Reversing Moves on the Talon Head

A Couple of Quick Notes

The Talon does not support reverse playback of recorded moves natively. Doing this requires additional hardware and software and should be seen as an advanced (and relatively untested) use of the Talon head. This functionality is not officially supported or endorsed and results are not guaranteed. If you are reading this, chances are, you are a trailblazer – *a renegade*. Take pride in that fact and then realize you might run into some challenges. The staff at Pacific Motion is happy to help and can be reached, during normal business hours, at 818-768-1573. That being said, proceed at your own risk and know that if it's 4:00 p.m. in Tokyo, Japan no one is going to answer the phone in Sun Valley, California. Therefore, it is imperative that you read all the instructions, download the necessary software and drivers, and gather the necessary hardware and courage prior to your shoot.

Necessary Hardware and Software

1)   You will need a Windows laptop with at least one USB port, running Windows 7 (Windows 7 running on Boot Camp or Parallels on a Mac, or other Windows operating systems may work, but this is the only one we have tested – But hey, you are a trailblazer, try it on a Surface Pro Tablet or your vintage Altair 8800!).

2)   You will need a USB 1.0 cable (the kind that you use to plug in printers).

3)   You will need to download the Talon file management software from **http://pacificmotion.net/Resources/Raven.exx**

4)   You will need to download the USB Serial Driver from
        http://pacificmotion.net/Resources/CP210x_VCP_Windows.zip

5)   You will need Microsoft Excel or Open Office. If you don't have either,
        you can download Open Office for free at
        http://www.openoffice.org/download/index.html

6)   You will need a Talon Head and console with a working (and tested)
        USB connection.

7)   **Suggested Supplies and Preparations**

        While not necessary, you should probably have an up-to-date Talon
        manual and, if using the Talon FiZ system, the Talon FiZ manual. Also,
        we STRONGLY suggest you visit us and actually try this in the safety
        of our climate-controlled shop before your critical shoot in the wilds of
        Africa. We are really nice and we love visitors.

Preparing Your Computer
(written by Jeff Platt, the software genius behind the Talon Head)

Part 1: Install the USB driver

        You will need a USB cable to connect the Talon Remote to any USB input
on a PC running Microsoft Windows. The Remote uses a serial port protocol on
the USB output, because of this Windows will think the USB connection is a
serial port after the driver is installed.

1. Download and install the Windows driver for the USB / Serial adaptor that the
   Remote uses. You can get download it at:
http://pacificmotion.net/Resources/CP210x_VCP_Windows.zip

2. Connect the Remote to the Windows PC with the USB cable and apply power
   to the Remote. Windows should recognize and install the new driver.

3. It is important now to find out which serial port is assigned to the USB input.

4. Go to the Windows Control Panel and select "System".

5. Select the "Hardware" tab, then click on "Device Manager".

6. Under the heading "Ports (COM & LPT)", you should see the new device:
   "CP210x USB to UART Bridge Controller (COM4)".

7. The number after COM in the above line is the serial port assigned to the USB input.

8. If the serial port is COM5 or above, you may need to change it to COM3 or COM4 to properly communicate with the Remote.

9. *Follow the procedure below only if the serial port won't open in the Talon software.*

   To change the USB's COM port:
   1. Right-click on the "CP210x" line in the Device Manager and select "Properties".

   2. Click the "Port Settings tab, and click the "Advanced" button. Select Com port 1, 2, 3 or 4.

   3. If the system says, "This COM name is being used by another device..." click "Yes" to change it anyway, as long as you don't need to use the same serial port for another application while you are running the Talon File Transfer software.

Part 2: Install and Configure the Talon File Management Software

1. Download the file "Talon.exe" to a local directory and run the file.

2. Under the "File" drop-down menu at the top of the program, select "Serial Port...".

3. Type the serial port number (1 to 4) found from the above directions into the box.

You are now ready to transfer files.

