The Unico System®

iSERIES

The Unico System®

Serial Programming & Diagnostics Manual

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Introduction

This manual provides instructions on how to update the firmware, as well as monitor and record the operation of iSeries units.

We recommended that both indoor and outdoor firmware be checked at the time of installation on every iSeries system. Update firmware as required. Logging system operation at startup is required.

If you need assistance with any of the procedures described in this manual, please call Unico at 1-800-527-0896.

Section 1: iSeries Diagnostics

The operation of every iSeries unit can be monitored and recorded using the USB-to-Serial adapter that is provided with every iSeries outdoor unit. The logger provides information on both the indoor and outdoor units(when powered), including temperatures, blower RPM and Mode of Operation. While the outdoor operation can be monitored without power to the indoor unit, the indoor unit cannot be monitored without power to the outdoor unit. The log file that is created when the logger is running contains much more data than is displayed on screen, and this data can help to diagnose some field issues.

It is good practice to hook up the logger to every installation at startup in order to confirm that the system is operating normally.

To generate a system log, gather the required equipment below, and follow the logging procedure.

Equipment Required

1. Laptop with Windows XP or higher
2. Unico iSeries communication kit (p/n: A02131-K01). Includes serial adapter, 15ft communication cable, and CD.
   - 2.1. **Note**: If you choose to source your own cable, use 2-conductor cable with shield and drain wire, 18-22ga.
   - 2.2. **Note:** If you choose to source your own serial adapter, it must be a USB to RS-485 adapter.
   - 2.3. **Note:** All files on the CD can be downloaded from tech.unicosystem.com

System Setup

Before attempting to log system operation, ensure that the system is configured as follows:

1. The outdoor unit is powered on and the indoor units are powered on or off.
2. All communication wires between the outdoor unit and all indoor units have been connected.
3. The USB-to-Serial adapter is connected to either the indoor or outdoor unit communication terminals.
4. The USB-to-Serial adapter is plugged in to the laptop.

Logging Procedure

Take the following steps to log data:

1. **Wire the USB Adapter**
   - 1.1. Use 2-conductor cable with shield and drain wire, 18-22ga, for these connections (same as the wiring between the ODU and IDU control box).
   - 1.2. Connect terminal 1 on the adapter to communication terminal C2. *(Fig. 1a)*
   - 1.3. Connect terminal 2 on the adapter to communication terminal C1 *(Fig. 1a)*
   - 1.4. The connections to C1 and C2 can be made either at the indoor or outdoor unit.
   - 1.5. Connect the drain wire to the ground terminal on either the indoor or outdoor unit.

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1.6. **Note:** Do not connect the drain wire to the USB adapter ground terminal. This will create a ground loop and cause the programming step to fail!

1.7. **Note:** The serial adapter needs drivers to operate properly. Plug in the adapter to the tablet or laptop you intend to use and these drivers will usually be downloaded and installed automatically.

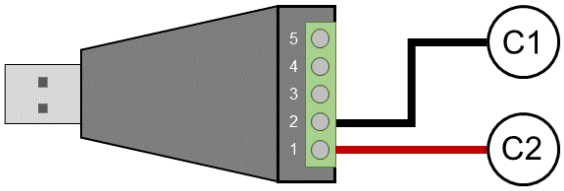


Figure 1a. USB-to-Serial adapter connection diagram.

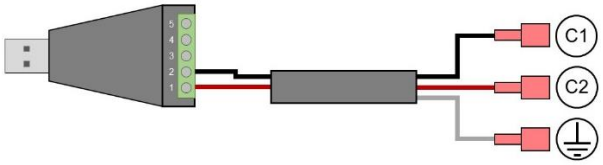
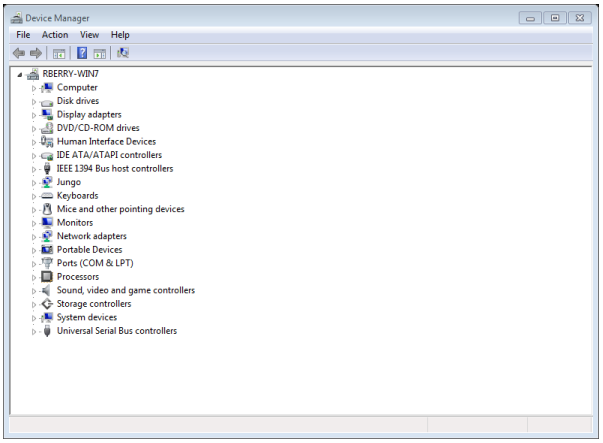


