

ABB MEASUREMENT & ANALYTICS | TECHNICAL BULLETIN 209

# **IEC Upgrade** XSeries<sup>G5</sup> and RMC-100

5 MARCH 2019 | 2106000

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## 1 Upgrade IEC from Phase 1 to Phase 2

Due to changes in the software architecture of RMC, Phase 2 flash (v2.x.x) is not backwardcompatible with Phase 1 (v1.x.x) IEC resources. Phase 1 IEC resources will not run on Phase 2 flash. IEC resources have been re-compiled to run on Phase 2 flash.

Customers need the new Phase 2 versions of IEC resources:

- Liquid Transfer
- Pump Control
- Well Management / Chemical Injection
- Well Test

Procedure:

- 1. Save the configuration to TFCold:
  - a. Click System App > Station Setup Tab.
  - b. Click Update Cold Start Configuration > Delete and Re-Create TFCold.

### Figure 1-1: Delete and Re-Create TF Cold

| Operate View Window Help   |                                 |   |  |  |  |  |  |  |  |
|--|---------------------------------|---|--|--|--|--|--|--|--|
|  | 🔛 zetup 🧇                       |   |  |  |  |  |  |  |  |
| TOTALFLOW  Communications  Station Setup Application/License Management Battery Information Resources System Log S |                                 |   |  |  |  |  |  |  |  |
|  |                                 |   |  |  |  |  |  |  |  |
|  | Description                     |   |  |  |  |  |  |  |  |
|  |                                 |   |  |  |  |  |  |  |  |
|  | Lithium Battery Status          |   |  |  |  |  |  |  |  |
| 0.7.10   | Lithium Battery Status          | ок  |  |  |  |  |  |  |  |
|  |                                 |   |  |  |  |  |  |  |  |
|  | Low Charger Alarm Enable        |   |  |  |  |  |  |  |  |
| 0.7.22   | Low Charger Alarm               | Enabled   |  |  |  |  |  |  |  |
| 0.7.0  | Low Charger Alarm State         | Not In Alarm  |  |  |  |  |  |  |  |
|  |                                 |   |  |  |  |  |  |  |  |
|  | Backup                          |   |  |  |  |  |  |  |  |
| 0.21.0   | Update Cold Start Configuration | Delete and Re-Create TfCold   |  |  |  |  |  |  |  |
|  |                                 |   |  |  |  |  |  |  |  |
|  | Help                            | Help       Image: Second |  |  |  |  |  |  |  |

- 2. Save the Config via PCCU 32-Bit Loader:
  - a. Enter 32-Bit Loader and click Services in the top left corner.
  - b. From the dropdown, select Save.
  - c. Save the file.

#### Figure 1-2: Save

| Р <sub>С</sub> , | PCCU32   |      |        |  |  |  |  |
|------------------|----------|------|--------|--|--|--|--|
|                  | Services | Help |        |  |  |  |  |
|                  | Save     |      | cation |  |  |  |  |
|                  | Restar   | t ►  |        |  |  |  |  |
|                  |          |      |        |  |  |  |  |
|                  | <u></u>  |      |        |  |  |  |  |
| - Package        |          |      |        |  |  |  |  |
|                  |          |      |        |  |  |  |  |
|                  |          |      |        |  |  |  |  |



**IMPORTANT NOTE:** Due to a limitation in the ISaGRAF persistence file, the IEC resource settings reset to default when installing a new version of the IEC resource (logic file).

- 3. To save the IEC resource settings, use PCCU Screen Save:
  - a. Go to PCCU entry mode > **IEC Tier 1**.
  - b. Click Screen Save.

### Figure 1-3: Screen save button



- 4. Select IEC Tier 1.
- 5. Clear:

6.

- Auto
  - System Variables
- IsaGraf
- Click OK.
- 7. Save the .fcu file to the PC hard drive.

#### Figure 1-4: Save data

| ou can select which parts of data you want to save:  |        |
|--|--------|
| <ul> <li>□ TOTALFLOW</li> <li>① Communications</li> <li>① Separator</li> <li>① Well1</li> <li>① I/O System</li> <li>① Display</li> <li>① Holding Registers</li> <li>□ IEC Basic</li> <li>○ IEC Tier 1</li> <li>① Well Test</li> <li>○ Auto</li> <li>□ System Variables</li> <li>□ IsaGraf</li> </ul> | Cancel |
|  |        |

### **1.1** Copy the new ini file to PCCU

1. Right-click the PCCU shortcut and Select Properties.



Figure 1-6: Open File Location button

| Security              | Details             | Previous Versions |
|-----------------------|---------------------|-------------------|
| General               | Shoricui Compatib   | lify U Encryption |
| P. P                  | CCU                 |                   |
| Target type:          | Application         |                   |
| Target location       | : PCCU-7.64.2       |                   |
| Target:               |                     |                   |
|                       |                     |                   |
| <u>S</u> tart in:     |                     |                   |
| Shortcut <u>k</u> ey: | None                |                   |
| <u>R</u> un:          | Normal window       | •                 |
| C <u>o</u> mment:     |                     |                   |
| Open <u>F</u> ile L   | ocation Change Icon | Advanced          |
|                       |                     |                   |
|                       |                     |                   |
|                       |                     |                   |
|                       |                     |                   |
|                       |                     |                   |