Note: The Talon saves move files as ascii data with 1 row of data for every recorded frame. There are 6 columns for every row: Pan, Tilt, Zoom Focus, Extra1 and Extra2. The extra channels are for future encoder based axis recordings. We also save a comment field with every move, so you can record metadata with every move. This comment field is recorded as ascii data at the beginning of the move data. You can add comments to a file and record the file back to the Talon with the comments included. Notes should be removed before working with the file in Excel or Open Office.
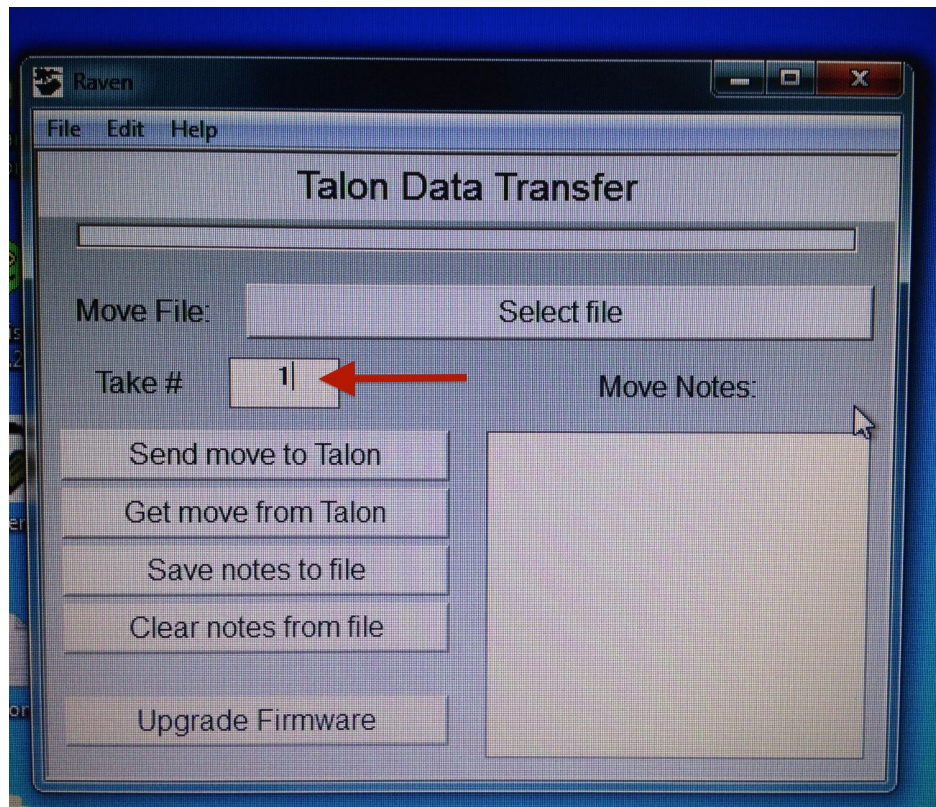
Transferring Moves

Note: It is really helpful, for ease of file management, if you can start with no moves in the Talon console, and only work with a single move at a time. Because the Talon has no built-in file management capability and only refers to moves by a number, it can be very confusing if you are trying to deal with more than one or two moves at a time. If you are working with more than one move take really good notes (take number, motor positions, move length, and other important shot information), and mark start and end marks on the head for each move. We have tested this process with two moves at a time and had reasonable success when all of the steps are followed exactly, but in early tests, before the process had been worked out, we had a few problems with transferring multiple files and getting the right moves to play back, in forward and reverse, from the correct positions (purposeful run-on sentence for effect). You are much better off if you can work with a single move.

Erase all Moves from the Talon Console (if possible)

1. Turn on the first power switch on the console while holding the "Record" and "Back" buttons at the same time.

2. Press "Enter" to confirm.

3. When the console is finished erasing all moves (you will see a progress bar and an "Erasing all moves" message) turn off the console, then turn it on again.

4. **DO NOT TURN THE TALON CONSOLE OFF DURING ANY PART OF THIS PROCEDURE!!! IF YOU DO, THERE IS A VERY GOOD CHANCE THAT IT WILL NOT RETURN TO THE PROPER POSITION!!!**

5. *If you happen to turn the console off during the procedure and it doesn't go to the proper start position, all might not be lost, but I make no guarantees. Please, please, please don't turn off the Talon console. If a wild monkey sneaks up and turns off the Talon console while you are at the craft service table, there might be hope, but it will take complicated and untested methods to get back to your appropriate positions, and cell service might be really bad where you are – and remember the Tokyo comment above – If you call at 3 in the morning you are going to have to get Talon tech support from our voicemail. Call us and we can try to fix it, but this is where taking REALLY good notes and marking start and end positions on the head will come into play.*

Transfer a Recorded Move to your Computer

1. Record a move on the Talon. Remember to note start and end motor positions, move length and any other important information.

