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Operational Aids

Use the following procedures to aid in debugging inspections and to update the sensor.

Debugging Inspections

iVu Series Emulator

The iVu Series Emulator is a Windows®[1] application that allows you to operate in a Windows® environment similar to the iVu Series device itself. In general, the Emulator is an inspection debugging tool where you can:

- Import stored inspections and a configuration from an iVu Series device
- Modify inspection parameters
- Restore the updated configuration back to the iVu Series device

By default, the iVu Series Emulator installs in the following folder: `C:\Program Files (x86)\Banner Engineering`

You can run the Emulator from this folder, but you will need to move files between the USB flash drive and PC. To avoid moving files, copy the Emulator executable to the USB flash drive, and run the Emulator directly from the USB flash drive.

How to Round-Trip Debug Using the Emulator

This section describes the procedures for performing round-trip debugging using either the iVu Series Emulator installed on a PC or using the Emulator directly from a USB flash drive.

> **Note:** This document refers to saving configuration and inspection logs in folders based on the device name. If you have not yet named the device, folders will be named using the first 8-characters of the device serial number.

How to Debug Using the Emulator from a PC

This procedure requires a USB flash drive and a USB cable, PSG-4M-4xx-USB.

1. Connect a USB cable to the iVu Series device.
2. Connect a USB flash drive to the USB cable.
3. Save the Inspection Logs to the USB flash drive.

    a. Go to **Main Menu** > **Inspection Logs** > **View Logs**, and click the **Save** button to save the inspection logs.
    b. When prompted, click **Yes** to save device configuration along with the Inspection Logs.

    The location of these files on the USB flash drive displays after the operation is completed. The Inspection Logs are saved in `[USB:]\BANNER\[SENSOR_NAME]\InspLog` and the device configuration is saved in `[USB:]\BANNER\[SENSOR_NAME]`. For example, if the device name is *myName*:
    - Configuration File (CONFIG.CFG) path: `[USB:]\BANNER\myName`
    - Inspection Logs path: `[USB:]\BANNER\myName\InspLog`

    > **Note:** If the device has no name, the folder name is the first 8-characters of the device serial number.

4. Disconnect the USB flash drive from the iVu Series device.
5. Connect the USB flash drive to a Windows PC that has the iVu Series Emulator installed.

    > 👉 **Important:** Make sure the iVu Series Emulator is **NOT** running before proceeding to the next step.

6. Copy the device configuration from the USB flash drive to the folder where the Emulator is installed on the PC.

    For example, if the device name is *myName* and the iVu Series Emulator is installed in the default location on the PC, copy the file `[USB:]\BANNER\myName\CONFIG.CFG` to `C:\Program Files\Banner Engineering\iVu Series`.

7. Copy the Inspection Logs from the USB flash drive to the InspLog folder on the PC.

    For example, copy the file `[USB:]\BANNER\myName\InspLog` to `C:\Program Files\Banner Engineering\iVu Series\InspLogs`.

8. Start the Emulator.

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[1] Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States and/or other countries.

9. Set the Trigger option to Internal.

    a. Go to **Main Menu** > **Imager** > **Trigger**, and select **Internal**.

    b. Set the **Trigger Interval** as desired.

       The iVu Series Emulator runs with the saved configuration from Step 6 using the saved Inspection Logs from Step 2 as images.

10. Make the desired adjustments.
11. Close the iVu Series Emulator program. All configuration changes are automatically saved to the CONFIG.CFG file.
12. Copy the device configuration (that is, CONFIG.CFG) from the PC working directory to the USB flash drive.

    For example `[USB:]\BANNER\myName\CONFIG.CFG`.

13. Disconnect the USB flash drive from the PC.
14. Connect the USB flash drive to the iVu Series device.
15. Restore the configuration to the iVu Series device.

    a. Go to **Main Menu** > **System** > **Configuration** > **Load Configuration**.

    b. Select the configuration to restore.

    c. Click **Load** to start the restore device configuration.

    d. Restart the device when the restore is complete.

How to Debug Using the Emulator from the USB Flash Drive

This procedure requires a USB flash drive and a USB cable, PSG-4M-4xx-USB.

1. Connect a USB cable to the iVu Series device.
2. Connect a USB flash drive to the USB cable.
3. Save the Inspection Logs to the USB flash drive.

    a. Go to **Main Menu** > **Inspection Logs** > **View Logs**, and click the **Save** button to save the inspection logs.

    b. When prompted, click **Yes** to save the device configuration along with the Inspection Logs.

       The location of these files on the USB flash drive displays after the operation is completed. The Inspection Logs are saved in `[USB:]\BANNER\[SENSOR_NAME]\InspLog` and the device configuration is saved in `[USB:]\BANNER\[SENSOR_NAME]`. For example, if the device name is *myName*:

         • Configuration File (CONFIG.CFG) path: `[USB:]\BANNER\myName`

         • Inspection Logs path: `[USB:]\BANNER\myName\InspLog`

> **Note:** If the device has no name, the folder name is the first 8-characters of the device serial number.

4. Disconnect the USB flash drive from the iVu Series device.
5. Connect the USB flash drive to a Windows PC that has the iVu Series Emulator installed.
6. Copy the iVuEmulator.exe program file to the USB flash drive in the same location as the CONFIG.CFG file. For example, `[USB:]\BANNER\myName`.
7. Start the `[USB:]\BANNER\myName\iVuEmulator.exe` program.
8. Set the Trigger option to Internal.

    a. Go to **Main Menu** > **Imager** > **Trigger**, and select **Internal**.

    b. Set the **Trigger Interval** as desired.

       The iVu Series Emulator runs with the saved configuration using the saved Inspection Logs as images.