3. Copy the new ini file to the \IniFiles\ ....

Figure 1-7: IniFiles Directory

| 🔒 PCCU-7.65  |                  |                   |             |  |  |  |  |  |  |  |
|--|------------------|-------------------|-------------|--|--|--|--|--|--|--|
| Computer   |                  |                   |             |  |  |  |  |  |  |  |
| <u>File Edit View T</u> ools <u>H</u> elp                        |                  |                   |             |  |  |  |  |  |  |  |
| Organize 🔻 浸 Open 🛛 Include in library 👻 Share with 👻 New folder |                  |                   |             |  |  |  |  |  |  |  |
| ☆ Favorites  | Name *           | Date modified     | Туре        |  |  |  |  |  |  |  |
|  | 鷆 alrmfile       | 2/26/2019 2:07 PM | File folder |  |  |  |  |  |  |  |
| j Libraries  | i archfile       | 2/26/2019 2:07 PM | File folder |  |  |  |  |  |  |  |
|  | 🕕 ascifile       | 2/26/2019 2:07 PM | File folder |  |  |  |  |  |  |  |
| 🖳 Computer   | 📙 CalReports     | 2/26/2019 2:07 PM | File folder |  |  |  |  |  |  |  |
| A Natwork  | 鷆 devconfi       | 2/26/2019 2:07 PM | File folder |  |  |  |  |  |  |  |
| Network  | \mu devexprt     | 2/26/2019 2:07 PM | File folder |  |  |  |  |  |  |  |
|  | DeviceID         | 2/26/2019 2:07 PM | File folder |  |  |  |  |  |  |  |
|  | 퉬 DeviceInfoTemp | 3/19/2019 8:14 AM | File folder |  |  |  |  |  |  |  |
|  | 🕌 IniFiles       | 3/19/2019 8:14 AM | File folder |  |  |  |  |  |  |  |
|  | 퉬 lotermdb       | 2/26/2019 2:07 PM | File folder |  |  |  |  |  |  |  |
|  | 📗 PackageDir     | 2/26/2019 2:59 PM | File folder |  |  |  |  |  |  |  |
|  | n .              |                   |             |  |  |  |  |  |  |  |

#### Stop the Phase 1 IEC resource 1.2

- In the IEC Interface, go to IsaGraf > IsaGraf Tab
   Click Start/Stop Resource > Start/Stop Now

### Figure 1-8: Start/Stop Now

| 🔄 PCCU32 - [Entry]                                 |               |                       |                |       |  |  |  |  |  |
|--|---------------|-----------------------|----------------|-------|--|--|--|--|--|
| Derate <u>V</u> iew <u>W</u> indow <u>H</u> elp    |               |                       |                |       |  |  |  |  |  |
| fi 📰 🔁 🚱 📊 📰 🗇 🛄 🎿 🧇                               |               |                       |                |       |  |  |  |  |  |
| ⊡- TOTALFLOW<br>⊡- Communications<br>⊡- I/O System | IsaGraf Statu | s                     |                |       |  |  |  |  |  |
|  |               | Description           | Value          | Activ |  |  |  |  |  |
| E IEC Interface                                    | 91.254.1      | ISaGRAF Version       | 5.41.22        |       |  |  |  |  |  |
| Auto   |               |                       |                |       |  |  |  |  |  |
| System Variables                                   | 91.255.222    | DataExchangeLoopTimed | 0              |       |  |  |  |  |  |
|  | 91.255.223    | DataExchangeSleepTime | 0              |       |  |  |  |  |  |
| Operations   |               |                       |                |       |  |  |  |  |  |
|  |               | Active IEC Resource   |                |       |  |  |  |  |  |
|  | 91.255.254    | Resource Number       | 1              |       |  |  |  |  |  |
|  | 91.254.2      | Resource Name         | WellTest_G5    |       |  |  |  |  |  |
|  | 91.255.215    | Resource State        | STARTED        |       |  |  |  |  |  |
|  | 91.255.217    | Start/Stop Resource   | Start/Stop Now | -     |  |  |  |  |  |
|  | 91.255.218    | Clear Active Resource |                |       |  |  |  |  |  |
|  |               |                       |                |       |  |  |  |  |  |

#### 1.3 **Clear the IEC Phase 1 Resource**

- 1. Go to the IEC Interface > **IsaGraf** > **IsaGraf** Tab
- 2. Clear Active Resource > Clear Now



| 🔄 PCCU32 - [Entry]                        |                |                       |             |       |
|---|----------------|-----------------------|-------------|-------|
| Operate View Window Help                  |                |                       |             |       |
|   | j   🎯   🛄      | 🛛 🛃 🧇                 |             |       |
| - TOTALFLOW - Communications - I/O System | IsaGraf Status |                       |             |       |
|   |                | Description           | Value       | Activ |
| E IEC Interface                           | 91.254.1       | ISaGRAF Version       | 5.41.22     |       |
| Auto                                      |                |                       |             |       |
|   | 91.255.222     | DataExchangeLoopTimed | 0           |       |
|   | 91.255.223     | DataExchangeSleepTime | 0           |       |
| ⊡ · Operations                            |                |                       | ð           |       |
|   |                | Active IEC Resource   |             |       |
| I I                                       | 91.255.254     | Resource Number       | 1           |       |
|   | 91.254.2       | Resource Name         | WellTest_G5 |       |
|   | 91.255.215     | Resource State        | STOPPED     |       |
|   | 91.255.217     | Start/Stop Resource   |             |       |
| 1 1                                       | 91.255.218     | Clear Active Resource | Clear Now 🔽 |       |
|   |                |                       |             |       |

#### **Delete the Phase 1 IEC Interfaces.** 1.4

- Go to Station App > Application/License Management tab
   Select the Delete App checkbox.