2. ***Do not turn off the Talon console during any part of this procedure.***

3. Play the move back and put start and end marks on the head.

4. Start the Talon file management software on your PC.

5. To save the move to the PC, make sure the correct Take number is showing on the Windows software (If you were able to erase all moves from the Talon console before starting and you are only working with a single file, then the Take number should be 1). Nothing needs to be done on the Talon Remote itself, the transfer procedure is controlled by the Windows software.

Select the proper Take Number

6. Press "Get move from Talon", and choose a file name to save the file to (e.g., Move.asc). Use the file extension ".asc".

7. You will see the progress bar moving at the top of the Talon software window to indicate that the move is being saved.
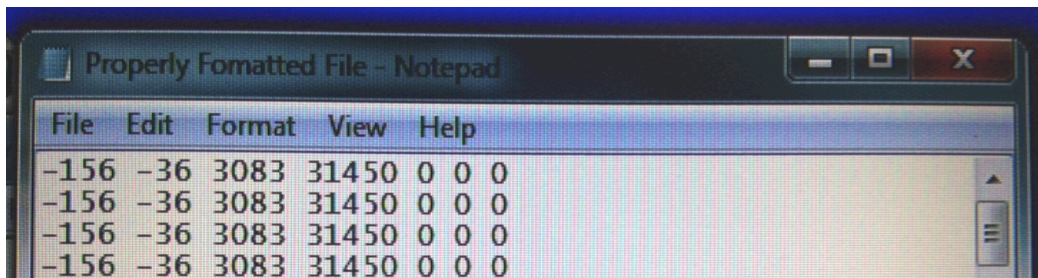
Note: If the progress bar does not move, or if you get an error, unplug the USB cable, restart the software, and plug in the USB cable again.

8. The move is now saved to disk under the new file name.

9. In order to be modified, the file comments must be removed from the file to leave only ascii move data. To do this, select "Clear notes from file", and the comments will be removed from the file.
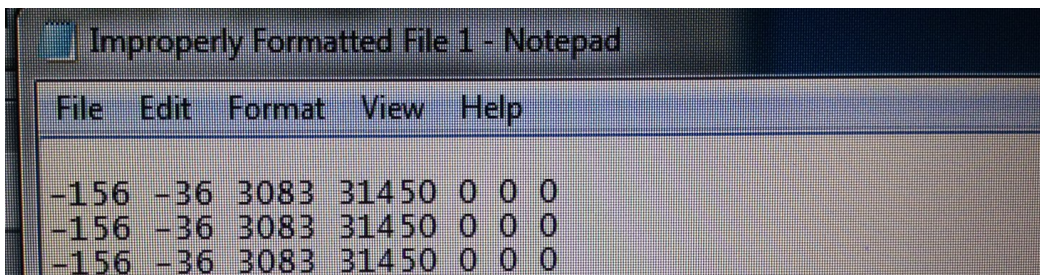
Reversing Moves

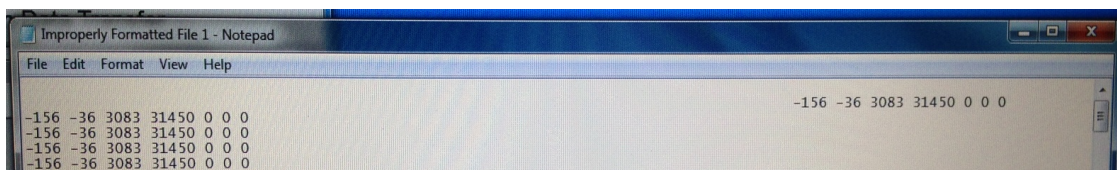Open the move in Notepad to ensure that it is properly formatted and does not contain comments.