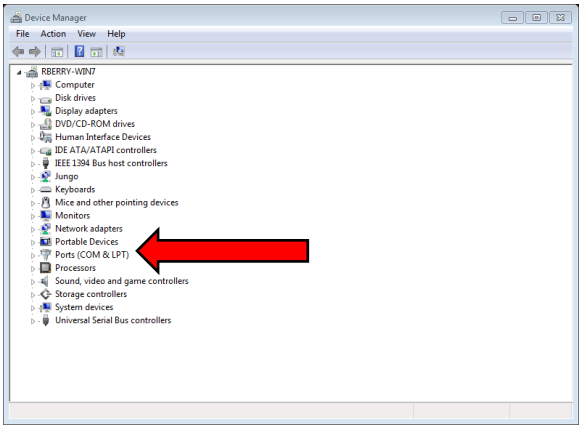
Figure 1b. USB-to-Serial adapter with shielded cable attached. Cable supplied with iSeries communication kit.

2. Determine which COM port the serial adapter is using.

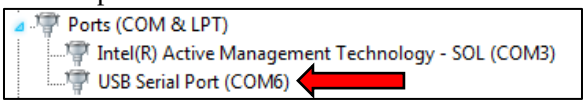
2.1. Go to Start>Control Panel>Device Manager



2.2. Select “Ports (COM & LPT)”



2.3. Look for “USB Serial Port”. The COM port in use will be listed. Record this port number for later use.



Note: The COM port in use on your computer may differ from the example shown above.

3. Select the appropriate logger

In order to properly log data, you must select the logger that corresponds to the indoor and outdoor units installed for your system. All loggers are located on the CD with the iSeries Communication Kit, or may be downloaded from our tech.unicosystem.com website.

Each logger filename lists the type of outdoor unit it can be used with. Either G50, G65, G80 or G110 will be part of the filename. The filename also lists the type of indoor unit it should be used with, either SDHV or MP. If the system has both SDHV and MP(either MPA or MPB) units installed on the same outdoor unit, use the SDHV logger.

For example, a system using an IS24G065 outdoor unit with and IS24MPB indoor unit would use logger #2 from the list below.

1. Unico DCI Logger v2.6 (Service – MP – G50).exe
2. Unico DCI Logger v2.6 (Service – MP – G65).exe
3. Unico DCI Logger v2.6 (Service – MP – G80, G110).exe

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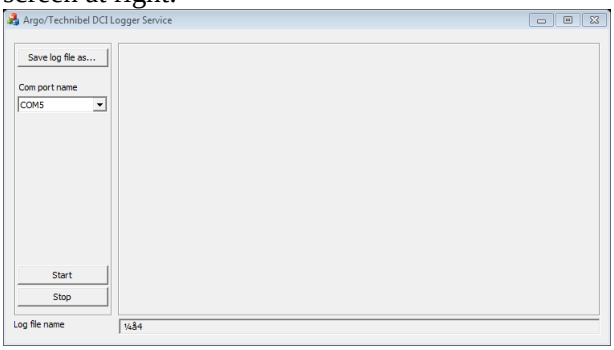
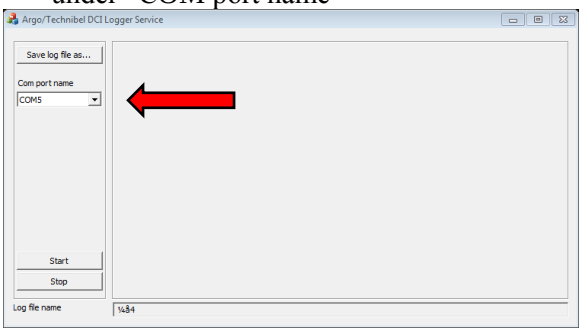
4. Unico DCI Logger v2.6 (Service – SDHV – G50).exe
5. Unico DCI Logger v2.6 (Service – SDHV – G65).exe
6. Unico DCI Logger v2.6 (Service – SDHV – G80, G110).exe

4. Launch the logger.

Double click the icon for the logger that matches your system configuration. You will then see the screen at right.