Figure 1-10: Delete App checkbox

| PCCU32 - [Entry]                |  |                       |             |          |                    |                 |           |                      |       |
|---------------------------------|--|-----------------------|-------------|----------|--------------------|-----------------|-----------|----------------------|-------|
| Operate <u>View Window Help</u> | I. Transford, J.   | - 10                  |             |          |                    |                 |           |                      | _ 8 > |
| fi 😇 🖪 🔂 🖬                      |  | 🛞 🛄 La                | 1           |          |                    |                 |           |                      |       |
|                                 | Station St   | Application / licens  | e Managemen | t Ratter | v Information Deso | urces Svetem Lo | Security  | Log Begistry         |       |
| Communications     To System    | Station Setup Application/Licenserviaragement Battery Information   Resources   System Log   Security Log   Registry |                       |             |          |                    |                 |           |                      |       |
|                                 | _ <b>K</b>   | ey Credits            |             | C Tran   | nsfer to Dievice   | Device Credits  |           |                      |       |
| • IEC Interface                 |  |                       |             | C Tran   | nsfer to Key       | Credit 1        | уре       | Used Surplus/Deficit |       |
| ⊡ Trend System                  | C  | Credit Type Amount    | t           | Туре     | <b>T</b>           | General(non-r   | emovable) | 0 6                  |       |
| ⊕ · Operations                  |  |                       |             | Amount   |                    | IEC Interface   | able)     | 0 1                  |       |
|                                 |  |                       |             |          |                    | CO2(NIST)       |           | 0 0                  |       |
|                                 |  |                       |             |          |                    |                 |           |                      |       |
| I                               | <sup>_</sup>   | Load                  |             |          | Transfer           |                 |           |                      |       |
|                                 |  |                       |             | _        | i i anioror        |                 |           |                      |       |
| I                               | App#   | Туре                  | Revision    | Station  | Directory          | License Status  | Restart   | Delete App           |       |
| I                               | 0  | System                | 2105252-003 |          | Dir = \            | Enable          | Γ         | Γ                    |       |
| I                               | 1  | Communications        | 2101348-005 |          | Dir = \Comm-1      | Enable          | Γ         | Γ                    |       |
| I                               | 2  | Communications        | 2101340-005 |          | Dir = \Comm-2      | Enable          | Γ         | Γ                    |       |
| I                               | 3  | Communications        | 2101340-005 |          | Dir = \Comm-3      | Enable          | Γ         | Γ                    |       |
|                                 | 7  | I/O Interface XSeries | 2105253-001 |          | Dir = \TFIO-A      | Enable          |           |                      |       |
|                                 | 8  | Display XSeries       | 2103137-002 |          | Dir = \Display     | Enable          |           |                      |       |
|                                 | 31   | Communications        | 2101348-005 |          | Dir = \Comm-4      | Enable          |           |                      |       |
|                                 | 91   | IEC Interface         | 2105829-002 |          | Dir = \IEC-91      | Enable          |           | N                    |       |
|                                 | 95   | Trend System          | 2101309-002 |          | Dir = \Trend       | Enable          |           |                      |       |
|                                 | 241  | Operations            | 2101320-005 |          | Dir = \Operations  | Enable          |           |                      |       |
|                                 |  |                       |             |          |                    |                 |           |                      |       |
| I                               |  |                       |             |          |                    |                 |           |                      |       |

### **1.5** Save the Config to TFCold.

- 1. Go to Station App > Station Setup Tab
- 2. Click Update Cold Start Configuration > Delete and Re-Create TFCold.

Figure 1-11: Delete and Re-Create TFCold

| 📴 PCCU32 - [Entry]       |       |          |  |                                  |   |  |  |  |  |
|--------------------------|-------|----------|--|----------------------------------|---|--|--|--|--|
| Operate View Window Help |       |          |  |                                  |   |  |  |  |  |
| 📶 🛅 🛅 💽 🕅                |       |          | 🕅 🛄 setup  |                                  |   |  |  |  |  |
| TOTALFLOW                | Stati | ion Setu | P Application/License Management Battery Information Resources | System Log Security Log Registry |   |  |  |  |  |
|                          |       |          | Description  | Value                            |   |  |  |  |  |
| Trend System             |       |          |  |                                  |   |  |  |  |  |
|                          |       |          | Low Charger Alarm Enable                                       | ö                                | j |  |  |  |  |
|                          | 0     | 0.7.22   | Low Charger Alarm  | Enabled                          |   |  |  |  |  |
|                          | 0     | 0.7.0    | Low Charger Alarm State  | Not In Alarm                     |   |  |  |  |  |
|                          |       |          |  |                                  |   |  |  |  |  |
| Backup                   |       |          |  |                                  |   |  |  |  |  |
| 0.21.0                   |       |          | Update Cold Start Configuration                                | Delete and Re-Create TfCold      |   |  |  |  |  |
|                          |       |          |  |                                  |   |  |  |  |  |

# 1.6 Work Around for bug 10692: 32-Bit Loader – Failed in warm starting the device.

- 1. Go to **Station App** > **Station Setup** Tab.
- 2. Scroll down to the System Shutdown/then Reset field. Click **YES**.

