BLINE for B14 Offloading Q330s on MacOS

This document provides instructions for downloading Balers using the BLINE program. BLINE is used to download data from one Baler at a time or can be used to setup a download of data from multiple Balers.

Data downloading is a two-step process. The first step involves downloading the State of Health (SOH) and low sample rate seismic data to be used for doing field Quality Assurance (QA) for the station. The second step involves downloading all of the data, including the high sample rate data (HH? and BH?), for archiving.

This document contains 10 sections:

- Setting up the network configuration
- Connecting to the Balers
- Assigning an IP using BaleAddr
- Running the BLINE program
- Downloading SOH data
- Downloading the full data set
- Downloading multiple Balers using BLINE
- Verifying that all files are downloaded and cleaning the Baler using BaleAddr
- Installing BLINE if not installed
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Setting up the network configuration

First, turn off the laptop computer's wireless. The computer IP address should be 192.168.0.1 and the subnet should be 255.0.0.0 and Router/Gateway 192.168.0.1.

Connecting to the Baler(s)

For downloading one Baler at a time (usually during a site service):

Connect the Baler download cable QNET connector to the Baler, the RJ45 connector to the laptop and the 4-pin (or 4soc) connector to 12VDC (range 12-14). Power can come from a power supply or 12V battery fully charged.

For downloading multiple Balers at a time (usually in a hotel room or back in an office/lab):

Connect one, two, three, or four Balers to the download box via QNET cables and connect the download box to the laptop via Ethernet-type cable with an RJ45 connector. Power the download box with 12 Volt DC (range 12-14). Power can come from a power supply or 12V battery fully charged.

For downloading one Baler at a time:

1. **Run BaleAddr to assign an IP**
    - Run BaleAddr from the icons on the Mac dock or from X11/terminal window by typing: baleaddr at the terminal prompt.
    - When the Baler Address Assign GUI comes up, set the IP Address to Assign: 192.168.0.2
    - Press the ATTN button on the Baler and the link LED should light when the Baler starts booting. If you do not see the link LED, there could be a wiring problem.
    - When everything works, you should get the messages:
        - Setting time in Baler
        - Baler OK
    - Close BaleAddr (do NOT shut down Baler) Note: remember the IP address that you assigned to the baler.

Note: If the 'Baler OK' message doesn't show up then the program is not really talking to the Baler/the Baler's IP address did not get set. It happens a lot. Try Quitting/Reset BaleAddr OR shutting down the Baler by re-pressing the ATTN button on the Baler then restart BaleAddr (if it was Quit), and press the ATTN button again. It can take up to five times of this restart operation to get the program and the Baler to connect. If it takes up to three cycles, try shutting down the Baler and then disconnecting the power and reconnecting, and then try again to get things going. Make sure you have a suitable IP address in BaleAddr that is compatible with the IP address in the computer's network settings. (See bline help for more detailed information.)

Note: The BaleAddr program is a Quanterra program that is found in the Q330Programs package on all of the PASSCAL built laptops. The program itself lives in /Users/field/.Q330_programs

2. Running bline.py

bline.py is a command line program, so once BaleAddr has connected to the Baler, start a Terminal/xterm/whatever window, cd into the directory where you want a folder of data from the Baler to be saved, like a "DATA" directory, and (depending on how bline.py was installed) enter:

bline.py or
<path to bline>/bline.py or
./bline.py

Using the command as seen above with no command line arguments will list all of the command options for the program. Using bline.py –h will also show help on how to run the program.

3. For basic offloading low sample rate and SOH data on the Baler type the following:

bline.py <TagID> <IP address> -o

or,

<path to bline>/bline.py <TagID> <IP address> -o

or,

./ bline.py <TagID> <IP address> -o

where <TagID> is the serial number on the Baler, for example: 6003, and the <IP address> is the address assigned to the Baler using baleaddr i.e. o is the command line argument to download everything except the HH? and BH? data. For example:

./bline.py 6003 192.198.0.2 –o

The offloading should start and a sub-directory <TagID>.sdr (example: 6003.sdr) will be created where the data files from the Baler are stored. Two files will be created in the directory where bline was started. The first, <TagID>.log.txt (example: 6003.log.txt) is a record of the messages that are written in the terminal window as the program is downloading data. The second file <TagID>files.txt (example: 6003files.txt) contains a list of all of the data files that were found on the Baler.

