 Add the IEC licenses

Licenses available for IEC applications range from Tier 1 to Tier 4 IEC. Licenses are required to run the applications. These licenses may already be available in the device. If not, you will need a credit key with the required number of IEC credits to transfer to the device. This procedure shows how to load or transfer IEC credits or licenses from a credit key to the device. It is assumed that the credit key contains the required credits. Select the correct license and load it onto the device.



IMPORTANT NOTE: The number of IEC applications supported depends on the type of device. The RMC-100 standard software supports up to 10 IEC applications. The RMC-100 Lite software supports 2 IEC applications. The XSeries^{G5} devices (XRC^{G5} and XFC^{G5}) support only one IEC application. For additional information on licensing click Help from the Application/License Management tab.

To add a license:

1. Insert the credit key in the host system USB port.
2. Click the PCCU Entry mode icon to connect with the device.
3. Click the top node of the navigation tree (Station ID).
4. Select the Application/License Management tab.
5. Click Load under the Key Credits section. The list of available credits in the key displays.
6. Select Transfer to device.
7. Select the desired IEC tier type from the Type drop-down list.
8. Select the number of IEC credits for the selected type from the Amount drop-down list.
9. Click Transfer.

Figure 4-1: Add IEC credits or licenses for the IEC pre-compiled application

The screenshot displays the 'Application/License Management' interface. On the left, the 'Key Credits' section shows 'SAP Serial #: 0' and 'Credit Key Serial #: 59'. Below this is a table of available credits:

Credit Type	Amount
IEC Tier 1	9
IEC Tier 2	17
IEC Tier 3	18
IEC Tier 4	18

A 'Load' button is located below the table. In the center, there are two radio buttons: 'Transfer to Device' (selected) and 'Transfer to Key'. Below these are two dropdown menus: 'Type' set to 'IEC Tier 1' and 'Amount' set to '1'. A 'Transfer' button is at the bottom. On the right, the 'Device Credits' section shows a table of current device credits:

Credit Type	Used	Surplus/Deficit
IEC Basic	1	0
CO2(NIST)	0	0
(spare)	-	-
IEC Tier 1	0	1
IEC Tier 2	0	0
IEC Tier 3	0	0
IEC Tier 4	0	0

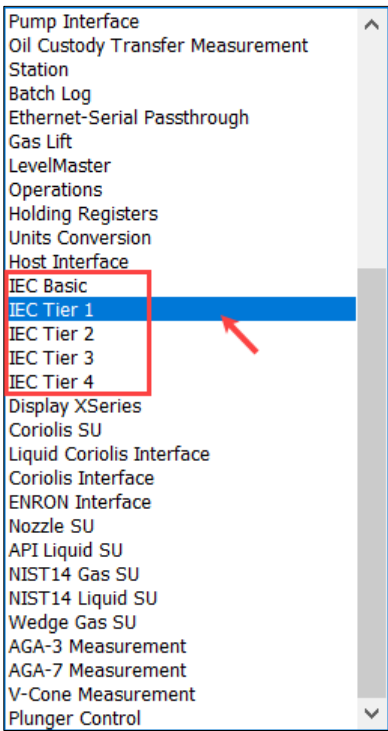
10. Stay on the Application/License Management tab for the next procedure.

5 Add the IEC application

Add the IEC application instance in the same way other off-the shelf ABB Totalflow applications are added:

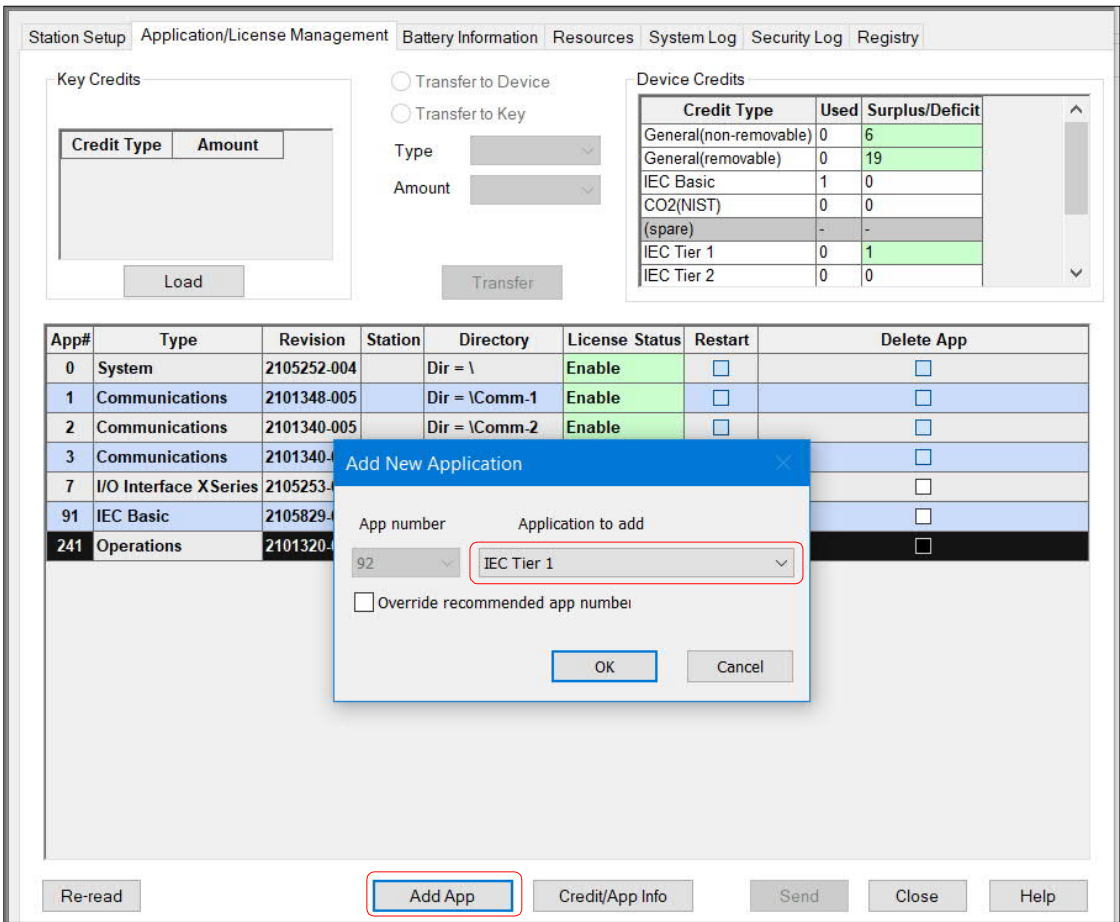
1. Select Add App on the Application/License Management tab. The Add New Application window displays.
2. Select the Application to add drop-down list.
3. Locate the IEC applications in the list and select the desired type (IEC Tier x) (see [Figure 5-1](#)). In this example, an IEC Tier 1 instance is selected.