5. Set the COM port that the serial adapter is using by selecting from the drop-down menu under "COM port name"

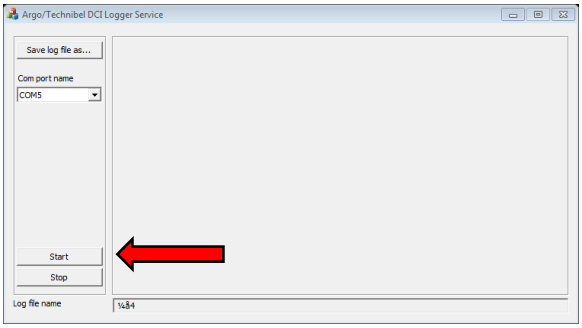


6. Assign the filename.
You must give your log file a name and decide where to save it. You should include the date, job name and address to identify the log later.

Example:
2015_02-12 – SGI Residence - 1234 Unico Ln.

Save the file to the Desktop so it is easy to find later.

7. Click "Start" to begin logging system operation.



You will see the screen change and start to display operating parameters of the system.

Record data for at least 15 minutes.

8. Click "Stop" when you are done logging. The program will automatically create a .zip file with the data that was recorded.

9. Send the log file to Unico.
If you are logging system operation in order to get help troubleshooting a unit, send the log file to Unico Customer Service at: customerservice@unicosystem.com

10. Resume normal operation.
Logging system operation does not interfere with normal system operation. Simply disconnect the serial adapter communication wires from the indoor or outdoor unit when the log is complete.

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Section 2: Updating Firmware

Firmware upgrades provide new features, fix bugs, and aid in troubleshooting. These files can be used to upgrade units with older firmware, or restore the default firmware to newer units The iSeries has firmware on both the indoor and outdoor units, and both can be upgraded by the same easy methods. Depending on the nature of the update, the indoor unit, outdoor unit, or both units, may need to be upgraded. It is recommended that the installer check the tech.unicosystem.com website for the latest firmware available at the time of installation. When in doubt, use the logger (See *Section 1*) to verify the installed firmware version and compare it to the latest versions available online. A cross reference table is shown at the end of this guide.

To install new firmware, gather the required equipment, and follow the update procedure below.

Estimated Time Required: 15 minutes

Equipment Required

1. Laptop with Windows XP or higher
2. Unico iSeries communication kit (p/n: A02131-K01). Includes serial adapter, 15ft communication cable, and CD.
   - 2.1. **Note**: If you choose to source your own cable, use 2-conductor cable with shield and drain wire, 18-22ga.
   - 2.2. **Note**: If you choose to source your own serial adapter, it must be a USB to RS-485 adapter.
   - 2.3. **Note**: All files on the CD can be downloaded from tech.unicosystem.com

IMPORTANT!
These steps must be followed exactly or the update procedure will not work!

System Setup

Before attempting to upgrade the firmware, ensure that the system is configured as follows:

1. The outdoor unit and indoor units are powered off. All LEDs in the outdoor unit are off.
2. All communication wires between the outdoor unit and any indoor units have been disconnected. (Both C1 and C2 terminals.)
3. The USB-to-Serial adapter is connected to the outdoor unit communication terminals as shown in *Figure 1a* and *1b*.
4. The USB-to-Serial adapter is disconnected from the laptop.
5. The updater program (iSeries Firmware Updater_v09.exe) is closed.

Update Procedure

To update the firmware, take the following steps:

6. **Wire the USB Adapter**
   - 6.1. Use 2-conductor cable with shield and drain wire, 18-22ga, for these connections (same as the wiring between the ODU and IDU control box).
   - 6.2. Connect terminal 1 on the adapter to communication terminal C2. *(Fig. 1a)*
   - 6.3. Connect terminal 2 on the adapter to communication terminal C1 *(Fig. 1a)*
   - 6.4. The connections to C1 and C2 can be made either at the indoor or outdoor unit.

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6.5. Connect the drain wire to the ground terminal on either the indoor or outdoor unit.

6.6. **Note:** Do not connect the drain wire to the USB adapter ground terminal. This will create a ground loop and cause the programming step to fail!

6.7. **Note:** The serial adapter needs drivers to operate properly. Plug in the adapter to the tablet or laptop you intend to use and these drivers will usually be downloaded and installed automatically.