#### PCCU32 - [Entry] 🔝 Operate View Window Help i 📴 🖪 💽 🙀 📰 🗇 🛄 🚨 🧇 TOTALFLOW Station Setup Application/License Management Battery Information Resources System Log Security Log Registry . Communications + I/O System 🕂 Display Value Description Trend System --- Low Charger Alarm Enable ----0.7.22 Low Charger Alarm Enabled 0.7.0 Low Charger Alarm State Not In Alarm -- Backup ---0.21.0 Update Cold Start Configuration No Operation --- System Startup/Shutdown ----0.9.5 03/19/19 08:18:53 Last System Boot Date/Time Yes 0.7.4 System Shutdown 0.7.5 System Shutdown / then Reset No

### Figure 1-12: System Shutdown / then Reset

### 2 Load the Phase 2 OS and Flash via 32-Bit Loader

The IEC Phase 2 flash is not compatible with Phase 1 OS. The Phase 2 Flash and OS must be upgraded simultaneously. Use the CD package (part number: 2105452). Ensure both OS and Flash are selected before sending.

To load the Phase 2 OS and Flash:

- 1. Click the **32-Bit Loader** icon.
- 2. Click Browse.
- 3. Select OS/Flash Package (2.0.2 or later).
- 4. Click Send.

After the upload is complete, ensure the correct versions are shown in the box on the right side of the screen. This can also be verified in the Status Logs. Find the lines that state "Successfully sent Production OS to device", and "Successfully sent G5RMC Source to device".

### Figure 2-1: Loader status logs

| En PCCU32   |               |                    |                                    | <u> </u> |
|---|---------------|--------------------|------------------------------------|----------|
| Services Help   |               |                    |                                    | _ 8 ×    |
| Package Location  | ]             | Connection         |                                    |          |
| C:\Users\USBRPAT\Desktop\abb\Totalflow OS\G5 RMC\OS plus flash\CD 2105452-029.pkg   | Browse        | Network            | 10.1.1.13                          | -        |
|   |               | 1                  | )                                  |          |
| Package   | Device        |                    |                                    |          |
| Package Information   | Device Inform | ation              |                                    |          |
| OS: Production OS   | Device Type   | e: RMC             |                                    |          |
| Version: 2.0.4-3  | Board Part    | NUMDER: 2105023-00 | 1                                  |          |
| Package Size: 11 02 (MR)  | 0S. Product   | ion OS             | 0190                               |          |
| ADD: GSRMC Source   | Version:      | 2.0.4-3            |                                    |          |
| Version: 2.0.5-2  | -Part Num     | ber: 2105411-029   |                                    |          |
| Part Number: 2105457-026  | Package       | Size: 11.92 (MB)   |                                    |          |
| Package Size: 5.28 (MB)   | App: G5RMC    | Source             |                                    |          |
|   | -Version:     | 2.0.5-2            |                                    |          |
|   | -Part Num     | ber: 2105457-026   |                                    |          |
|   | Confige Cor   | 51ZE: 5.49 (MB)    |                                    |          |
|   | Packane       | (170° J1 68 (KB)   |                                    |          |
|   | - ackage      | 512CT 41.00 (ND)   |                                    |          |
|   |               |                    |                                    |          |
|   |               |                    |                                    |          |
|   |               |                    |                                    |          |
|   |               |                    |                                    |          |
|   |               |                    |                                    |          |
|   |               |                    |                                    |          |
|   |               |                    |                                    |          |
|   |               |                    |                                    |          |
|   |               |                    |                                    |          |
| Loader Status Loos  | P             |                    |                                    |          |
|   |               |                    |                                    | _        |
| 03/19/2019 08:30:15 Sending Production OS to the device<br>03/19/2019 08:30:24 Successfully sent Production OS to the device.       |               |                    |                                    |          |
| 03/19/2019 08:30:24 Sending G5RMC Source to the device  |               |                    |                                    |          |
| 03/19/2019 08:30:48 Warm starting the device  |               |                    |                                    |          |
| 03/19/2019 08:30:49 Disconnecting<br>03/19/2019 08:30:49 Reconnecting after report. This could take up to 2 minutes, please waiting |               |                    |                                    |          |
| 03/19/2019 08:31:33 Reconnected to the device.  |               |                    |                                    |          |
| 03/19/2019 08:31:33 Reading device info.<br>03/19/2019 08:31:35 Device info undated.  |               |                    |                                    | _        |
|   |               |                    |                                    |          |
|   |               |                    |                                    |          |
|   |               |                    |                                    |          |
|   |               |                    |                                    |          |
|   |               |                    | 3 1 1                              |          |
|   |               | <u>S</u> end       | Abort Close Help                   | 2        |
|   |               |                    |                                    |          |
| ,<br>Ready  | #P            | olls: 0 #Errors: 0 | Connected to 10.1.1.13 Login: user |          |

### 2.1 Load the Phase 2 Resource.

- 1. Click the **32-Bit Loader** icon.
- 2. Click **Browse**.
- 3. Select phase 2 resource.
- 4. Click Send.
- 5. Verify the IEC resource loaded successfully by looking in the Status Log and finding the line that states "Successfully sent (Resource) to the Device."