Figure 5-1: Available IEC applications



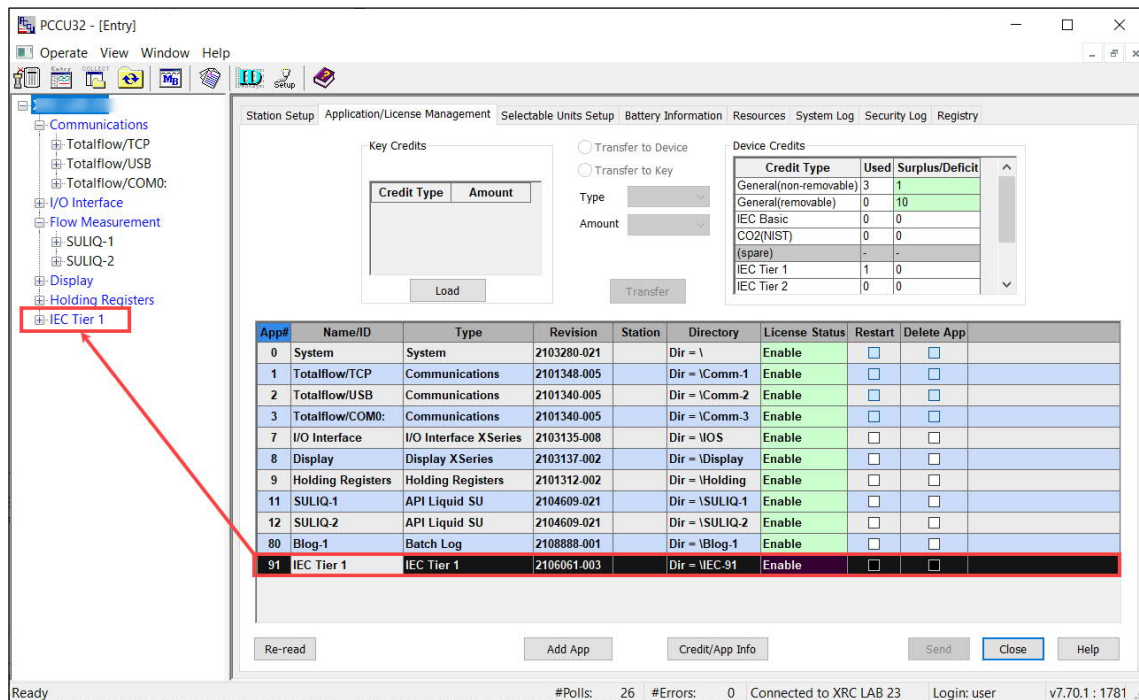
4. Verify that the selected IEC application instance displays ([Figure 5-2](#)).
5. Click OK.

Figure 5-2: Adding the IEC application instance



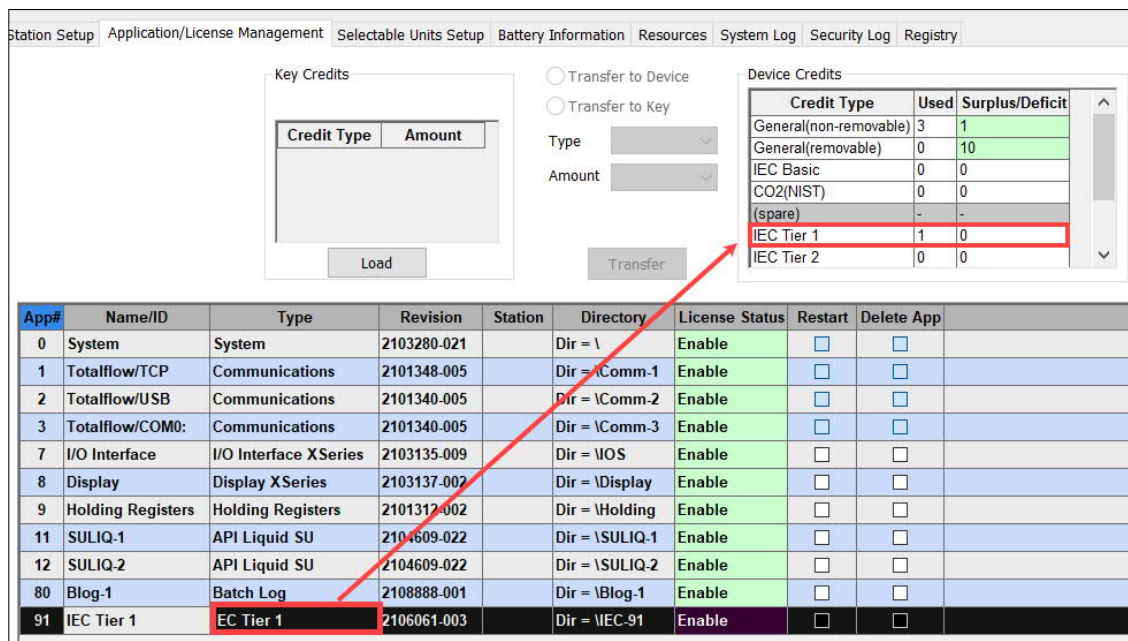
- Click Send. The IEC application instance displays in the application table.
- Verify that the IEC application instance displays on the navigation tree ([Figure 5-3](#)).

Figure 5-3: IEC application instance added



IMPORTANT NOTE: The available IEC credit has been automatically assigned to the added IEC instance. In this example, an IEC Tier 1 credit shown as surplus before shows now as: Used ([Figure 5-4](#)).

Figure 5-4: IEC Tier 1 credit assigned to IEC instance



6 Run the IEC resource

This procedure starts the IEC application (referred to as "resource" on the PCCU screens). Every IEC app must be started before configuration or use. After completing this procedure, the state of the application should indicate: Started.

