

Operational Aids

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

Debugging Inspections

iVu Emulator

The iVu Emulator is a Windows application that allows you to operate in a Windows environment exactly as you would on the iVu Series sensor itself. In general, the Emulator is an inspection debugging tool where you can:

- Import stored inspections and configuration from an iVu Series sensor.
- Modify inspection parameters on the emulator.
- Restore the updated configuration back to the sensor.

How to Round-Trip Debug Using the Emulator

The iVu Emulator is a Windows application that allows you to operate in a Windows environment exactly as you would on the sensor itself. In general, the Emulator is an inspection debugging tool: you can import stored inspections and a configuration from an iVu sensor, then modify its parameters on the emulator, and restore the updated configuration back to the sensor. When you install the iVu Emulator, by default, it is installed in the following folder:

C:\Program Files\Banner Engineering\iVu Series

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.

This "how-to" describes the procedures for doing round-trip debugging either using the iVu Emulator installed on a PC or using it directly from the USB flash drive.



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

How to Debug Using the Emulator from a PC

1. Plug a USB flash drive into the sensor.
2. Save the Inspection Logs to the USB flash drive.
 - a. On the Main Menu > Inspection Logs > View Logs screen, click the Save icon to save the inspection logs.
 - b. When prompted, select Yes to save sensor 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 sensor configuration is saved in <USB>:\BANNER\<SENSOR_NAME>. For example, if the sensor name is myName:
 - Configuration File (CONFIG.CFG) path: <USB>:\BANNER\myName
 - Inspection Logs path: <USB>:\BANNER\myName\InspLog



NOTE: If the sensor has no name, then the folder name is the first 8-characters of the serial number.

3. Remove the USB flash drive from the sensor and insert it into an available USB port on a Windows PC that has the iVu Emulator installed.



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

4. Copy the Sensor Configuration from the USB flash drive to the folder where the Emulator is installed on the PC. For example, if the sensor name is myName and the iVu 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.
5. Copy the Inspection Logs from the USB flash drive (for example, <USB>:\BANNER\myName\InspLog) to the InspLog folder on the PC (for example, C:\Program Files\Banner Engineering\iVu Series\InspLogs).
6. Start the Emulator.
7. 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 Emulator runs with the saved configuration from Step 6 using the saved Inspection Logs from Step 7 as images.

8. Make the desired adjustments.
9. Close the iVu Emulator program. All configuration changes are saved to the CONFIG.CFG file.
10. Copy the sensor configuration (that is, CONFIG.CFG) from the PC working directory to the USB flash drive (for example <USB>:\BANNER\myName\CONFIG.CFG).
11. Remove the USB flash drive from the PC, and connect it to the sensor.
12. Restore the configuration to the sensor.
 - a. Go to Main Menu > System > Configuration > Load Configuration.
 - b. Select the Configuration to restore.
 - c. Click the Load button to start the restore sensor configuration.
 - d. Reboot the sensor when the restore is complete.

How to Debug Using the Emulator from the USB Flash Drive

1. Plug a USB flash drive into the sensor.
2. Save the Inspection Logs to the sensor.
 - a. On the Main Menu > Inspection Logs > View Logs screen, click the Save icon to save the inspection logs.
 - b. When prompted, select Yes to save sensor 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 sensor configuration is saved in <USB>:\BANNER\<SENSOR_NAME>. For example, if the sensor name is myName:
 - Configuration File (CONFIG.CFG) path: <USB>:\BANNER\myName
 - Inspection Logs path: <USB>:\BANNER\myName\InspLog



NOTE: If the sensor has no name, the folder name is the first 8-characters of the serial number.

3. Remove the USB flash drive from the sensor and insert it into an available USB port on a Windows PC that has the iVu Emulator installed.
4. 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).
5. Launch the <USB>:\BANNER\myName\iVuEmulator.exe program.
6. 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 Emulator runs with the saved configuration using the saved Inspection Logs as images.

7. Make the desired adjustments.
8. Close the iVu Emulator program. All configuration changes are saved to the CONFIG.CFG file.
9. Remove the USB flash drive from the PC, and connect it to the sensor.
10. Restore the configuration to the sensor.
 - a. Go to Main Menu > System > Configuration > Load Configuration.
 - b. Select the Configuration to restore.
 - c. Click the Load button to start the restore sensor configuration.
 - d. Reboot the sensor when the restore is complete.

Updating the Sensor

Update Process

Banner Engineering may release new versions of the sensor firmware in the future. New firmware releases can be downloaded from Banner's website or can be obtained by ordering the latest Product CD. The following steps will guide you through the process of updating the iVu firmware.