### Figure 2-2: Loader status logs

| RCCU32   |  |
|--|--|
| Services Help  |  |
| Package Location   | Connection   |
|  | Busure de la dada  |
| C: Users USBRPAT Desktop abb UEC Projects _ bak (WellTest_G5) ResourcePkg phase 2(WellTes  | Browse   |
|  |  |
| Package Information  | Device Information   |
| Mann: WellTest 65 T1 (IEC Tier 1)  | Device Tune: RMC   |
| Package Size: 227.81 (KB)  | Board Part Number: 2105023-001                             |
|  |  |
|  | -OS: Production OS   |
|  | -Version: 2.0.4-3  |
|  | Part Number: 2105411-029                                   |
|  | Package Size: 11.92 (MB)                                   |
|  | -App: G5RMC Source   |
|  |  |
|  | Part Number: 2105457-026                                   |
|  | Package Size: 5./1 (MB)                                    |
|  | Config: Config<br>Dokage Size: M1 49 (KD)                  |
|  | ····Packaye S120: 41.08 (KB)                               |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
| Loader Status Logs   |  |
|  |  |
| 03/19/2019 08:32:53 Sending WellTest_G5_T1 (IEC Tier 1) to the device<br>03/19/2019 08:33:05 Successfully sent WellTest_G5_T1 (IEC Tier 1) to the device |  |
| 03/19/2019 08:33:05 Warm starting the device   |  |
| 03/19/2019 08:33:07 Disconnecting<br>03/19/2019 08:33:07 Peroperting after reboot This could take up to 2 minutes, please waith                          |  |
| 03/19/2019 08:33:27 Reconnected to the device.   |  |
| 03/19/2019 08:33:27 Reading device info.   |  |
| 03/19/2019 00.33.29 Device into updated.   |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  | <u>S</u> end Abort Close Help                              |
|  |  |
| Ready  | #Polls: 0 #Errors: 0 Connected to 10.1.1.13 Login: user // |

Verify that the OS and Flash have updated:

- 1. Go to PCCU Entry Mode > Station App > Registry Tab
- 2. Verify the Flash software version and the OS software version show the correct version.

### Figure 2-3: Software versions

| PCCU32 - [Entry]                                   |     |  |                          |                   |  |  |  |  |
|--|-----|--|--------------------------|-------------------|--|--|--|--|
| Operate <u>V</u> iew <u>W</u> indow <u>H</u> elp   |     |  |                          |                   |  |  |  |  |
| i 🖻 📅 💽  | Tor |  | 🕅 🛄 Zup 🧇                |                   |  |  |  |  |
| ⊡- TOTALFLOW<br>⊡- Communications<br>⊡- I/O System | Sta | ation Setup Application/License Management Battery Information Resources System Log Security Log Reg |                          |                   |  |  |  |  |
| • Display  |     |  | Description              | Value             |  |  |  |  |
| Trend System     Trend System     Trend System     |     | 0.9.10   | Software Build Date/Time | 02/14/19 17:41:52 |  |  |  |  |
|  |     |  |                          |                   |  |  |  |  |
|  |     | 0.0.0  | Digital Board Part #     | 2105023           |  |  |  |  |
|  |     | 0.0.1  | Flash Software Part #    | 2105457-026       |  |  |  |  |
|  |     | 0.0.39   | Flash Software Version   | 2.0.5-2           |  |  |  |  |
|  |     | 0.0.18   | OS Software Part #       | 2105411-029       |  |  |  |  |
|  |     | 0.0.40   | OS Software Version      | 2.0.4-3           |  |  |  |  |
|  |     | 0.0.2  | Software Description     | G5RMC Source      |  |  |  |  |
| I I  |     |  |                          |                   |  |  |  |  |

#### Add the Phase 2 IEC licenses 2.2

Licenses range from the Base IEC - Tier 4 IEC. Select the correct license and load it onto the RMC:
1. Go to Entry mode > Application/License Management tab.
2. Load Key Credits > type IEC Tier(x) > amount (X) >
3. Click Transfer.

- Figure 2-4: Transfer

| PCCU32 - [Entry]         Operate       View         Window       Help   |   |  |  |       |                       | - D × |
|---|---|--|--|-------|-----------------------|-------|
| TOTALFLOW   | Terminal OF Setup (   |  | ourses [ Surtem Les ] Sec  |       | Decistor 1            |       |
| ⊡ - Communications<br>⊡ - I/O System<br>⊡ - Display<br>H - Trend System | Key Credits<br>SAP Serial #: 0<br>Credit Key Serial #: 786                  | Transfer to Device     Transfer to Kev | Device Credits Credit Type   | Used  | Surplus/Deficit       |       |
| . Operations  | Credit Type Amount<br>General 0<br>IEC Basic 55<br>CO2(NIST) 0<br>(spare) - | Type IEC Tier 1 💌<br>Amount 1          | CO2(NIST)<br>(spare)<br>EC Tier 1<br>EC Tier 2<br>EC Tier 3<br>EC Tier 4 | 0<br> | 0<br>-<br>0<br>0<br>0 |       |
|   | Load  | Transfer                               | LEC TIEF 4   |       | 0                     | J     |

### 2.3 Add Phase 2 IEC Interfaces

- 1. Go to the **Applications/License Management** tab.
- 2. Click Add App > IEC Interface (TierX) > Ok > Send.