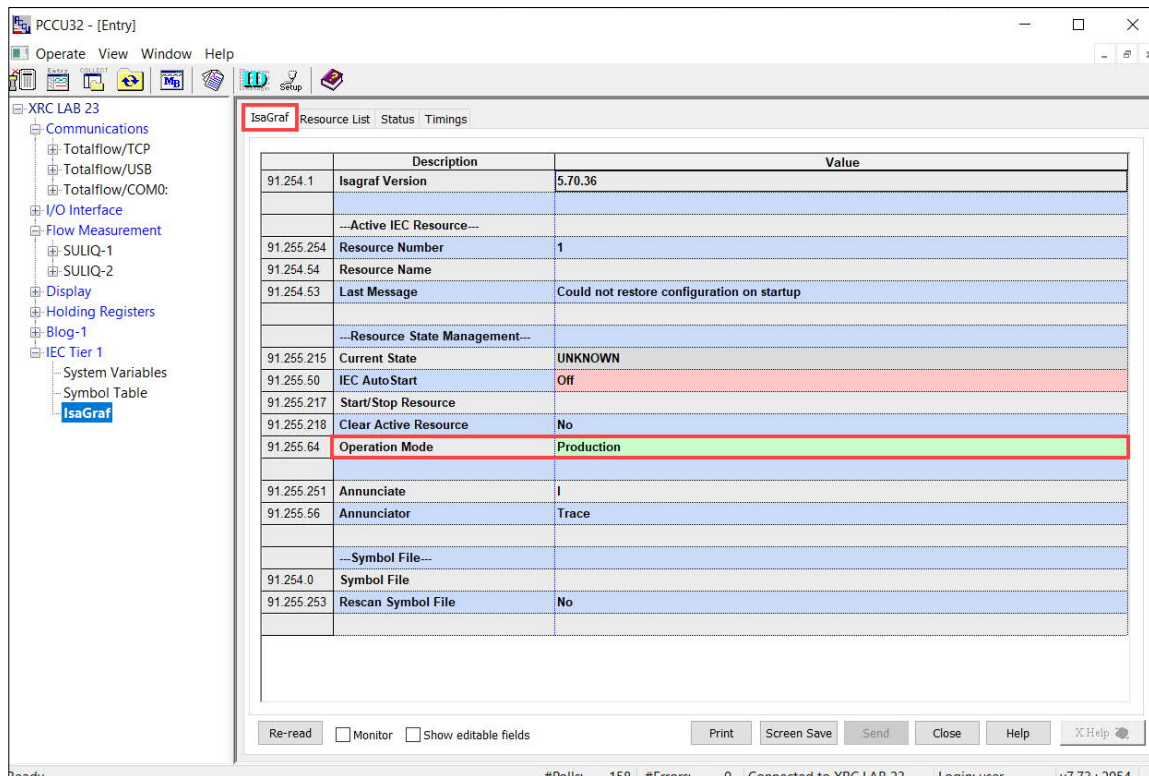
To run the IEC application:

1. Expand the newly added IEC application instance on the navigation tree.
2. Select IsaGraf.
3. Verify that the Operation Mode is set to: Production ([Figure 6-1](#)).



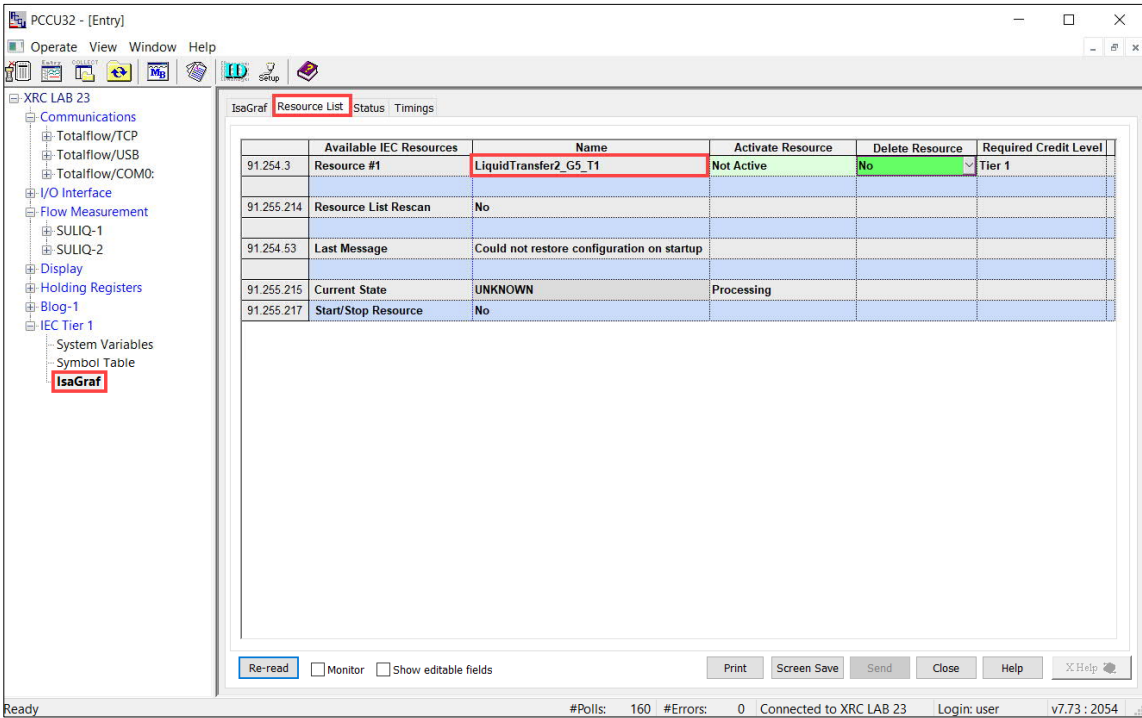
IMPORTANT NOTE: The operation mode for all pre-compiled ABB IEC applications must always be: Production. For IEC applications developed by the customer, the mode of operation should be: Developer. Refer to the Developer's Guide for specific instructions for customer-developed apps.