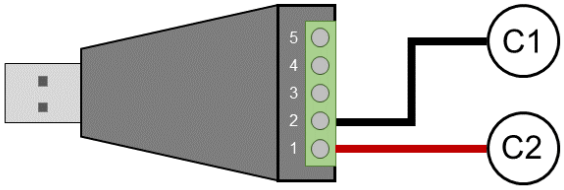


Figure 1a. USB-to-Serial adapter connection diagram.

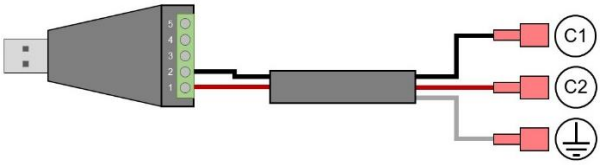
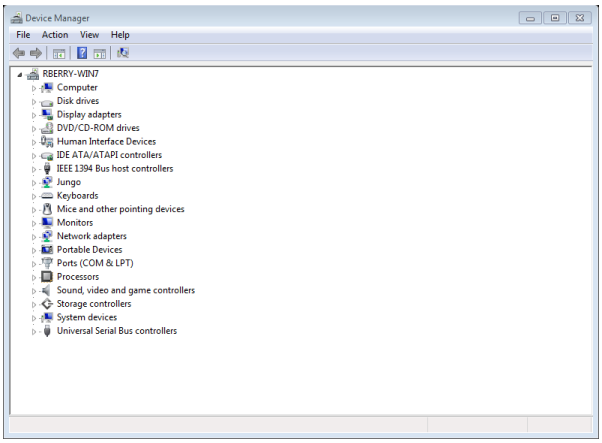


Figure 1b. USB-to-Serial adapter with shielded cable attached. Cable supplied with iSeries communication kit.

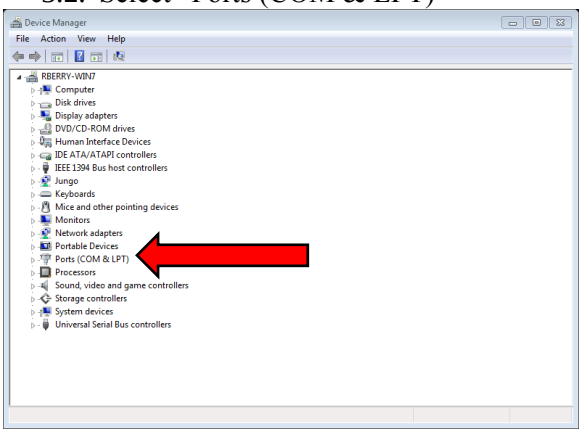
2. Insert the USB adapter into the laptop.

3. Determine which COM port the serial adapter is using.

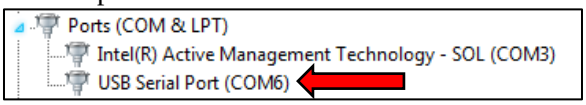
3.1. Go to Start>Control Panel>Device Manager



3.2. Select “Ports (COM & LPT)”

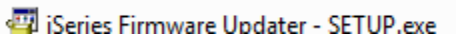


3.3. Look for “USB Serial Port”. The COM port in use will be listed. Record this port number for later use.



Note: The COM port in use on your computer may differ from the example shown above.

4. Launch the iSeries Firmware Updater Setup program. Look for this icon:



This software is only required if this is the first time the firmware updater software is used on a particular computer. The setup program installs certain files that are required for the updater to operate.

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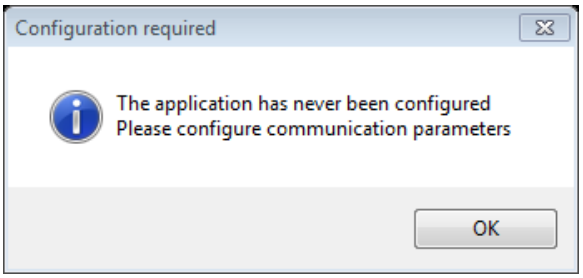
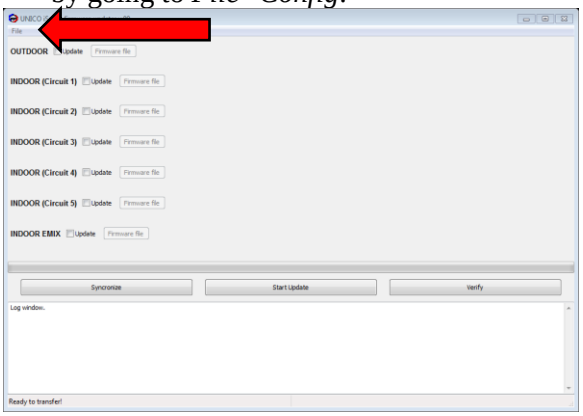
5. **Launch the Series Firmware Updater v.09.exe** Look for this icon:

