





TUHF Reader with Rugged Case Package

The following items ship with the TUHF Reader:

	TUHF Reader with rugged case x 1 Rugged Case is used to protect all reader parts from impact, rainwater, and general use in the field. Accessories can also be stored in the case for protection.
	Smart Charger x 1
	External Buzzer x 1
Истид (Нинсо 	TUHF Tag x 200 The TUHF Tags are in a rolled in sequential order with every two tags having the same unique number. You will need the unique Batch # ID on the front of each Tag package for creating a Tag ID List. Do not throw out this bag prior to creating this list.



TUHF Timekeeping Line Package

The following Items ship in 1 Timekeeping Line Package:



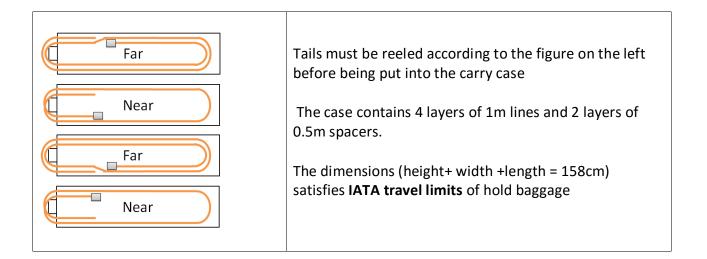


See below for Best Practices for Timing Line set ups.

Storing your Timekeeping Lines

We recommend storing your Timekeeping Lines in the Carrying Case between each Event. In order for all of the Timekeeping Lines to fit appropriately into the Carrying Case, you will need to make sure that your lines are reeled accordingly.

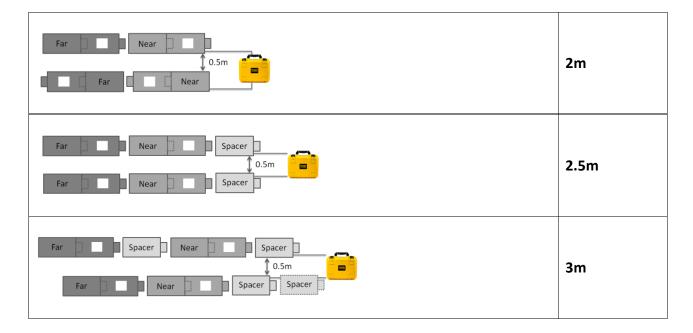
Reeling your Timing Lines

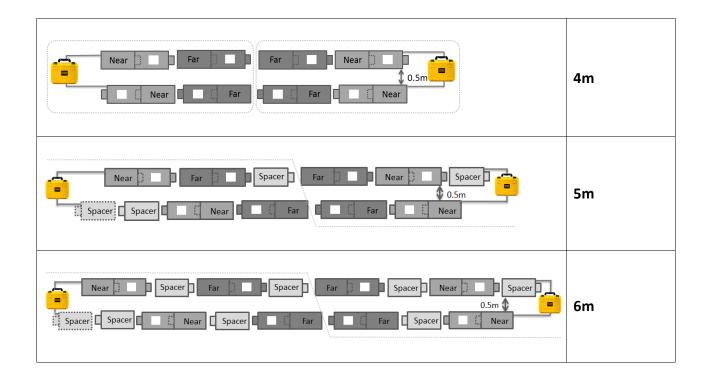


Optimal Timekeeping Line Layout @different width

For the best performance and highest accuracy, use the figures on the following page to setup your Timekeeping Lines:







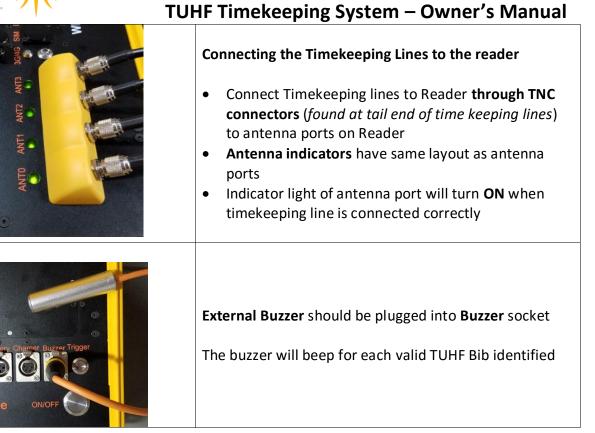


Getting Started Using your TUHF Reader

Picture	Press Power ON button for 3 seconds to switch on the reader
Status/Tags read	Battery Status indicator will light up to show the remaining battery capacity in percentage