A properly formatted file should have 7 columns of numbers, separated by spaces, with a line break at the end of each line. There should be no blank space or notes at the beginning of the file.
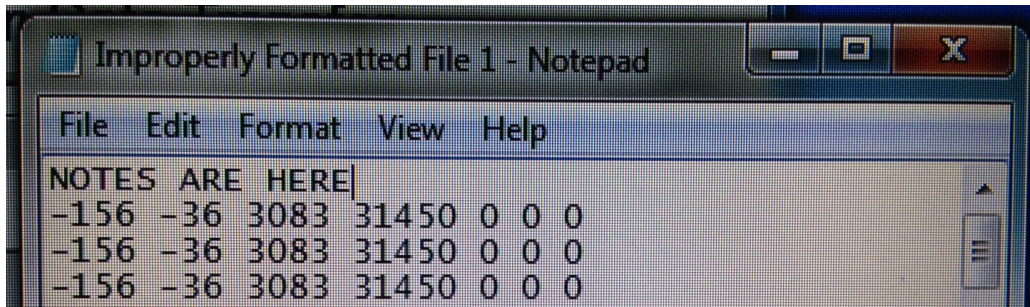

Properly Formatted File (no notes or spaces before the first number)

Improperly Formatted File (blank space before numbers)

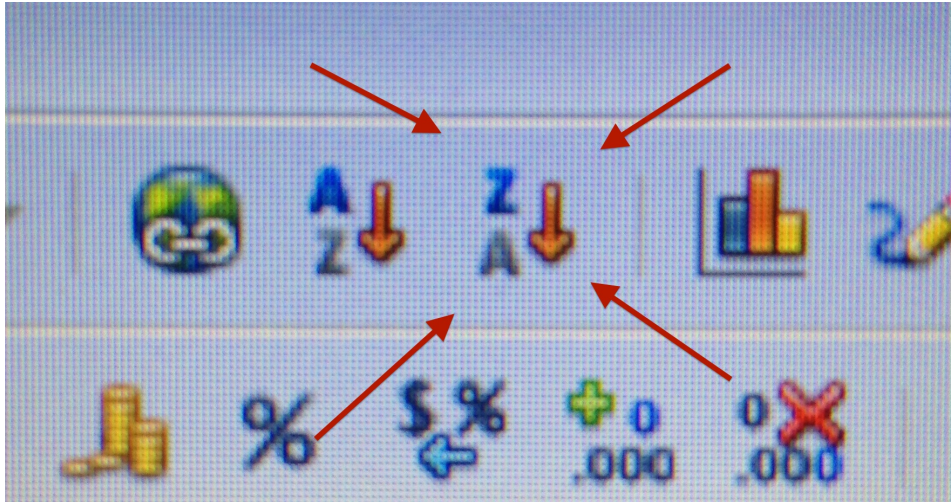**Improperly Formatted File** (blank space before numbers)

Improperly Formatted File (notes before numbers)

Reversing Moves Using Open Office

> *Note: The steps for Excel are similar, but not exactly the same. Excel instructions will be coming soon, but are not complete at this time. I am assuming that if you are trying this, you are a computer genius and probably write Excel macros for fun, so you should need no help. If that is not the case, download Open Office for free and use that. It works great.*
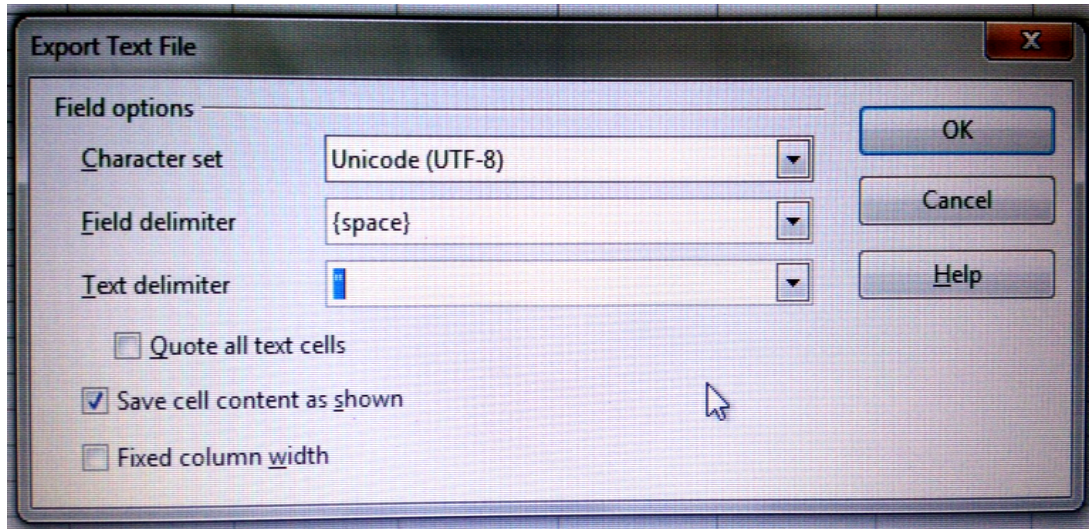
1. Start Open Office and open a new Spreadsheet.