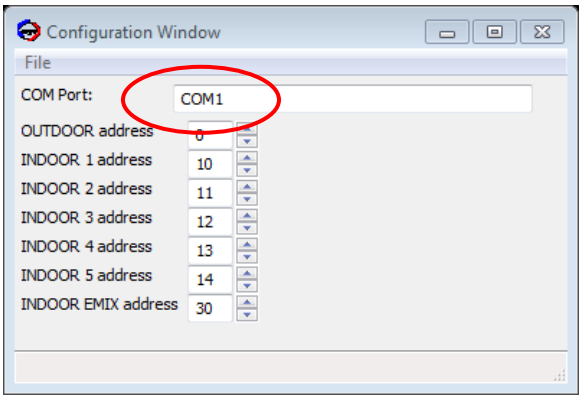
This is the program that will deliver the update to the indoor or outdoor unit. The first time you launch the program, you will see the window at below. You must set the COM port before the first use of the program. Click OK.



6. **Set the COM port** that the program will use by going to *File>Config*.

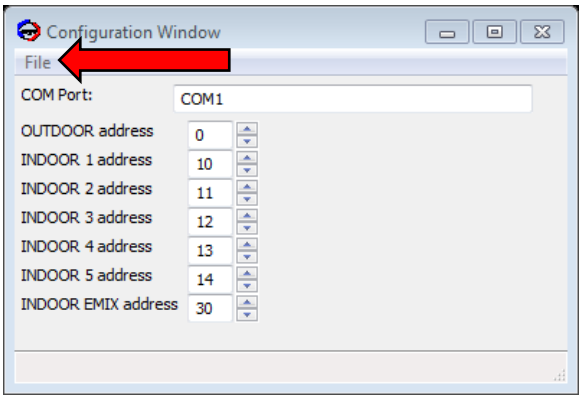


7. **Type the COM** port the serial adapter is using in the field provided. This should be the same number you recorded in Step 3.3 above.



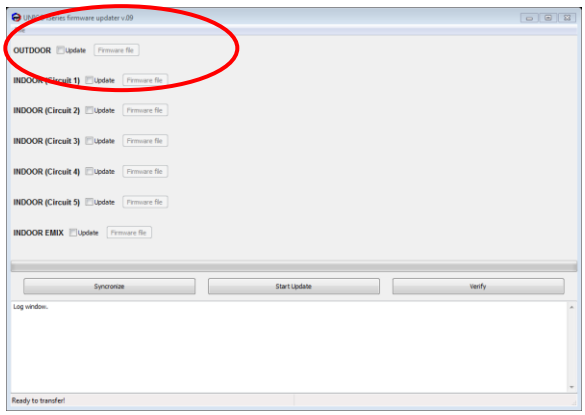
8. **Exit the configuration window** by selecting *File>Exit*

Note: If you use the "X" button in the top right corner of the window, your changes will not be saved, and the program may not communicate properly.



9. **Select the devices to be programmed.** To upgrade the firmware on the outdoor unit, check the box next to "Outdoor" and make sure that all other boxes are unchecked. Disconnect any communication wires going to the indoor unit.

To upgrade the firmware on the indoor unit, select the checkbox that corresponds to the refrigerant circuit to which the indoor unit is attached. Uncheck all other boxes. Disconnect any communication wires between the indoor and outdoor unit.