ACTIVE)) ((IPICO Detwork.)) ((IPICO Status/Tags read Battery	 Smart LEDs Status/Tags read screen contains 6 LEDs that light up from left to right during start up All 6 LEDs will light up when Trigger button is pressed While tracking TUHF bib scans, number of lit up LEDs indicates number of TUHF tags passing timing lines
SCHO SM EPERE EXCLUSION CONFICER	 Power supply TUHF Reader has an internal battery that can work standalone for up to 4 hours To sustain longer charge time, reader can be plugged into an External Battery or AC Charger while on





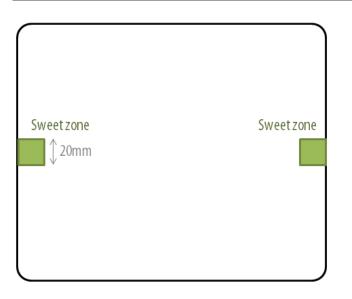
TUHF Bibs

Two **TUHF Tags** with the same tag number are placed on the back of each TUHF Bib. For the best performance and highest accuracy, it is recommended to always place the bib on the participants' chest during the event.

someone	who can be contacted on the da	y of this event.
another per	safety reasons this number must son. Doing so without the permis organizers will result in disqualific	ssion of the event
ос ге	have an existing medical problem quire special attention, such as e abetes or a history of heart proble should mark a large cross in a b with a felt tip pen on the front your race number.	pilepsy, ms, you plock
Address & Postal/Zip Code:	First and Surname:	Are they at the event ? YES / NO
ŏ	Phone no.: (C)	(H)
		1

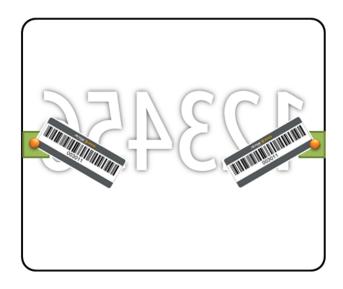


Most Optimal Placement of the TUHF Tags

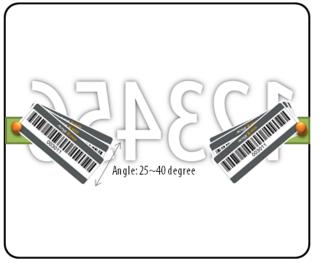


The **Sweet Zones** (Diameter = 20mm) on a Bib are located in the middle area of the sides. The figure on the left shows where you will find the Sweet Zones.

The bottom corner of the TUHF Tags should be placed in the Sweet Zones of the Bib. Please see figure on the right for further reference.



TUHF Timekeeping System – Owner's Manual



Its recommend that the **Inclined Angle** of the TUHF Tags be set from 25 to 40 degrees. The **Inclined Angle** is the degree at which the tag tilts up towards the outer edge of the Bib (as shown in the figure on the left).

Important Tips

- All 6 LEDs will light up when **Trigger** button is pressed for 3 seconds, then turn off in descending order; at this time all read records for Event are compiled and transferred through **Designated Data Channel**
- Do **NOT** switch off reader before it is confirmed that data has been received successfully onto computer or into Timing Software
- Designated Data Channel can be set up as LAN, WIFI or 3G/4G; Reader can be controlled through LAN or WIFI even if Designated Data Channel is different
- List of WIFI networks show the IP address used for TCP/IP LAN connection of the reader.



TUHF_READER_67 is the unique name that identifies WIFI connection of current reader

IP designation of TCP/IP LAN connection is 192.168.1.67

Default TCP/IP port is always 10000

• The 3G/4G function can only be configured within 15 seconds of pressing the 3G/4G button on the TUHF Reader.