2. ***Do not turn off the Talon console during any part of this procedure.***

3. Click "Insert" on the top menu and select "Sheet from File…"

4. Select the file you saved with the Talon software (e.g., Move.asc) and click "Open".

5. In the "Character Set" area of the "Text Import" window, select "Unicode (UTF-8)".

6. In the "Separator options" area, select the "Separated by" radio button and select the "Space" check box.

7. In the "Fields" area, you should now see your move data divided into a set of columns, with the headers reading "Standard" above each column.

8. Click "OK".

9. In the "Insert Sheet" window, select the "Before current sheet" radio button, in the "Position" area.

10. In the "Sheet" area, select the "From file" radio button.

11. Click "OK". **You should see your file open as a spreadsheet with 7 columns.**

12. Click on the "A" column header to select column A.

13. Right click on the "A" column header and select "Insert Columns". **A new blank column will be created and all of your content will move to the right.**

14. ***You now need to create a column numbered sequentially from 1 to whatever number the bottom cell of your move is (ie. 1,2,3,4,5,6, etc.).***

15. In cell A-1, type "1" (no quotation marks, just the number).

16. In cell A-2, type "2".

17. Click on cell A-1 and Shift click on cell A-2 to select cells A-1 and A-2 (both cells will be highlighted and cell A-2 will have a black box around it).

18. At the bottom right corner of the black box around cell A-2 will be a black box (handle). Drag that handle down until you are even with the last row of data from your move (i.e., If your move is 4296 frames long, you will have to drag to cell A-4296). If you get a few extra, delete them. If your finger gets tired and you don't make it to the bottom, you can always grab that handle again and finish the job.

19. Select all the data by clicking the blank box to the left of the "A" column header and above the "1" row header. The whole spreadsheet will be highlighted. Make a quick mental note of the first numbers in each column so when you reverse the data you can check to see that it worked.

20. You now need to sort the data in Descending order, by column A.

    a. You can click the "Sort Descending" button to do this in one easy step (it looks like a Z over and A with an arrow pointing down).
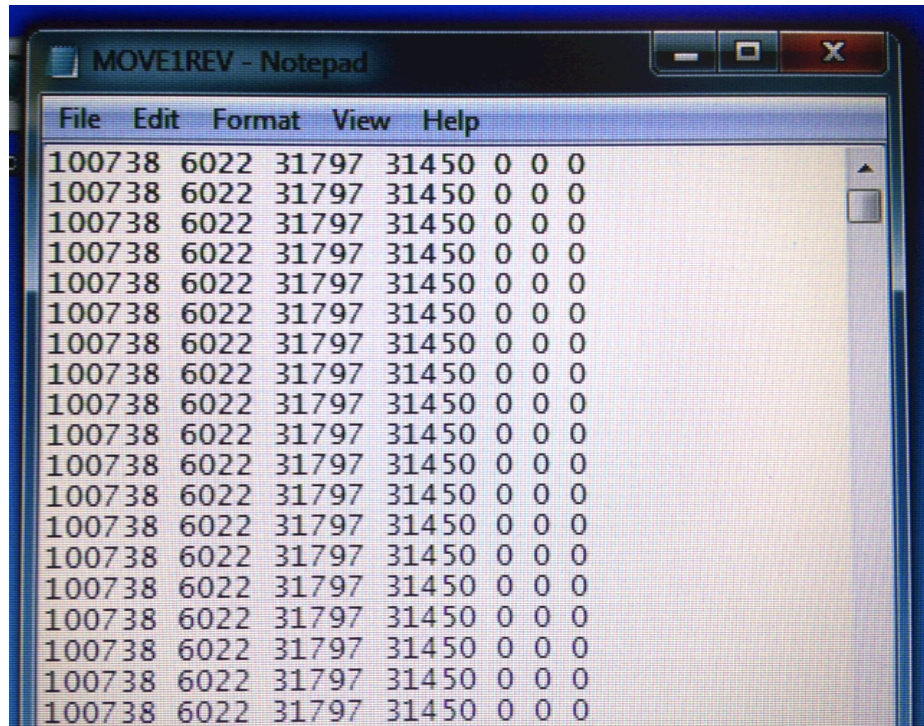
     i. If that button isn't visible, click "Data" on the top menu and select "Sort".