Figure 6-1: Operation mode for ABB IEC apps: Production



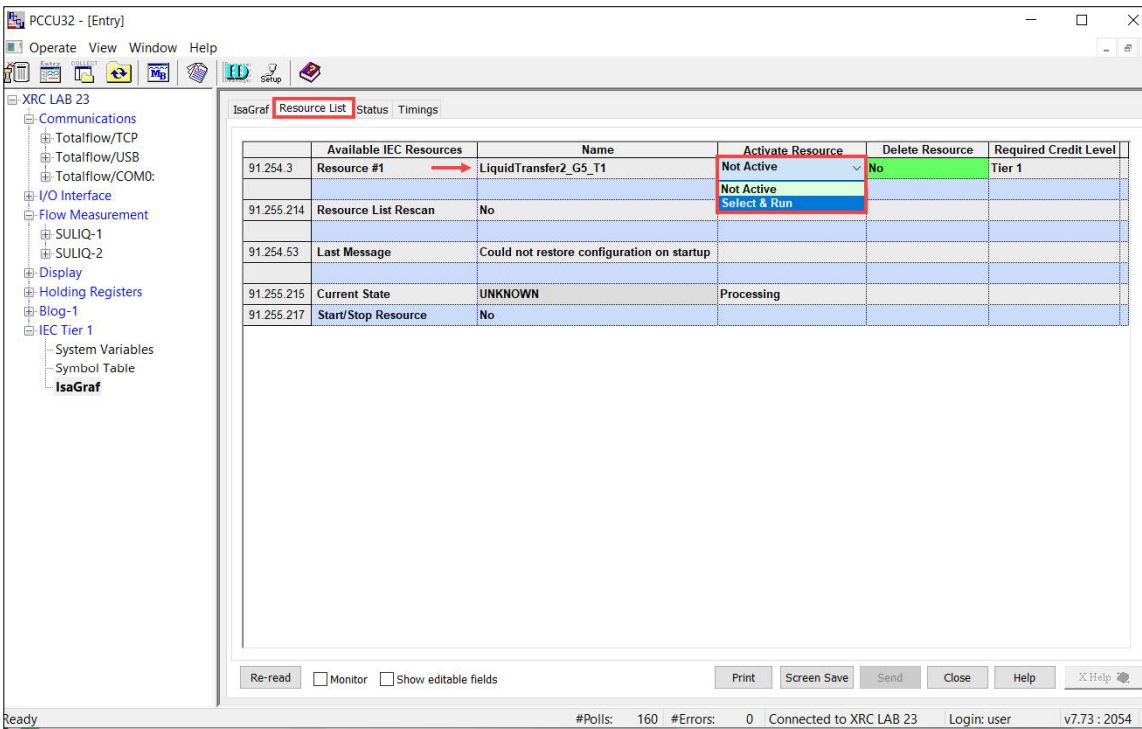
4. Select the Resource List tab. When more than one IEC application instances are available, they are listed by name in this screen. Make sure you activate or run the desired resources as necessary. In the example shown in [Figure 6-2](#), there is only one application listed (Resource #1), the Liquid Transfer 2. Note that the application is not active yet.

Figure 6-2: Verify pre-compiled IEC applications on device



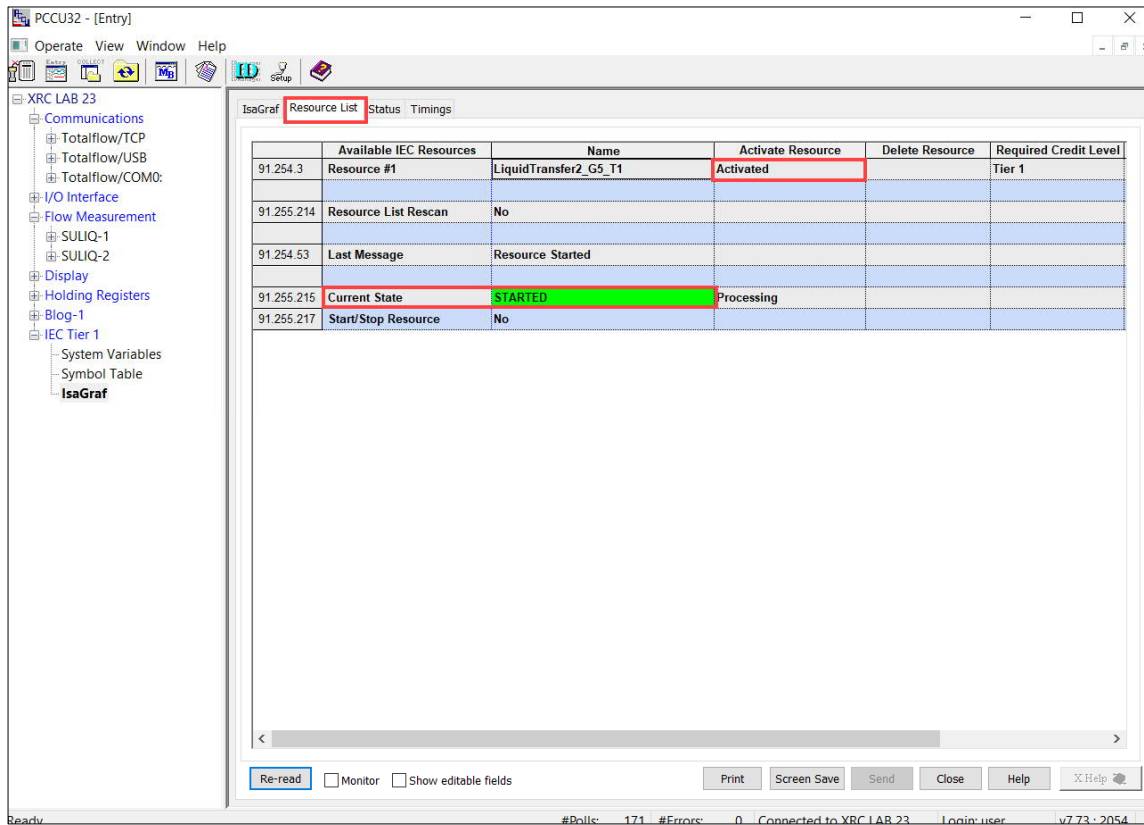
5. Select Select & Run from the Activate Resource drop-down list for the desired resource (Figure 6-3).

Figure 6-3: Activate the IEC application



6. Click Send. The Activate Resource field for the corresponding app displays: Activated.
7. Verify that the Current State of the app displays: STARTED (Figure 6-4). Click Re-read to refresh the screen if necessary. The current state of the app should update from UNKNOWN to STARTED to indicate proper activation.