Figure 2-5: Add New Applications

| PCCU32 - [Entry] |  | _  |                                  |                   |                |                    |  |
|------------------|--|--|----------------------------------|-------------------|----------------|--------------------|--|
|                  | Terminal 🐼 🛄 si                            | 9 🤣  |                                  |                   |                |                    |  |
| TOTALFLOW        | Station Setup Application/Lic              | cense Management Ba  | attery Information   Res         | ources System Log | g   Security l | Log Registry       |  |
| i I/O System     | Key Credits                                | • Tra  | insfer to Device                 | Device Credits    |                |                    |  |
| Trend System     | SAP Serial #: 0<br>Credit Key Serial #: 78 | 6 O Tra  | insferto Key                     | Credit Typ        | be Use         | ed Surplus/Deficit |  |
| Operations       | Credit Type Amount                         |  | IEC Tier 1                       | CO2(NIST)         | 0              | 0                  |  |
|                  | General 0                                  | i)pc   |                                  | (spare)           | -              | -                  |  |
|                  | IEC Basic 55                               | Amour  | t 📃 🗾                            | IEC Tier 1        | 0              | 1                  |  |
|                  | CO2(NIST) 0                                |  |                                  | IEC Tier 3        | 0              | 0                  |  |
|                  | (spare) -                                  | <b>_</b>   |                                  | IEC Tier 4        | 0              | 0                  |  |
|                  | Load                                       |  | Transfer                         | I                 |                | ,                  |  |
|                  | App# Type                                  | Revision Stat  | ion Directory                    | License Status    | Pestart        | Delete Ann         |  |
|                  | 0 System                                   | 2105252-004  | Dir = \                          | Enable            |                | Г                  |  |
|                  | 1 Communications                           | 2101348-005  | Dir = \Comm-1                    | Enable            |                |                    |  |
|                  | 2 Communications                           | 2101340-005  | Dir = \Comm-2                    | Enable            | Г              | Г                  |  |
|                  | 3 Communications                           | 2101340-005  | Dir = \Comm-3                    | Enable            | Г              | Γ                  |  |
|                  | 7 I/O Interface XSer                       | ies 2105253-001  | Dir = \TFIO-A                    | Enable            |                |                    |  |
|                  | 8 Display XSeries                          | 2103137-002  | Dir = \Display                   | Enable            |                |                    |  |
|                  | 31 Communications                          | 2101348-005  | Dir = \Comm-4                    | Enable            |                |                    |  |
|                  | 95 Trend System                            | 2101309-002  | Dir = \Trend                     | Enable            |                |                    |  |
|                  | 241 Operations                             | 2101320-005  | Dir = \Operation                 | s Enable          |                |                    |  |
|                  | Add Ne<br>App<br>91<br>© O                 | w Application<br>number Appli<br>TEC Tier 1<br>verride recommended a | cation to add<br>pp number<br>OK | Cancel            |                |                    |  |

-1.55

### 2.4 Run the Phase 2 IEC Resource

- 1. Go to the IEC Interface > **IsaGraf** > **Resource List** tab.
- 2. Select the desired Resource > Activate Resource Dropdown Menu > Select and run.

### Figure 2-6: Select and run

| PCCU32 - [Entry]                 |    |             |                         |                |                   |                 |                       | × |
|----------------------------------|----|-------------|-------------------------|----------------|-------------------|-----------------|-----------------------|---|
| Operate <u>View Window H</u> elp |    |             |                         |                |                   |                 | _ 8                   | × |
| fi 🛅 🛅 💽 🕅                       |    |             | 🛄 🛃 🧇                   |                |                   |                 |                       |   |
|                                  | ls | aGraf Resou | urce List Status        |                |                   |                 |                       |   |
| Totalflow/USB                    |    |             | Available IEC Resources | Name           | Activate Resource | Delete Resource | Required Credit Level | Ш |
| Totalflow/TCP: 10001             |    | 91.254.3    | Resource #1             | WellTest_G5_T1 | Select & Run      | No              | Tier 1                |   |
| I/O System                       |    |             |                         |                |                   |                 |                       |   |
| Display     IEC Tier 1           |    | 91.255.214  | Resource List Rescan    | No             |                   |                 |                       |   |
| System Variables                 |    |             |                         |                |                   |                 |                       |   |
| Symbol Table                     |    | 91.254.53   | Last Message            |                |                   |                 |                       |   |

After the Resource is running, return to the IsaGraf tab. The resource Name field should contain the resource that was just selected to run. The Current state should read "Started and the Resource running".

1. Select the Rescan Symbol file to load the Resource in the tree view.

### Figure 2-7: Rescan symbol file

| PCCU32 - [Entry]            |                              |                           |  |  |  |  |  |  |  |  |
|-----------------------------|------------------------------|---------------------------|--|--|--|--|--|--|--|--|
| Operate View Window Help    |                              |                           |  |  |  |  |  |  |  |  |
| i 🔁 🚾 💽 🙀 🚞 🗇 🛄 🎿 🧇         |                              |                           |  |  |  |  |  |  |  |  |
|                             | IsaGraf Resource List Status |                           |  |  |  |  |  |  |  |  |
| i I/O System                |                              |                           |  |  |  |  |  |  |  |  |
| ⊡ · Display                 |                              | Description               |  |  |  |  |  |  |  |  |
| System Variables            | 91.254.1                     | Isagraf Version           | 5.70.36                                |  |  |  |  |  |  |  |
|                             |                              |                           |  |  |  |  |  |  |  |  |
| Operational Data            |                              | Active IEC Resource       |  |  |  |  |  |  |  |  |
| Trend System     Operations | 91.255.254                   | Resource Number           | 1                                      |  |  |  |  |  |  |  |
|                             | 91.254.54                    | Resource Name             | WellTest_G5_T1                         |  |  |  |  |  |  |  |
|                             | 91.254.53                    | Last Message              | Copying Resource Files                 |  |  |  |  |  |  |  |
|                             |                              |                           |  |  |  |  |  |  |  |  |
|                             |                              | Resource State Management |  |  |  |  |  |  |  |  |
|                             | 91.255.215                   | Current State             | UNKNOWN                                |  |  |  |  |  |  |  |
|                             | 91.255.50                    | IEC AutoStart             | Off                                    |  |  |  |  |  |  |  |
|                             | 91.255.217                   | Start/Stop Resource       |  |  |  |  |  |  |  |  |
|                             | 91.255.218                   | Clear Active Resource     | No                                     |  |  |  |  |  |  |  |
|                             | 91.255.64                    | Operation Mode            | Production                             |  |  |  |  |  |  |  |
|                             |                              |                           |  |  |  |  |  |  |  |  |
|                             | 91.255.251                   | Annunciate                | 2                                      |  |  |  |  |  |  |  |
|                             | 91.255.56                    | Annunciator               | Trace                                  |  |  |  |  |  |  |  |
|                             |                              |                           |  |  |  |  |  |  |  |  |
|                             |                              | Symbol File               |  |  |  |  |  |  |  |  |
|                             | 91.254.0                     | Symbol File               | \tfData\IEC-91\WeIITest_G5_T1\IDS00101 |  |  |  |  |  |  |  |
|                             | 91.255.253                   | Rescan Symbol File        | Rescan Now                             |  |  |  |  |  |  |  |
|                             |                              |                           |  |  |  |  |  |  |  |  |
|                             |                              |                           |  |  |  |  |  |  |  |  |