    ii. In the "Sort" window, in the "Sort Criteria" tab, under "Sort by", select "Column A" in the dropdown menu.

   iii. Click the "Descending" radio button in the "Sort by" area.

   iv. In the "Then by" area, make sure "- undefined -" is selected in the dropdown list.

    v. Click "OK"

21. Your data has now been reversed. Do a quick check of the data and make sure each column has actually been flipped.

22. To delete column A, right click on the "A" column header to select column A.

23. Select "Delete columns". Column A will disappear and your data will shift to the left.

24. Click "File" on the top menu and select "Save As".

25. In the "File name" area, enter a name for your new file (e.g., "Move1REV"). Do not add an extension.

26. In the "Save as type" dropdown menu, select "Text CSV (.csv)".

27. Check the "Automatic file name extension" box and click "Save".

28. You will get a "This document may contain formatting or content that cannot be saved in the Text CSV file format…" warning. **Click "Keep Current Format".**

29. In the "Export Text File" window, in the "Field options" area, select "Unicode (UTF-8)" in the "Character set" dropdown menu.

30. Check the "Save cell content as shown" box and click "OK".

31. You will get warning that only the active sheet was saved. Click "OK".

32. Exit Open Office. **You now have a reversed move file named "Move1REV.csv".**

33. Open the file in Notepad to verify that it is properly formatted (it should look like your original, properly formatted move – columns of numbers, separated by spaces, with a line return at the end of each set of 7 numbers, with no spaces or notes before the first number – only the each column should now be flipped). Now you need to re-save it in the proper encoding and change the extension.

Properly formatted file with reversed data.

34. Click "File" in the top menu and select "Save As".

35. In the "File name" block of the "Save As" window, enter a memorable filename (e.g., "Move1REV_FINAL.asc" – note the ".asc" extension.)

36. Select "All Files" in the "Save as type" dropdown menu.

37. Select "UTF-8" in the "Encoding" dropdown menu.

38. Click "Save". YOU DID IT! You now have a properly formatted and encoded, reversed move file, suitable for uploading to the Talon Console.

Transferring Moves Back to the Talon Console.

1. *Do not turn off the Talon console during any part of this procedure.*

2. Open the Talon software on your computer.

3. Click the "Move File" box (there may be a file name in there already).

4. Select the file you just created, "Move1REV_FINAL.asc" and click "Open".

5. next to the "Move File:" heading.

6. In the "Take #" box, enter the Take number that you want to record the take to on the talon console. If you are only working with one move, enter "2" here to keep the original move at "Take 1" and store the reversed move as "Take 2".

7. Click "Send move to Talon". You will see a blue progress bar moving across the screen, and the "Send move to Talon" button will read "Programming…". When the move is uploaded, you will get a "Talon is Programmed" message. Click "OK".
   Note: If the progress bar does not move, or you get an error message, or you do not get the "Talon is Programmed" message, THE MOVE WAS NOT RECORDED! **DO NOT TURN OFF THE TALON CONSOLE!!!** *Unplug the USB cable, restart the software and try again. If it still does not work, try uploading to a new "Take#". The software will not allow you to write over a move already in memory. This is why we erased all the moves on the console before we started. If you weren't able to erase all the moves before you started, take really good notes and select unused take numbers.*

8. The file has been sent to the Talon and recorded as a new move. The new move is now "Take 2" on the Talon console.

9. Run the move. It should be what you just did, only in reverse. That was the whole idea right? If possible, finish shooting everything you need with these moves before you move on. Remember, we are going to erase all moves before doing this again.

10. Save the original move, all intermediate files, and the final, reversed move to a safe place on your computer – then back it up to a thumb drive.

11. YOU DID IT!!! Now do it again. Just remember to erase all moves, if possible and **DO NOT TURN OFF THE TALON CONSOLE!!!**

12. If possible, send us any video that you can. Individual takes and the final release. We love this stuff for our website, and you are doing something that very few people have ever tried.

13. Great job.