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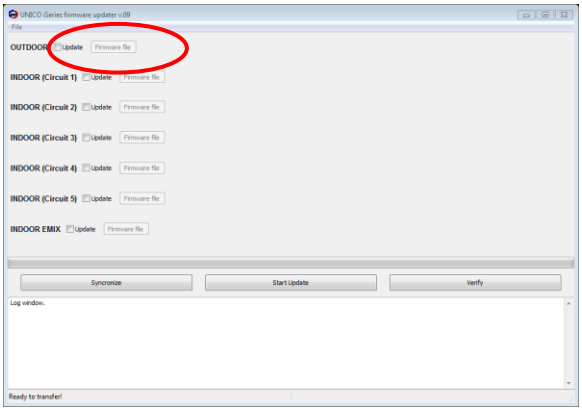
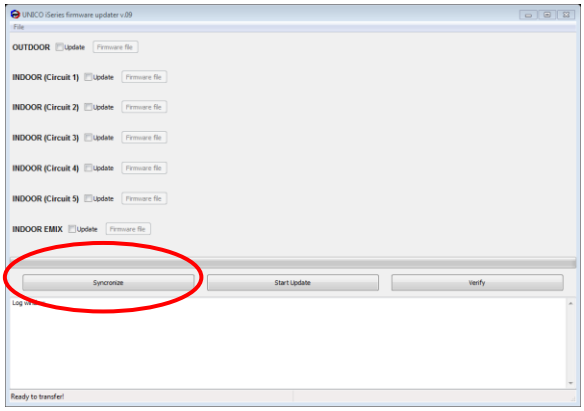
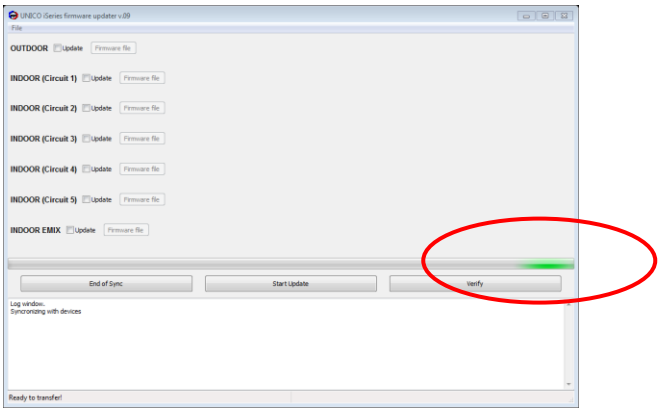
10. **Select the firmware file to use.**
    Click "Firmware File", next to the checkbox for the unit that is to be updated. Then browse for the firmware file that corresponds to the unit being programmed. See the Firmware Cross-Reference Table at the end of this Bulletin to identify the firmware used with each indoor and outdoor unit. For the latest firmware, check tech.unicosystem.com



11. **Click *Synchronize***, then wait for the green progress bar to roll across the screen one time(about 10 seconds). Waiting longer will not prevent the unit from synchronizing, but provides no benefit.





12. **Turn on power to the unit being programmed.**

    If programming an outdoor unit, observe the LEDs on the main circuit board. If the computer and unit are synchronized, all 5 green LEDs on the main circuit board will be solidly lit.

ODU LEDs Location

ODU LEDs Detail

If the outdoor unit begins its normal startup sequence with only one or two LEDs lit, or if the EEVs start their homing procedure, you must restart the programming process from the beginning. This failure to synchronize is likely

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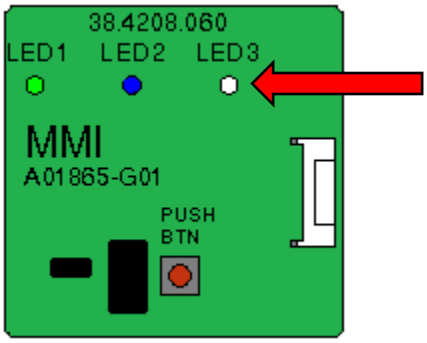
due to bad communication, or not following the steps above.

If programming an indoor unit, observe the LEDs on the MMI board or front of the MP unit. If the computer and the unit are synchronized, all three LEDs will be lit.



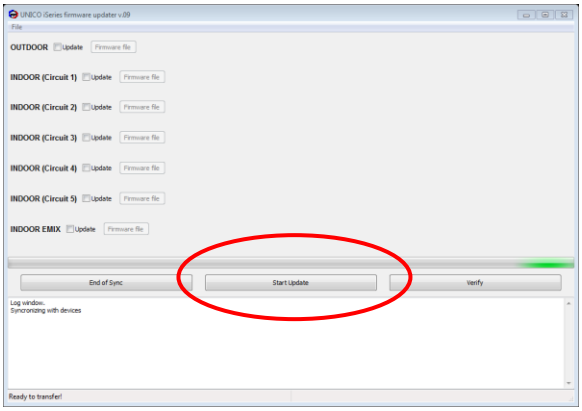
MMI Board LEDs Detail.