After the Transition is complete, manually enter the configuration for the Phase 2 IEC Resource.

1. Open a second window of PCCU.

### 2. On the PCCU menu, click **Operate** > **Open Configuration File**.

Figure 2-8: Open Configuration File



- 3. Open the Screen Save file in the first window of PCCU.
- 4. Open Entry Mode in the Second Window of PCCU.
- 5. Manually enter the settings into the Totalflow controller, duplicating the settings from the Screen Save file for each IEC settings tab.

### Figure 2-9: IEC settings tab

| PCCU32 - [Configuration File C:\temp\\  | WellTestSo | creenSave.fcu]                                   |                          |  |                                     |
|---|------------|--|--------------------------|--|-------------------------------------|
| Derate View Window Help                 |            |  |                          |  | _ @ ×                               |
| 1 📅 🔁 💽 🕅                               | 32Bit      | 🖗 🛄 Zu 🔗   |                          |  |                                     |
| B-Device<br>B-IEC Tier 1<br>B-Well Test | Units      | Hardware Interoperability   Gas Interoperability | Liquids Interoperability | Edra Registers Interoperability                            |                                     |
| Separator Setup                         |            | Name   | Value                    | Comment  |                                     |
| +- Well Setup                           | 92.4.1     | Gas Volume Units                                 | MCF                      | Units associated with gas volumes                          | MCF                                 |
| Logs                                    | 92.4.2     | Gas Flow Rate Units                              | MCF/day                  | Units associated with gas flow rates                       | MCF/day                             |
|   | 92.4.3     | Liquid Volume Units                              | bbl                      | Units associated with oil and water volumes                | bbl                                 |
|   | 92.4.4     | Liquid Flow Rate Units                           | bbl/day                  | Units associated with oil and water flow rates             | Bbl/day                             |
|   | 92.4.5     | Gas Tube Static Pressure Units                   | PSIG                     | Units associated with the gas tube static pressures        | PSIG                                |
|   | 92.4.6     | Gas Tube Diff. Pressure Units                    | IWC                      | Units associated with the gas tube differential pressures  | IWC                                 |
|   | 92.4.7     | Gas Tube Temperature Units                       | ۴                        | Units associated with the gas tube Temperatures            | DegF                                |
|   | 92.4.8     | Tubing Pressure Units                            | PSIG                     | Units associated with the optional well tubing pressures   | PSIG                                |
|   | 92.4.9     | Casing Pressure Units                            | PSIG                     | Units associated with the optional well casing pressures   | PSIG                                |
|   | 92.4.10    | Test Separator Pressure Units                    | PSIG                     | Units associated with the optional test separator pressure | PSIG                                |
|   | 92.4.11    | Produced Gas Pressure Units                      | PSIG                     | Units associated with the optional produced gas pressure   | PSIG                                |
|   | 92.4.12    | 2 Extra Register 1 Units                         | Not Set                  | Units associated with the optional Extra Register 1        | Not Set                             |
|   | 92.4.13    | <sup>3</sup> Extra Register 2 Units              | Not Set                  | Units associated with the optional Extra Register 2        | Not Set                             |
|   | 100.44     |  | 1                        |  |                                     |
|   |            |  |                          |  | Screen Save Close Help Print        |
| I I<br>Ready                            |            |  |                          |  | Not Connected to Device Login: user |