9. Make the desired adjustments.
10. Close the iVu Series Emulator program. All configuration changes are automatically saved to the CONFIG.CFG file.
11. Disconnect the USB flash drive from the PC.
12. Connect the USB flash drive to the iVu Series device.
13. Restore the configuration to the device.

    a. Go to **Main Menu** > **System** > **Configuration** > **Load Configuration**.

    b. Select the configuration to restore.

    c. Click **Load** to start the restore device configuration.

    d. Restart the device when the restore is complete.

Updating the iVu Series

Update the firmware

The current version of firmware is available for download from *www.bannerengineering.com*. Use the following steps to update the firmware.

This procedure requires a USB flash drive and a USB cable, PSG-4M-4xx-USB.

1. Go to *http://www.bannerengineering.com*.
2. Browse to the Vision Products page and select the iVu Series device you are using.
3. Click **Software** to view program releases and release notes.
4. Determine which version you want to download. The current version is recommended.
5. Download the file. Depending on your browser settings, you may be asked to confirm or provide a location to save the file. Choose to download on your desktop. Note the file name.
6. Start the iVu Series program.
7. In the program, select the product you are using and click **Firmware Update Wizard**. The program starts.
8. Connect a USB flash drive to the PC.
9. Follow the on-screen instructions to save the firmware to the USB flash drive. The file is automatically saved to a folder called BANNER\Firmware.
10. Disconnect the USB flash drive from the PC.
11. Connect the USB cable to the iVu Series.
12. Connect the US flash drive to the USB cable.
13. On the iVu Series, go to **System** > **Firmware Update**. The name of the firmware file you copied to the USB flash drive displays.
14. Select the correct file and click **Load**.
15. Follow the on-screen instructions to update the firmware.

How to Set or Modify a Device Name using the Emulator

You can set a device name for your iVu Series device or modify an existing name on the device using the keypad. You can also change the device name this using the iVu Series Emulator as described below.

> **Note:** If you are in a language other than English, you cannot modify the device name using the keypad. Use the procedure described below.

> **Note:** If you have not set the device name previously, folders are named using the first 8-characters of the device serial number.

This procedure requires a USB flash drive and a USB cable, PSG-4M-4xx-USB.

1. Connect a USB cable to the device.
2. Connect a USB flash drive to the USB cable.
3. Save the Device Configuration to the USB flash drive. Go to **Main Menu** > **System** > **Configuration** > **Save to USB**.

   The location of these files on the USB flash drive displays after the operation is complete. The device configuration is saved in `[USB:]\BANNER\[DEVICE_NAME]`. For example, if the device name is *myName*, the path is `[USB:]\BANNER\myName`.
4. Disconnect the USB flash drive from the device.
5. Connect the USB flash drive to a Windows PC.
6. If you are running the Emulator installed on a PC, make sure the Emulator is **not** running, and copy the Device Configuration from the USB flash drive to the folder where the Emulator is installed on the PC.

   For example, if the device name is myName and the iVu Series Emulator is installed in the default location on the PC, copy the file `[USB:]\BANNER\myName\CONFIG.CFG` to `C:\Program Files\Banner Engineering\iVu Series`.
7. Launch the iVuEmulator.exe program (either from the USB flash drive or from the Windows PC, depending on which one you are using).
8. Go to **Main Menu** > **System** > **Information**.
9. Click inside the **Device Name** field, and enter the desired `name`.
10. Click the **Back** button on the lower-left corner of the display to save the device name.
11. Close the Emulator program. The device name is automatically saved to the CONFIG.CFG file.
12. If you are running the Emulator on the PC, copy the CONFIG.CFG file back to the original folder on the USB flash drive, `[USB:]\BANNER\[DEVICE_NAME]`. For example `[USB:]\BANNER\myName`.

   > **Note:** The device looks in the original folder (for example, myName) for the CONFIG.CFG file.
13. Remove the USB flash drive from the PC, and connect it to the device.
14. Restore the configuration to the device.

   a. Go to **Main Menu** > **System** > **Configuration** > **Load from USB**.
   b. Select the configuration to restore.
   c. Click **Load** to start the restore device configuration.

      > **Note:** After the new device name is restored in the device, all files saved to USB flash drive will now reside in the folder corresponding to the new device name.
   d. Restart the device when the restore is complete.

Note: If a device configuration from one device is loaded onto another device, the device name from the device configuration is not be stored in the device.

How to Reset the Device Password

If you forget the password for your device, contact Banner Engineering for assistance.

How to Use Bitmap Image Files with the iVu Series Emulator

You can use bitmap (.bmp) image files with the iVu Series Emulator for developing and simulating iVu Series inspections. The iVu Series Emulator only accepts image files in .bmp format. If you have other image file formats, use an image viewer/editor program to convert the files to 8-bit grayscale .bmp format for iVu Series TG models and to 24-bit color .bmp for iVu Series color models.

Note: Images smaller than the FOV are black-filled starting in the upper-right. Images larger than the FOV are cropped starting in the upper-left.

1. Copy the .bmp files into the InspLog folder in the iVu Series Emulator install folder.

   For example, copy .bmp files to `C:\Program Files\Banner Engineering\iVu Series\InsLog.`

   Note: Remove any existing .bmp or Log files in that folder to avoid confusion. The iVu Series Emulator automatically runs all .bmp/Log files sequentially according to filename.

2. Start the iVu Series Emulator.
3. Set the Trigger option to Internal.

   a. Go to **Main Menu** > **Image** > **Trigger**.
   b. Set the **Trigger Interval** as desired.

The iVu Series Emulator runs using the .bmp files from Step 1.

Note: Banner does not recommend setting up inspections using these 8-bit grayscale images because you will need to modify the configuration after loading it on the iVu Series on the line. A better choice is to set up the inspection on the iVu Series Emulator using the Inspection Logs from the iVu Series.