4. For basic offloading of everything on the Baler type the following:

To download all files make sure you are in the "DATA" directory you wish to put the data and run bline again only this time use –O instead of –o. This should start the download of all the data not already downloaded previously using the –o option. i.e.:

bline.py <TagID> <IP address> -O

or,

<path to bline>/bline.py <TagID> <IP address> -O

or,

./ bline.py <TagID> <IP address> -O

for example: ./bline.py 6003 192.198.0.2 –O

NOTE: If for any reason bline quits before download is complete, simply repeat the above process (i.e. run BaleAddr and bline.py 6003 192.168.0.2 –O) in the directory you want the data to go and bline will resume and continue to copy only the unsaved files. (NOTE: If you restart the downloading process in a directory different from the first directory, bline will start downloading ALL the data again, not just the data that was not completely downloaded before bline stopped prematurely).

For Downloading multiple Balers using the PIC Baler download box:
Instead of connecting your computer to a Baler download cable connect the Ethernet cable of a Baler download box to your computer and connect the box to an external power supply. Connect the Balers you want to download to the Baler download box. Start downloading the first Baler following steps 1 to 3 and/or 4 above. After downloading is started for the first Baler (step 3 or 4 above) do the following:

A. Re-start BaleAddr and change the IP address to something like 192.168.0.3 (4,5,etc.) Note: remember the IP address that you assigned to the baler.
B. Press ATTN button of the new Baler (this sets the IP address on the new baler)
C. After BaleAddr has acknowledged the information from the Baler, exit BaleAddr.
D. Open a new terminal and cd into the directory you want to save the data in,
E. Run bline.py using the new IP address and the new Baler serial number (step 2 above). Again, make sure that you are in the directory you want the data downloaded in before starting bline!
F. Repeat until all the Balers connected to the Baler download box have started downloading.

Verify that all files are complete and cleaning Balers using Baleaddr:
After downloading is complete with the baler still connected to the computer, at the top level directory of where the DATA are stored for each baler, re-run bline using –v option.

For example: ./bline.py <TagID> <IP address> –v

This will compare all the files on the baler and compares them to the files in the <TagID>.sdr directory to determine if the file sizes are the same on the Baler and in the directory.

Running using the –V option (i.e. ./bline.py <TagID> –V) without having a Baler attached will check that each file in the <TagID>.sdr directory is the normal size and with valid start and end times.

(see ./bline.py –H for additional information)

When Baler offloading, data copying and data confirming are complete, bring the Baler up in BaleAddr again (this will probably be days later and the Baler has shut down) and use the Clean Baler button to erase everything and get the Baler ready to go back out to the field.

WARNING!!! Please insure you have ALL of the data files, and that they are backed up, because unlike EzBaler, BaleAddr completely erases the old data.

If bline is not installed:
To install bline copy it to where ever you want. If you put it somewhere like /opt/passcal/bin/ then it should be in the path set up by the PASSCAL software installation, and you will just have to use "bline.py" to get it going. You will probably have to use

sudo cp bline.py /opt/passcal/bin

and give the login password to get it there. You will also probably have to make it executable with something like

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chmod +x bline.py
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Depending on where you put it you may also have to use sudo before chmod. If it is not executable you will get a 'permission denied' message when you try to start it.

To view bline help:
Typing only ./bline.py OR ./bline.py –h will result in the following list of commands whereas ./bline.py –H will provide additional explanation of BLINE and its usage:

./bline.py -h

Usage: bline.py <TagID> <IP address> <options and commands>
bline.py <TagID> -V [<file(s)>]

<TagID> = The tag ID on the front of the Baler.
<IP address> = The IP address assigned to the Baler by BaleAddr.
-c = Checks communication with the Baler and gets basic information.
-i = Reports what may be the control computer's IP address.
-L = Saves and displays the list of files on the Baler.
-v = Gets the Baler's list of files and checks the offloaded files.
-V <file(s)> = Examines the specified offloaded files for bad blocks.
The list of files may be omitted. In that case all of
the files in the Balers's .sdr directory will be
examined.
-O = (Big O) Offloads all data files that have not been offloaded.
-o = (Little O) Offloads low sample rate data files that have not been offloaded.
-E <file(s)> = Excludes the specified file(s) during an offload.
-F <file(s)> = Offloads only the specified file(s).
-h = This help.
-H = More help.

If connected to the Internet:
-U = Checks for a newer program version at PASSCAL.
-UD = Downloads most recent version from PASSCAL (try -U first).

-c, -i, -v, -F will override the other commands.
-i may be the second command line argument: bline.py -i
-U and -UD must be the second command line argument: bline.py -U/-UD
-E command may be preceeded by -O or -o (default is -O).
-E command is, for example, for excluding "problem" files that may be stopping the offload process.
-F command overrides and does not use -O or -o.
-F files that are not found on the Baler will be created with HTML code in them saying the file doesn't exist (~100 bytes size).
-E or -F commands and their file(s) must be last.
**, ?, [] UNIX file wildcards may be used in -E and -F file names.*
On some systems you may need to enclose file names using wildcards with quotes like ".VER" "*.HHE"*