First Seen (FS), Last Seen (LS) Tag Reads

As soon as the TUHF bib tag enters into the detectable area of the timekeeping line, it is identified by the reader immediately. The First Seen (FS) record is then created with a time stamp and sent out to your timing software. The reader will continue to compare the Radio Signal Strength Indication (RSSI) of the same tag ID and save the record with max RSSI and the latest record of the same tag ID by using their identifying timestamps. When the latest record doesn't change for a silent duration (such as 1 second), the FS and LS records are then sent out accordingly.

There may be some reflections and obstructions that conflict with the detectable area of the timekeeping line. If an object does obstruct the detectable area, more than one group of tag read records (FS + LS) may be collected by the TUHF Reader for certain tags.

In the event that more than one group of tag read records are collected by the same reader, the following is suggested:

- Use the Last LS read record for the Tag ID at the start line
- Use the First LS read record for the Tag ID at the finish line

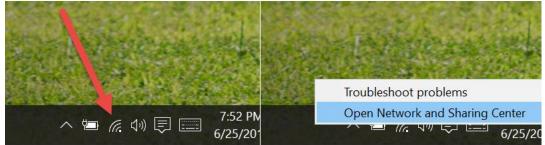
Setting the IP Address of your PC to be in the same Subnet as TUHF Reader

In order to connect your PC to the TUHF reader, it may be required that you set the IP address of your PC to be in the same subnet as the TUHF Reader. The TUHF Reader has a standard IP address labeled on your device. You will need to change the IP Address within the Network Settings of your PC to the same subnet as the TUHF Reader.

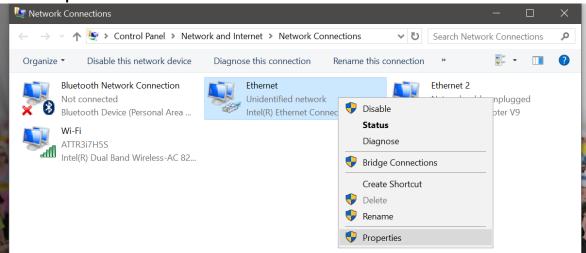


To change the IP address of your PC to be in the same subnet as the TUHF reader, complete the following steps:

- 1. At bottom right corner computer Desk Top, right-click on Internet Connection Icon
- 2. Select Open Network and Sharing Center



- 3. At top left corner, select Change Adapter Settings
- 4. Right-click on appropriate Network Connection
 - **Note:** If you are unsure which Network is connected to the TUHF Reader, disconnect the Reader from the Network and identify which Network disengages within the Network Connections page. Connect the TUHF Reader back to the Network and proceed to the next step.
- 5. Select Properties



- 6. Double-click on Internet Protocol Version 4(TCP/IPv4)
- 7. In IP Address and Subnet mask fields, enter in appropriate information
 - Note: You will need to know the IP Address of your TUHF Reader. For this example, we will assume the TUHF Reader has the following IP Address: 192.168.1.66. The new IP Address within the Internet Protocol Version 4(TCP/IPv4) settings would need to be 192.168.1.XXX where XXX is any 1 to 3-digit number NOT equal to 66. After changing the IP Address, delete all values within the Subnet Mask field. Now, by clicking on the empty Subnet Mask field, the appropriate subnet number will autofill.



Internet P	rotocol Version 4 (TCP/IPv4)	Properties	>
General			
this cap		atically if your network supports ask your network administrator	
Oot	tain an IP address automatical	y	
- O Us	e the following IP address:		
IP ad	dress:	192.168.1.60	
Subn	et mask:	255.255.255.0	
Defa	ult gateway:		
Ob	tain DNS server address autom	atically	
- O Us	e the following DNS server addr	esses:	
Prefe	rred DNS server:		
Alter	nate DNS server:		
□ va	alidate settings upon exit	Advanced	
		OK Cance	4

- 8. Select OK
- 9. Select OK

Using the Active TUHF Config software

The *Active TUHF Config* software tool was developed to assist our customers in configuring the TUHF reader and pulling the read record data.