Step 1: Copy firmware of the desired product to USB flash drive.

1. Launch the iVu Series software.

From the Product CD:

- Place the latest Product CD into your CD ROM drive. The iVu Series Software automatically starts.
- If your computer is not set for Auto-Play, start the iVu Series Software by browsing to the CD drive from the My Computer screen and double-clicking on 'iVuSeries.exe'.

From the Banner Website:

1. Visit Banner's Website: <http://www.bannerengineering.com>.
 2. Browse to the Vision Products page and select the iVu product you are using.
 3. Click on the Software tab to view software releases.
 4. Determine which version you want to download (the Current Version is recommended, for example "iVu Series Software Version 2010R4").
 5. Click on the circular Download button. This initiates the download process. 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. Double-click the file to start extracting the files and run the iVu Series Software.
2. Select the product you are using and browse to the Firmware Update page.
 3. Click on the 'Run Firmware Update Wizard' and the program starts.
 4. Follow the on-screen instructions. Clicking on 'Copy firmware to USB' copies the selected firmware to the USB flash drive.

Step 2: Install the firmware on the iVu.

1. Remove the USB flash drive from the PC, and plug it into the sensor.
2. On the sensor, select System > Firmware Update. The name of the firmware file you copied on the USB flash drive displays.
3. Choose the correct file and click on the Load button.
4. 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 sensor or modify an existing name on the sensor using the software keypad. You can also change the device name this using the iVu Emulator as described below.



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



NOTE: If you have not set the device name previously, then folders will be named using the first 8-characters of the device serial number.

1. Plug a USB flash drive into the device.
2. Save the Device Configuration to the USB flash drive (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 will be <USB>:\BANNER\myName).
3. Remove the USB flash drive from the device and insert it into an available USB port on a Windows PC.
4. If you are running the Emulator from the USB flash drive, launch the iVuEmulator.exe program. 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 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.
5. Launch the iVuEmulator.exe program.
6. Go to the Information screen (Main Menu > System > Information).
7. Click the white box next to the Device Name label, and enter the desired Device Name.
8. Click the Back button on the lower-left corner of the screen to save the Device Name.
9. Close the Emulator program and the Device Name is saved to the CONFIG.CFG file.
10. 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.

11. Remove the USB flash drive from the PC, and connect it to the device.
12. Restore the configuration to the device.

- a. Go to Main Menu > System > Configuration > Load from USB.
- b. Select the Configuration to restore.
- c. Click the Load button 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. Reboot 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 will not be stored in the device.

How to Reset the Sensor Password

If you forget the password for your sensor, you can remove the current password using a reset key that is generated by the Password Reset Utility, which is located on the Product CD. The following steps will guide you through the specific steps to reset the password:

1. On your iVu Series sensor, click the Forgot? button located on the bottom of the Enter Current Password screen.
2. Write down the 6-digit Device Key.
3. On a Windows PC, insert the iVu product CD into the CD ROM drive.
4. From the product CD menu (started upon inserting the CD), launch the Password Reset Utility.
5. Enter the Device Key into the text box in the Utility—identified as Step 1 in the Password Reset Utility.
6. Click the Generate Reset Key button.
7. Write down the four-digit Password Reset Key—identified as Step 2 in the Password Reset Utility.
8. On the iVu Series sensor, check the Next button on the Password Reset screen.
9. Enter the 4-digit reset key on the Enter Reset Key screen.
10. Click Apply.

The password is now cleared.

How to Use Bitmap Image Files with the iVu Emulator

You can use bitmap (.bmp) image files with the iVu Emulator for developing and simulating iVu inspections. The iVu Emulator only accepts image files in .bmp format. If you have other image file formats, use an image viewer/editor program, such as PhotoShop, Gimp, or Paint, to convert the files to 8-bit grayscale .bmp format.



NOTE: Images smaller than 640 × 480 are black-filled starting in the upper-right. Images larger than 640 × 480 are cropped starting in the upper-left.

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

For example, copy .bmp files into the C:\Program Files\Banner Engineering\iVu Series\InspLog folder.



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

2. Launch the iVu Emulator program.
3. Select Internal Trigger on the Trigger Selection screen (Main Menu > Image > Trigger).
4. Set the Trigger Interval as desired.

The iVu 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 always end up modifying the configuration after loading it on the sensor on the line. A better choice is to set up the inspection on the iVu Emulator using the Inspection Logs from the sensor.