Figure 6-4: State of an IEC app after activation



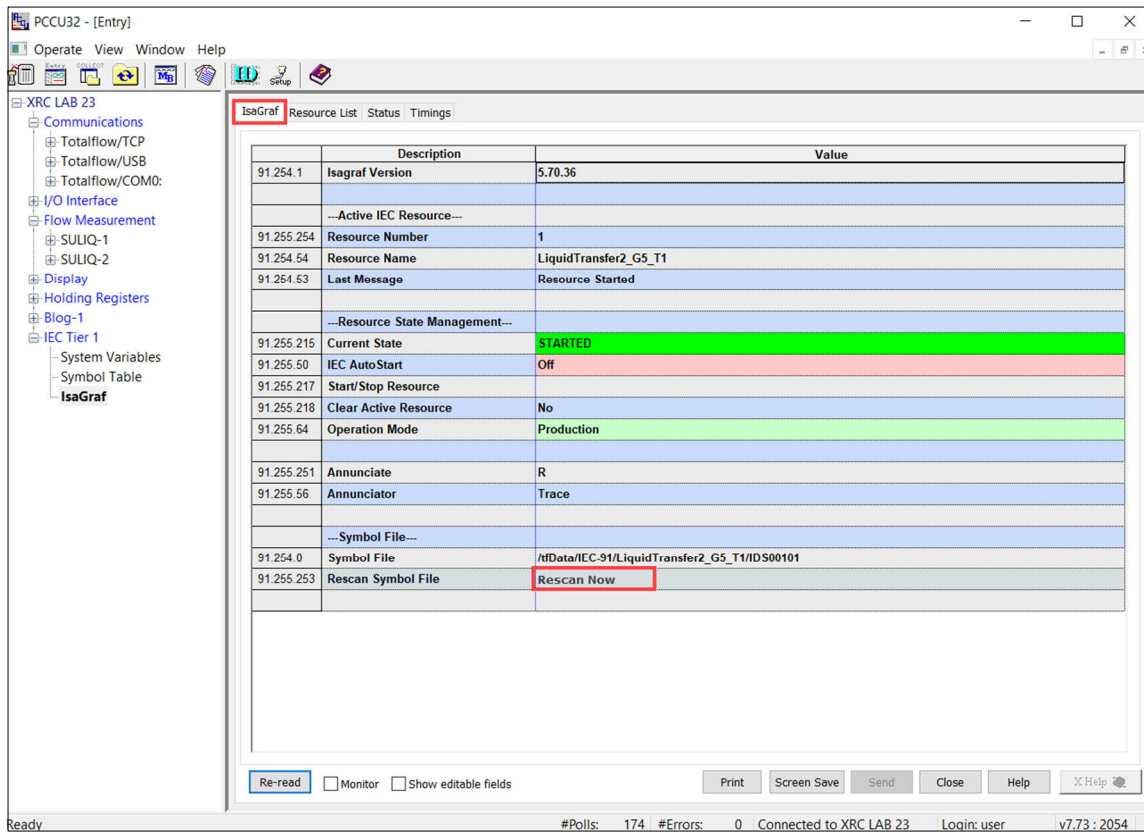
7 Load the ini file

This procedure loads the ini file for access to the IEC application-specific navigation groups and tabs in PCCU. Because the ini file name does not include the application name, always check that the ini file has the same part number and revision as that in the application pkg file name.

To load the file:

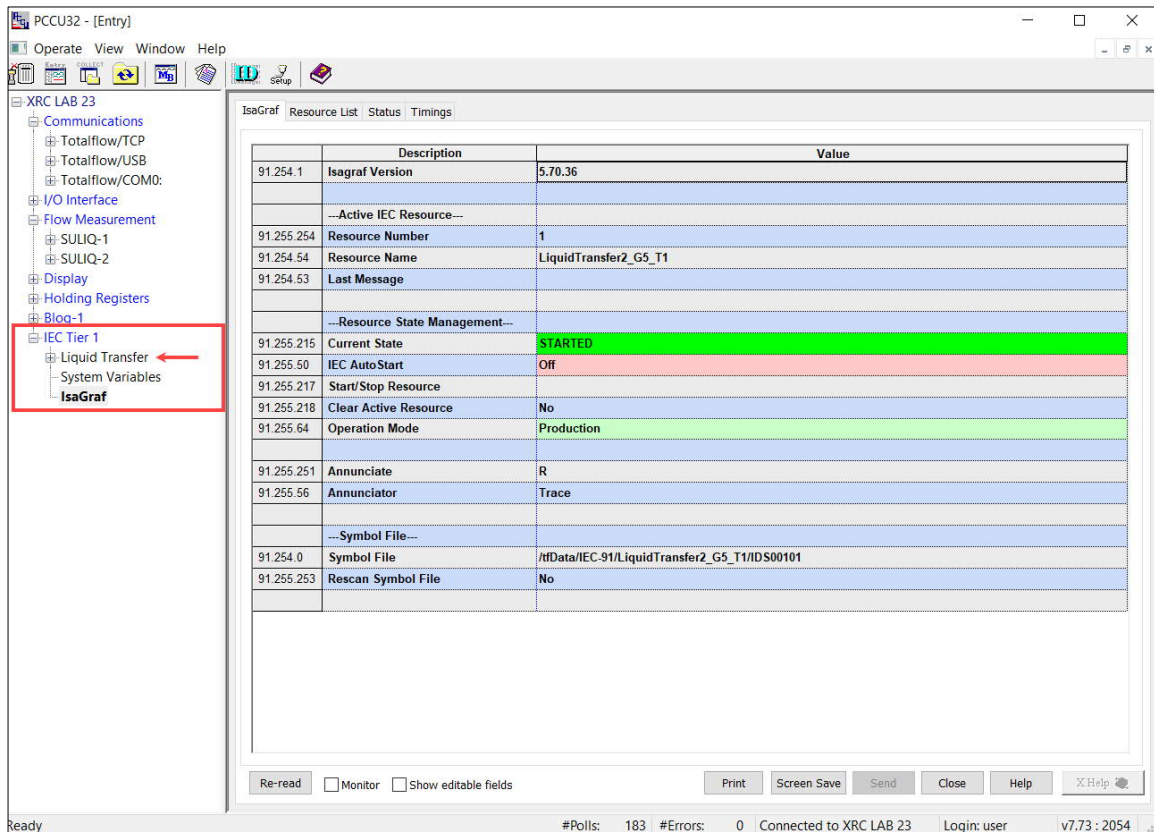
1. Select the IEC instance on the navigation tree.
2. Select IsaGraf > IsaGraf tab.
3. Set the Rescan Symbol File field to Rescan Now ([Figure 7-1](#)).

Figure 7-1: Load the ini file



4. Click Send.
5. Verify that the specific application displays on the navigation tree under the corresponding IEC tier n instance. [Figure 7-2](#) shows the example of the Liquid Transfer app as a node on the navigation tree. Once the application displays onscreen, access to its screens and tabs are available for further setup and use. Follow the specific instructions to setup and place each application in service as necessary.