The Active TUHF Config software tool will help you achieve the following:

- 1. Get reader time
- 2. Synchronize reader time with computer time
- 3. Resolve the live reads or pulled reads
- 4. Save the live reads or pulled reads into spreadsheet or raw-format
- 5. Get the number of reads for this time and the number of reads in the memory
- 6. Delete the memory
- 7. Pull reads from the memory
- 8. Select the channel of sending live reads
- 9. Setup the remote server of 3G/4G
- 10. Reset the reader to factory default



Connect

On the product label of the TUHF Reader, locate IP Address.

Product Label:



Note: You will need to set the IP Address of your PC to be in the same subnet of the TUHF Reader

To connect your TUHF Reader to the *Active TUHF Config* software, complete the following steps:

- 1. Connect PC to Reader by Ethernet cable
- 2. Run Active TUHF Config software
- 3. In IP Address field, enter TUHF Reader IP Address
- 4. Select Connect
 - Note: If successful, the red status bar will turn to green

	e.g. 192.168.	1.31					Comput	er Time	
P Address	127.0.0.1	P	ort 100	00	Disonnect		13:31	:39	
ag Read R	ecord				Tags Cou	unt	Reade	Time	
Reader ID	Tag ID	Decimal	Ant	Тур+	Tine		Synchr	onize	
							Set Re	ader	
							Journa	auor	
							ID=		
							ID=	<256 Sending tag read records	
							ID= • LAN • WIFI • 3G/4G	<256 Sending tag	lock
					Clear	Save	ID= • LAN • WIFI • 3G/4G	<256 Sending tag read records Enter Config M 80.173.70.15	lock



Time

The **Reader Time** button is used to obtain the current time set in the TUHF Reader.

Click **Synchronize** button to change the reader time to be the computer time. Please see figure below



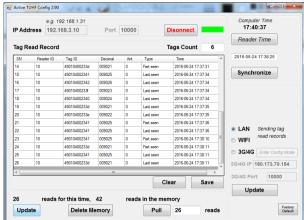
Live Reads

During an event, the **Active TUHF Config** tool monitors the **Tag Read Records** as they are captured.

PAdd		92.168.1.31 168.3.10	Port	10000] [Disonnect		Computer Time 17:38:41 Reader Time
Tag R	ead Record					Tags Count	6	Reader Time
SN	Reader ID	Tag ID	Decimal	Ant	Туре	Time	*	2016-06-24 17:38:26
14	10	49010400233d	009021	0	Fisit seen	2016-06-24 17:37	31	
15	10	490104002341	009025	0	Last seen	2016-06-24 17:37	34	Synchronize
16	10	490104002342	009026	0	Last seen	2016-06-24 17:37	:34	
17	10	49010400233f	009023	0	Last seen	2016-06-24 17:37	:34	
18	10	490104002340	009024	0	Last seen	2016-06-24 17:37	:34	
19	10	49010400233d	009021	0	Last seen	2016-06-24 17:37	:35	
20	10	49010400233e	009022	0	Last seen	2016-06-24 17:37	35	
21	10	490104002341	009025	0	Fiart seen	2016-06-24 17:37	36	
22	10	490104002341	009025	0	Last seen	2016-06-24 17:37	36	LAN Sending tag
23	10	490104002341	009025	0	Fisit seen	2016-06-24 17:38	:10 =	WIFI read records
24	10	49010400233d	009021	0	Fisit seen	2016-06-24 17:38	:11	
25	10	490104002341	009025	0	Last seen	2016-06-24 17:38	:11	3G/4G Enter Config Mode
26	10	49010400233d	009021	0	Last seen	2016-06-24 17:38	11 -	3G/4G IP 180.173.70.154
٠ [m		С	lear S	ave	3G/4G Port 10000

The **Tag Read Record** window shows the time stamp, which antenna port the tags are read by, as well as the decimal numbers printed on the TUHF tags.





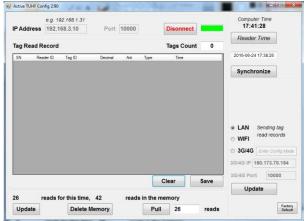
On the bottom right corner, click **Update** button to update all read records in the Tag Record window. The **reads for this time** field represents all reads after the TUHF Reader has been powered-on. **The reads in the memory** field represents all records saved in the Memory of the TUHF Reader, including the records captured prior to powering on the device.