| Operate View Window Help                |  |                                  |  |   |
|---|--|----------------------------------|--|---|
| 10 🛅 🔁 🐼 🕅 🛅                            | 🚎 🕼 🛄 🚑 🤣  |                                  |  |   |
| E-Device<br>E-IEC Tier 1<br>E-Well Test | Units Hardware Interoperability Gas Interoperability | y   Liquids Interoperability   E | Extra Registers Interoperability                           |   |
| Separator Setup                         | Name   |                                  | Comment  |   |
| Wells Setup     Well Test Results       | 92.4.1 Gas Volume Units                              | MCF                              | Units associated with gas volumes                          | MCF                                     |
| Logs                                    | 92.4.2 Gas Flow Rate Units                           | MCF/day                          | Units associated with gas flow rates                       | MCF/day                                 |
| 1                                       | 92.4.3 Liquid Volume Units                           | bbl                              | Units associated with oil and water volumes                | bbl                                     |
| 1 1                                     | 92.4.4 Liquid Flow Rate Units                        | bbl/day                          | Units associated with oil and water flow rates             | Bbl/day                                 |
| 1 1                                     | 92.4.5 Gas Tube Static Pressure Units                | PSIG                             | Units associated with the gas tube static pressures        | PSIG                                    |
| 1 1                                     | 92.4.6 Gas Tube Diff. Pressure Units                 | IWC                              | Units associated with the gas tube differential pressures  | IWC                                     |
| 1 1                                     | 92.4.7 Gas Tube Temperature Units                    | ۰F                               | Units associated with the gas tube Temperatures            | DegF                                    |
| 1 1                                     | 92.4.8 Tubing Pressure Units                         | PSIG                             | Units associated with the optional well tubing pressures   | PSIG                                    |
| 1 1                                     | 92.4.9 Casing Pressure Units                         | PSIG                             | Units associated with the optional well casing pressures   | PSIG                                    |
| 1 1                                     | 92.4.10 Test Separator Pressure Units                | PSIG                             | Units associated with the optional test separator pressure | PSIG                                    |
| 1 1                                     | 92.4.11 Produced Gas Pressure Units                  | PSIG                             | Units associated with the optional produced gas pressure   | PSIG                                    |
| 1 1                                     | 92.4.12 Extra Register 1 Units                       | Not Set                          | Units associated with the optional Extra Register 1        | Not Set                                 |
| 1 1                                     | 92.4.13 Extra Register 2 Units                       | Not Set                          | Units associated with the optional Extra Register 2        | Not Set                                 |
| 1 1                                     | 100 4 4 4  |                                  | ~1   | · · · · · · · · · · · · · · · · · · ·   |
|   |  |                                  |  | Screen Save Close Help Print            |
| Ready                                   |  |                                  |  | Not Connected to Device Login: user //, |

| PCCU32 - [Entry] Coperate View Window Help   | 🌚        | 🛄 🛃 🤣                                    |              |                         |  | <br>0)                                  |
|--|----------|--|--------------|-------------------------|--|---|
| - TOTALFLOW - Communications - Totalflow/TCP | Units Ha | rdware Interoperability   Gas Interopera | lity   Liqui | ds Interoperability   E | xtra Registers Interoperability                            |   |
| Totalflow/USB                                |          | Name                                     |              | Value                   | Comment  | -                                       |
| +- Separator                                 | 92.4.1   | Gas Volume Units                         |              | MCF                     | Units associated with gas volumes                          | MCF                                     |
| 🗈 Well 1                                     | 92.4.2   | Gas Flow Rate Units                      |              | MCF/day                 | Units associated with gas flow rates                       | MCF/day                                 |
| E Display                                    | 92.4.3   | Liquid Volume Units                      |              | bbl                     | Units associated with oil and water volumes                | ьы                                      |
| -Holding Registers                           | 92.4.4   | Liquid Flow Rate Units                   |              | bbl/day                 | Units associated with oil and water flow rates             | Bbl/day                                 |
| IEC Basic     IEC Tier 1                     | 92.4.5   | Gas Tube Static Pressure Units           |              | PSIG                    | Units associated with the gas tube static pressures        | PSIG                                    |
| - Wel Test                                   | 92.4.6   | Gas Tube Diff. Pressure Units            | sure Units   | IWC                     | Units associated with the gas tube differential pressures  | IWC                                     |
| Separator Setup     Wels Setup               | 92.4.7   | Gas Tube Temperature Units               |              | °F                      | Units associated with the gas tube Temperatures            | DegF                                    |
| E- Well Test Results                         | 92.4.8   | Tubing Pressure Units                    |              | PSIG                    | Units associated with the optional well tubing pressures   | PSIG                                    |
| i Logs                                       | 92.4.9   | Casing Pressure Units                    |              | PSIG                    | Units associated with the optional well casing pressures   | PSIG                                    |
|  | 92.4.10  | Test Separator Pressure Units            |              | PSIG                    | Units associated with the optional test separator pressure | PSIG                                    |
| IsaGraf                                      | 92.4.11  | Produced Gas Pressure Units              |              | PSIG                    | Units associated with the optional produced gas pressure   | PSIG                                    |
|  | 92.4.12  | Extra Register 1 Units                   |              | Not Set                 | Units associated with the optional Extra Register 1        | Not Set                                 |
|  | 92.4.13  | Extra Register 2 Units                   |              | Not Set                 | Units associated with the optional Extra Register 2        | Not Set                                 |
|  | 92.4.14  | Extra Register 3 Units                   |              | Not Set                 | Units associated with the optional Extra Register 3        | Not Set                                 |
|  | 92.4.15  | Extra Register 4 Units                   |              | Not Set                 | Units associated with the optional Extra Register 4        | Not Set                                 |
| Ready  | 92 4 16  | Extra Register 5 Units                   |              | Not Set                 | Inits associated with the optional Extra Register 5        | Not Set<br>ted to 10.1.1.13 Login: user |



**IMPORTANT NOTE:** PCCU Version 7.65 and newer is required to run IEC Phase II applications. This version will have different registers than pictured above (Phase I).



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#### **Texas Office - Houston**

3700 W. Sam Houston Parkway S., Suite 600 Houston, TX 77042 Ph: +1 713 587 8000

### Kansas Office - Liberal

2705 Centennial Blvd Liberal, KS 67901 Ph: +1 620 626 4350

### Texas Office – Pleasanton

150 Eagle Ford Road Pleasanton, TX 78064 Ph: +1 830 569 8062

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