Figure 7-2: IEC application available for use



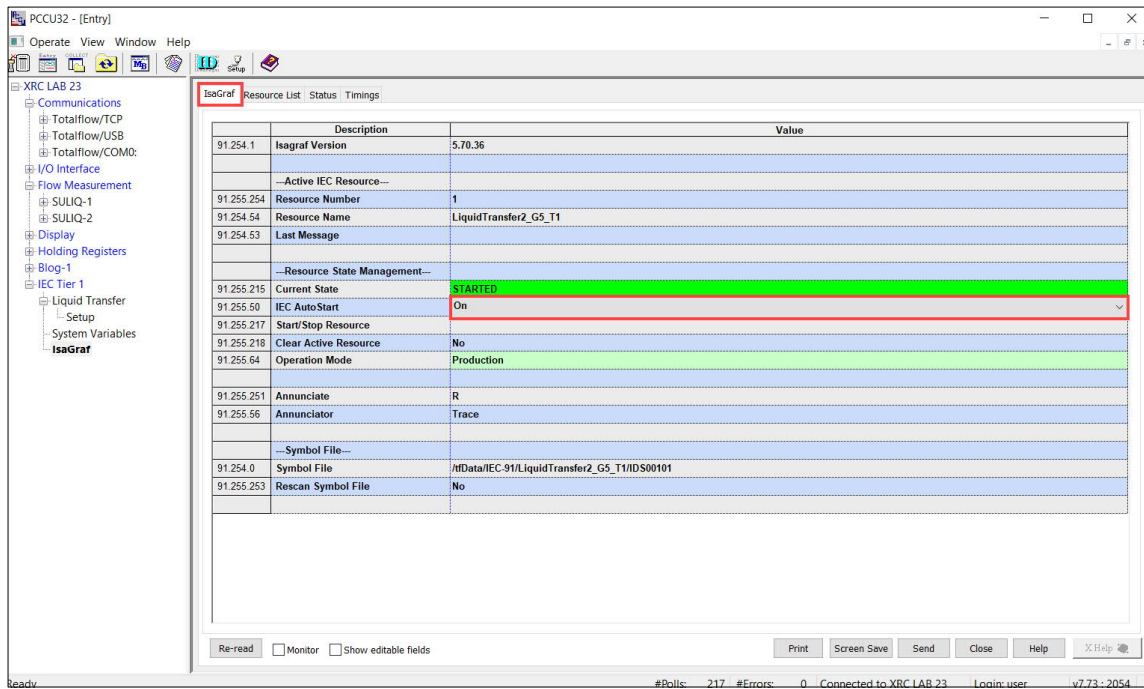
8 Set the IEC app to Auto Start

AutoStart will automatically start the IEC app on controller boot-up. This ensures the application is always ready for use and operational even in the event of system restart or reboot.

To set:

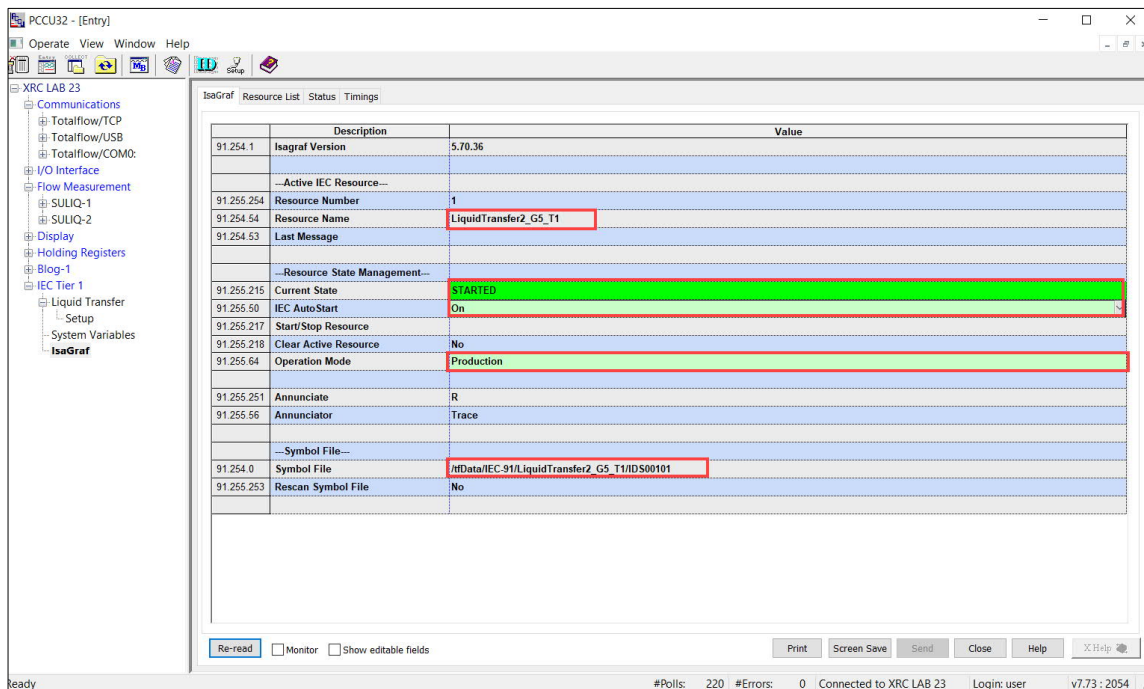
1. Select the IEC instance on the navigation tree.
2. Select IsaGraf > IsaGraf tab.
3. Select and set the IEC AutoStart field to On ([Figure 8-1](#)).

Figure 8-1: Set IEC application to AutoStart



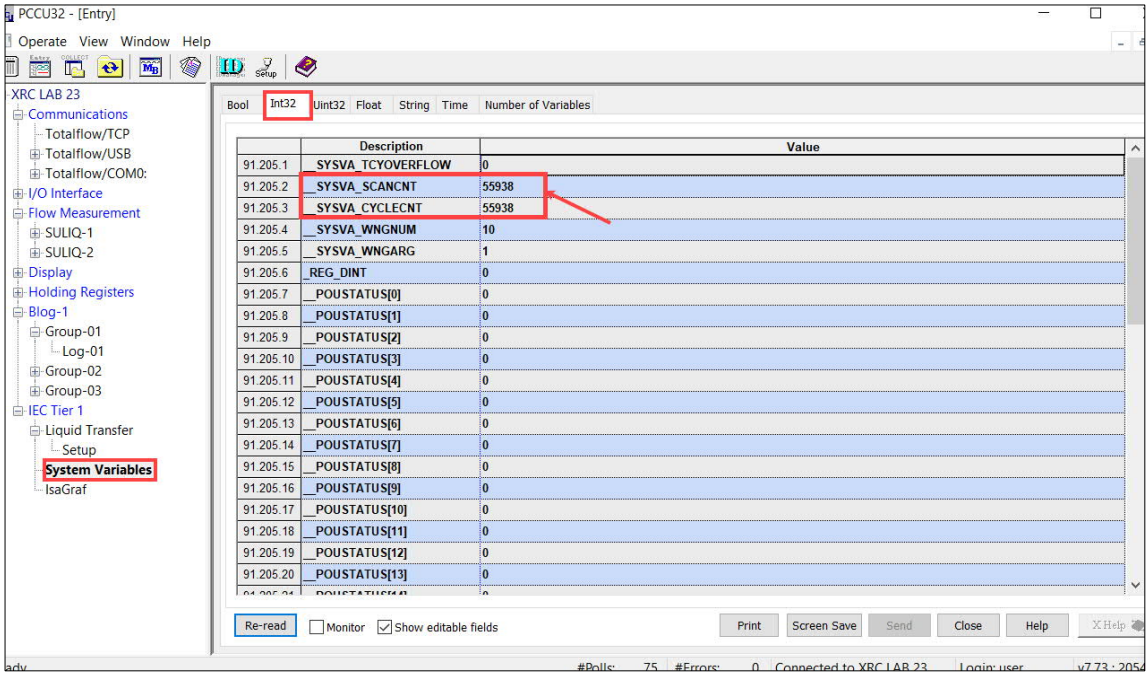
4. Click Send. The IEC Autostart displays: On. [Figure 8-2](#) shows the information displayed for the Liquid Transfer after correct activation.