Pull Reads

All of the Read Records can be pulled from the memory of the TUHF reader. More than 1Million reads could be saved in the memory.

To Pull Read Records, complete the following steps:

1. Click **Clear** button to clear records in **Tag Read Record** window





- 2. In Pull field, enter desired amount of reads to pull
- 3. Click Pull
 - **Note:** Please see figure below. All of the reads from this time will show in the Tag Read Record window.
 - The **pull rate** is **50ms per record**. For example, it will take 50 seconds to pull 1000 reads.

IP Add	And the second second second	192.168.1.31 168.3.10	Port	10000		Disonnect		Computer Time 17:42:41	
								Reader Time	
Tag R	ead Record	1				Tags Count	6		
SN	Reader ID	Tag ID	Decimal	Ant	Туре	Time	*	2016-06-24 17:38:26	
14	10	49010400233d	009021	0	Fisit seen	2016-06-24 17:37	31		÷
15	10	490104002341	009025	0	Last seen	2016-06-24 17:37	34	Synchronize	6
16	10	490104002342	009026	0	Last seen	2016-06-24 17:37	34		
17	10	49010400233	009023	0	Last seen	2016-06-24 17:37	34		
18	10	490104002340	009024	0	Last seen	2016-06-24 17:37	34		
19	10	49010400233d	009021	0	Last seen	2016-06-24 17:37	35		
20	10	49010400233e	009022	0	Last seen	2016-06-24 17:37	35		
21	10	490104002341	009025	0	Fisit seen	2016-06-24 17:37	36		
22	10	490104002341	009025	0	Last seen	2016-06-24 17:37	36	LAN Sending	
23	10	490104002341	009025	0	Fisrt seen	2016-06-24 17:38	:10 E	WIFI read red	cords
24	10	49010400233d	009021	0	Fisit seen	2016-06-24 17:38	:11		
25	10	490104002341	009025	0	Last seen	2016-06-24 17:38	11	SG/4G Enter Co	onfig Mo
26	10	49010400233d	009021	0	Last seen	2016-06-24 17:38	:11	3G/4G IP 180.173.	70.154
			III.						
2						Clear S	ave	3G/4G Port 100	000
								Update	
26	reads	for this time,	42	read	s in the m	emory			-
Upd		Delete M			Pull	26	reads		Facto

To **Save** the data listed in the Tag Read Record window, complete the following steps:

1. Select **Save** button

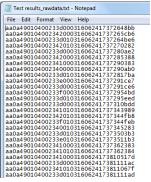
🖌 🗢 📕 🕨 New folder (2)		👻 🍫 Search I	lew folder (2)
Organize 👻 New folder			
🔆 Favorites 📩 Name	Date mo	odified Type	Size
🧮 Desktop	No items match	your search.	
🚺 Downloads	No remainden	iyour search.	
🔢 Recent Places 🗉			
📜 Libraries			
Documents Music			
Pictures			
Videos			
🖳 Computer 👻			
File name: Test results			
Save as type: 文本文件(*.csv)			
Save as type X4X1+(.CSV)			
Hide Folders		Save	Cancel

- 2. In File Name field, enter desired name for data file
- 3. Select Save
 - **Note:** The trimmed data file (ending in ".csv") and the raw data file (ending with ".txt") will be created. Please see image below

🕥 🗸 📕 🕨 New fold	der (2)			
Organize 👻 Include i	n library 🔻 Share with 🔻	New folder		
🔆 Favorites	Name	Date mo	odified Type	Size
🧮 Desktop	🔊 Test results.csv	2016/6/	24 18:02 Microsof	ft Excel C 2 KB
〕 Downloads	Test results_rawdata.txt	2016/6/	24 17:50 Text Doc	ument 1 KB
💷 Recent Diaces				



The format of the raw data file is standard and also the same as what was used by the IPICO DF products

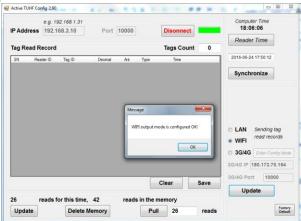


Channel of Live Data Stream

The "Active TUHF config" tool can also be used to change the channel of live reads and data stream from LAN to WIFI. As long as your TUHF Reader stays powered ON while switching Data Stream Channels, your data will not be compromised.