13. Click Start Update

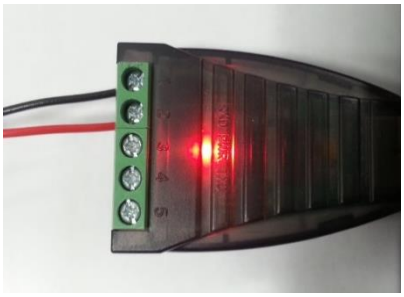
When the computer and outdoor unit are Synchronized, click "Start Update".

The update will start by erasing the old firmware file, and will then program the new firmware file. After programming, it will verify that the new file was installed correctly.

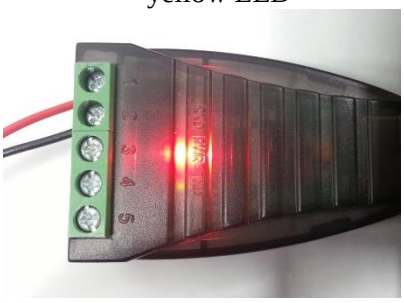
This programming process takes about 2 minutes.



13.1. Once the adapter is plugged in, you will see a single red LED, indicating the adapter has power.


Power Only

13.2. While the software is trying to synchronize with the unit, you will see the red power LED, and a single yellow LED


Synchronizing

13.3. While the software is programming the unit, you will see the red power LED, and two yellow LEDs.

Programming

14. Successful Programming

After successfully programming the indoor or outdoor unit, the program will report "PASSED" as shown below.

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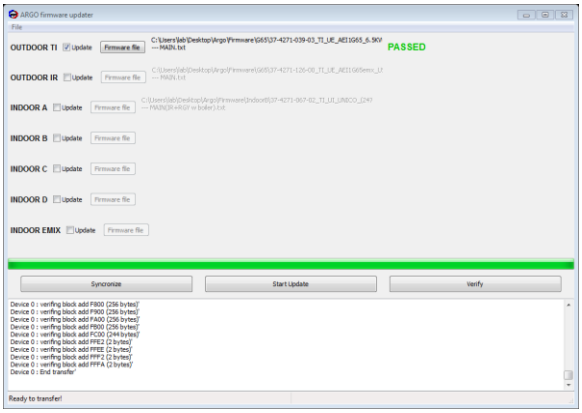

15. **Power down and disconnect adapter**
    Power down the unit, and disconnect the serial adapter wires from the unit. Wait until all LEDs on the unit turn off. The unit will run with the updated firmware the next time it is powered up.

16. **Re-connect communication wires** that were disconnected from either the indoor or outdoor units during the programming process.