Figure 8-2: IEC application ready



5. Select System Variables on the navigation tree for quick verification that the application is working properly ([Figure 8-3](#)).
 - a. Select the Int32 tab.
 - b. Verify that the application scan counts, and the cycle counts increment. Click Re-read to observe incrementing values.

Figure 8-3: Verify IEC app scan and cycle counts



This concludes the process of loading a pre-compiled IEC application. Further application configuration or fine-tuning is addressed in application-specific documents. For customer developed apps, refer to developer documentation.

9 Stop and delete an IEC application

This procedure describes how to remove an IEC application. Removal of an IEC application may be necessary to start over during first-time configuration or testing, or to release IEC device credits for use by another app.

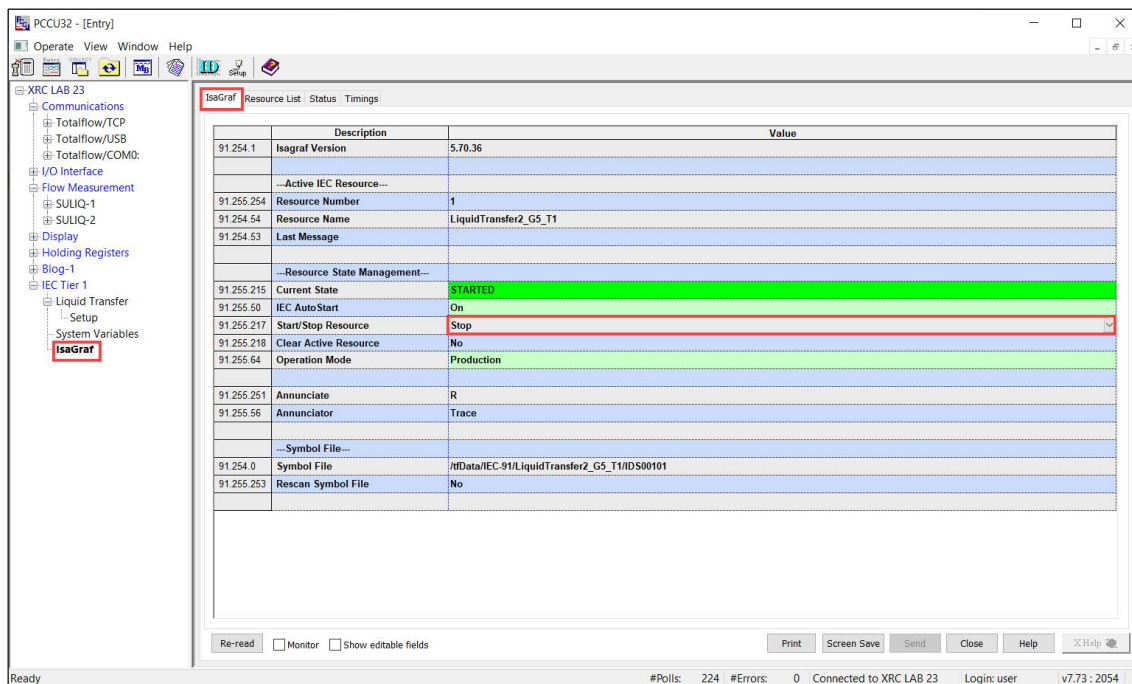


IMPORTANT NOTE: This procedure is service-disrupting. Do not perform on a system already in service without backing up device data and configuration and planning a maintenance window.

To stop and delete an IEC app:

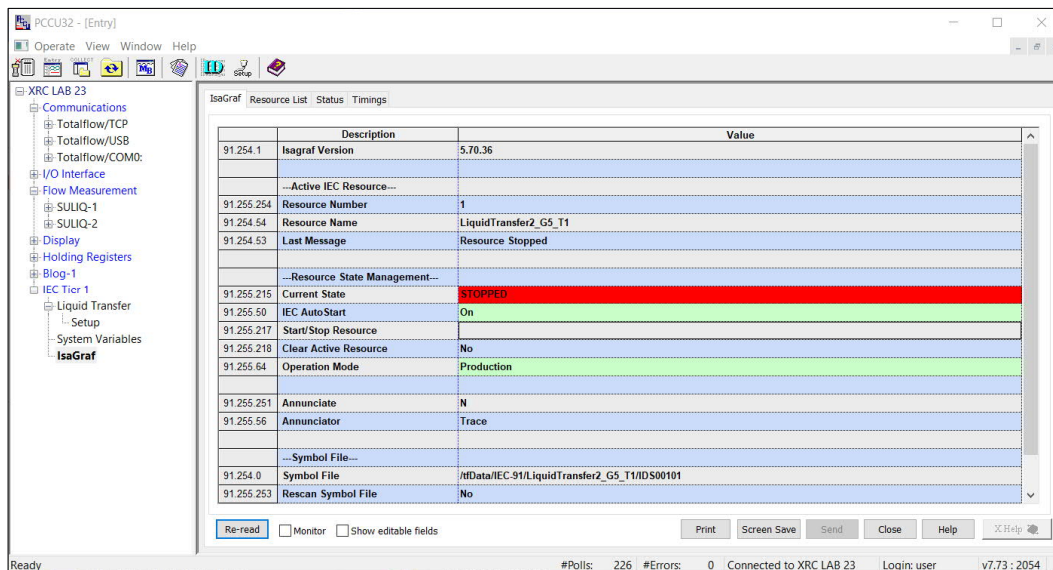
1. Select IsaGraf > IsaGraf tab.
2. Select the Start/Stop Resource value field, and then select Stop.

Figure 9-1: Stop the IEC application



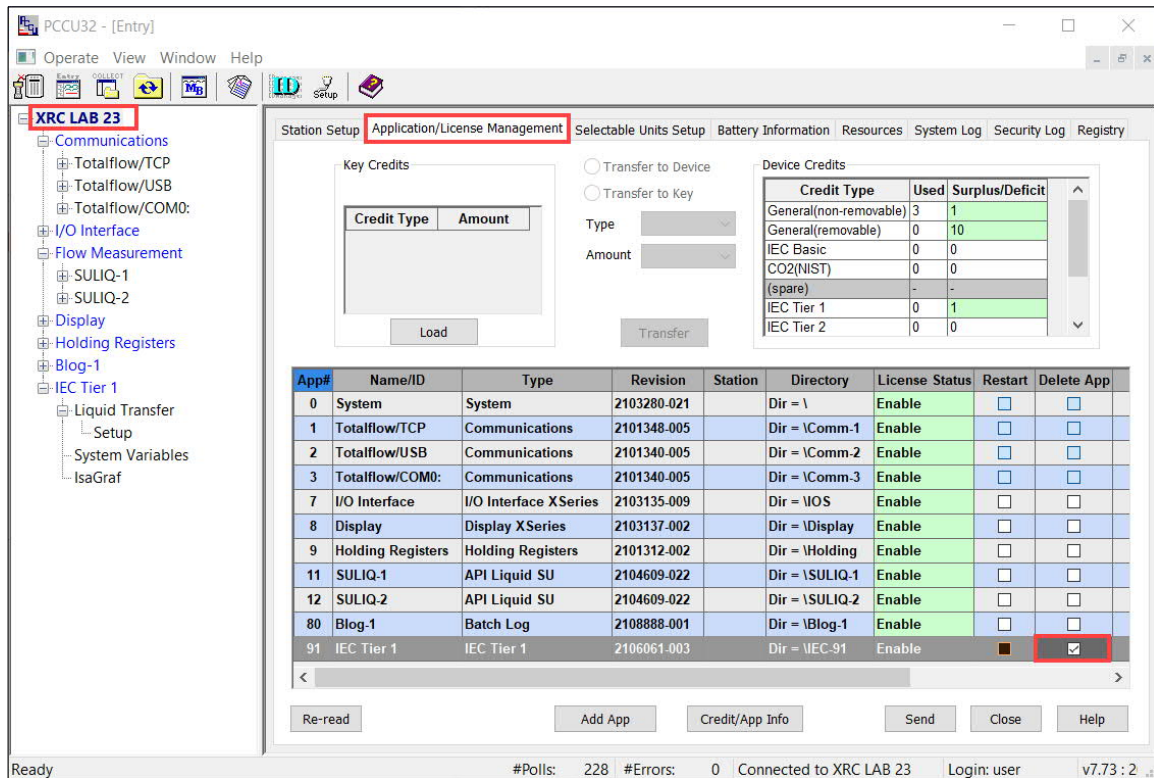
3. Click Send.
4. Click Re-read to refresh screen.
5. Verify that the application's Current State displays: Stopped.

Figure 9-2: Stopped IEC application alarm



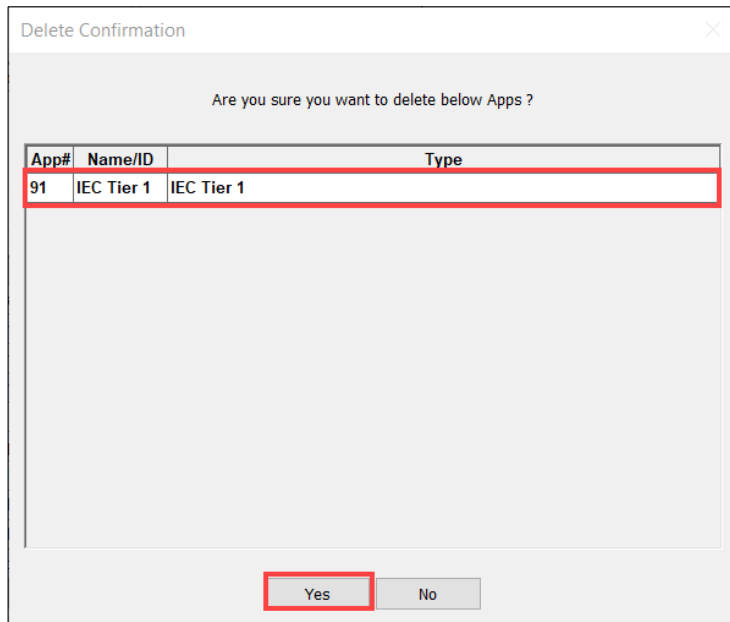
6. Select the top node or station ID on the navigation tree to go Station Setup tab.
7. Select the Application/Licensing Management tab.
8. Locate the IEC application to remove.
9. Select the Delete App checkbox (Figure 9-3).

Figure 9-3: Remove existing IEC application



10. Click Send.
11. Click Yes to confirm the removal of the application.

Figure 9-4: Confirm removal of IEC application



12. Verify that the IEC application instance no longer displays in the application table. The credit(s) formerly assigned to the application should display as surplus under Device Credits.
13. Remove the application from the device's cold start configuration (set PCCU to Expert view):
 - a. Select the Station Setup tab.
 - b. In the Backup section, select the value field next to Update Cold Start Configuration and then select: Delete and Re-Create TFCold from the drop-down list (Figure 9-5).

Figure 9-5: Update Cold Start Configuration

0.7.22	Low Charger Alarm	Enabled
0.7.0	Low Charger Alarm State	In Alarm
	→ Backup ---	
0.21.0	Update Cold Start Configuration	No Operation
	--- System Startup/Shutdown ---	No Operation
0.9.5	Last System Boot Date/Time	Merge with Existing TfCold
0.7.4	System Shutdown	Delete and Re-Create TfCold
0.7.5	System Shutdown / then Reset	Update in Progress
	--- Warm Start Status ---	
0.9.21	Start Log Time	12/17/21 12:53:29
0.9.20	Zero Warm Start Counters	No
0.9.22	Number of Power Fail Warm Starts	3
0.9.23	Number of Watchdog Timeouts	3
	--- LCD Display Date/Time Format ---	
0.7.15	Date/Time Format	mmddyy hhmmss

14. Click Send. The device configuration should be clear of the IEC application.

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