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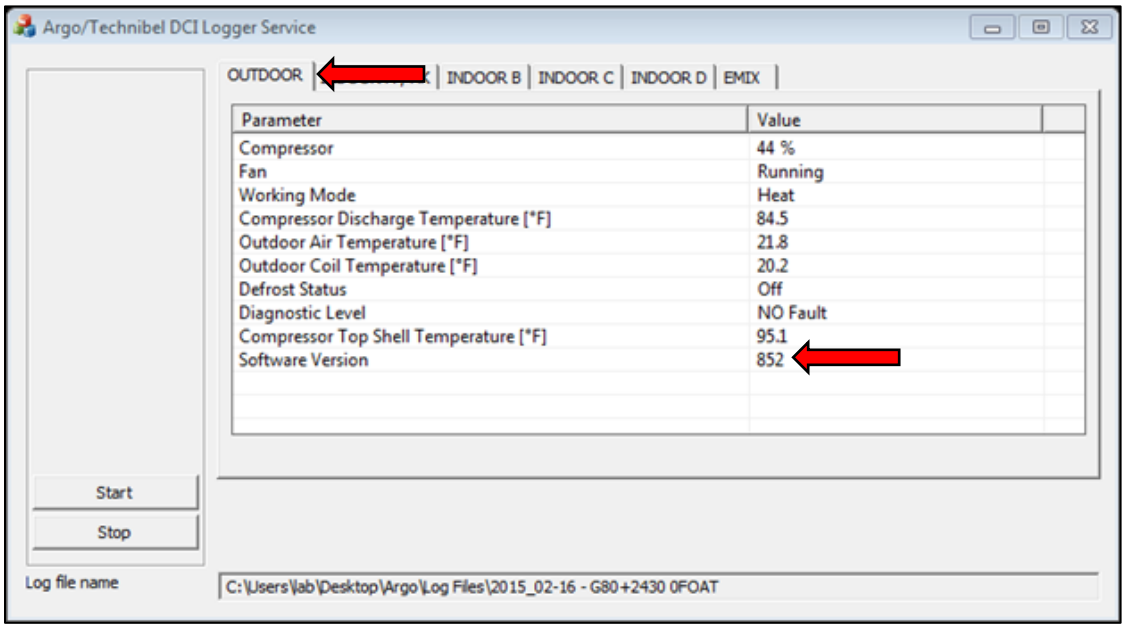
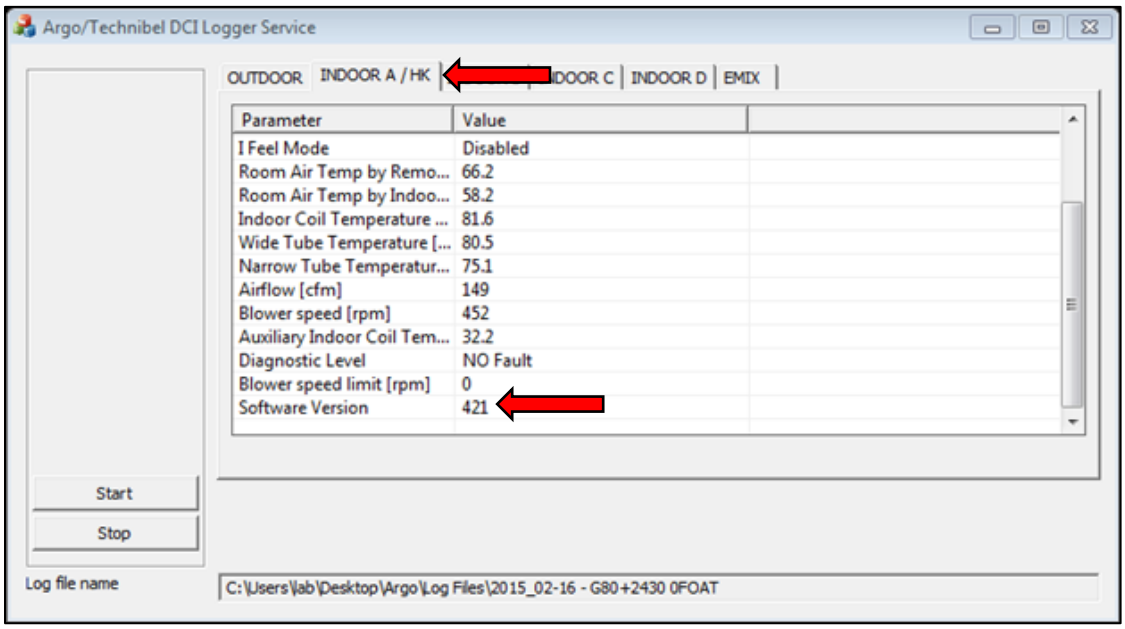
Firmware Version Cross-Reference

To determine whether a firmware update is required, first determine which versions of the firmware are installed on the outdoor and each indoor unit. On the logger interface, you will see the Logger Code. Use the table below to identify the corresponding current firmware version. If the number you see on the logger corresponds to the current firmware version, no update is required. If the logger code you see is lower than the current revision, the firmware must be updated.

To find the Outdoor Unit Firmware Version, look here:



To find the indoor unit Firmware Version, Look here:



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Firmware Version Cross-Reference Table		
Indoor or Outdoor Unit	**Current Firmware Version***	**Logger Code**
iSeries Control Box	IBv00610	616†
IS12MPA	IS12MPAv00570	570
IS24MPB	IS24MPBv00570	570
IS18G050	IS18G050v01103	1109
IS24G065	IS24G065v01103	1109
IS30G080	IS30G080v01103	1109
IS36G110	IS36G110v01103	1109

† SDHV Indoor Unit control boxes with logger code below 400 must be exchanged to upgrade the firmware.

*See tech.unicosystem.com for firmware released after this Bulletin was printed.

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