To switch the Channel of Live Data Stream from LAN to WIFI, complete the following steps:

- 1. Within the Active TUHF config tool, select WIFI option
- 2. Click Update button



3. On your Desk Top, select Wireless Network icon



TUHF Timekeeping System – Owner's Manual Currently connected to: Hidentified network Identifying... (TUHF Reader 030A) No Internet access Wireless Network Connection TUHF Reader 030A Connected WLAN_Corp .1 zqb 31 Guest_WLAN CQG .11 HP-Print-7D-Deskjet 4640 series 👘 🚮 (8.a) Open Network and Sharing Center

- 4. Select TUHF_Reader_XX
- 5. Select Connect
- 6. Disconnect LAN cable from PC
- 7. Within Active TUHF config software, select Disconnect

)00	Disonnect
Select Connect	T 01 0
000	Connect

• Note: Connect only one channel to the TUHF Reader at a time. If both WIFI and LAN are connected at the same time, the reader may not function accordingly.

Delete Memory

8.

Click **Delete Memory** button to delete all reads in memory. Make sure you have saved all important data before deleting data stored in the Memory.

IP Address		68.3.10	Port	10000		Disonnect	_	Computer Tim 18:10:45	e
Tag Read F	ecord				5 A	Tags Count	0	Reader Time	9
	ader ID	Tag ID	Decimal	Ant	Type	Time	_	2016-06-24 18:10	26
								Synchronize	e
					Message)		
					Message	Cleared successfully	d	WIFI read 3G/4G Intel 3G/4G IP 180.17	3.70.154
					Memory	Сок	d	WIFI read 3G/4G Intel 3G/4G IP 180.17	records



Advanced Operations

The operations below are only for experienced professional users because they may cause some unrecoverable modifications.

LAN Parameters

The **USR-TCP232-T24** software is used to change reader's LAN parameters. The figure below shows the main User Interface.

arameters (?)				
Module work mode	TCP Server	Show	Expand funct:	ions >
Module IP	192. 168. 1. 61	Operate via COM-	(?) CFG com	mect to GND
Subnet mask	255. 255. 255. 0	Select serial p	ort No seri	al port 🔻 (?)
Default Gateway	192. 168. 1. 1		Read via COM	1
Baud Rate(bps)	115200		Setup via COM	a
Parity/Data/Stop	NONE - 8 - 1 -	Operate via LAN	(?) Leave (FG pin free
Module port	10000 Eandom		Search in LAI	N.
Destination IP	192. 168. 0. 201	Set se	lected item •	via LAN
Destination Port	8234	Device list in	the Net	
		Module IP	MAC	Ver
Click device can r right-click Device	ead the parameters, A			

Use the following link to download the USR-TCP232-T24 software:

http://www.usriot.com/usr-tcp232-t24-setup-v5-1-1-20/

To change the Reader's LAN Parameters, complete the following steps:

- 1. Select Search in LAN
- 2. In Device list in the Net, under Module IP, select appropriate IP Address
- 3. In Module IP field, enter desired IP Address
- 4. In Subnet Mask field, enter appropriate Subnet Mask Number
- 5. In Module work mode field, select appropriate work mode
 - **Note:** The "work mode" default setting is set to TCP Server. The default setting allows the tag read records to be sent out to the server on internet automatically. If you do not wish to use your PC on the field, "work mode" should be set to TCP Client, and the destination server's IP and port must be filled in.



6. Click Set selected item via LAN

WIFI Parameters

By typing the WIFI IP address in your internet browser, the WIFI parameters can be configured.

3G/4G Access

By connecting the reader to 3G/4G router and setting the **work mode** to be **TCP Client**, the mobile data network can be accessed. This will allow tag read records to be sent to a remote server on the internet without having to use your PC on the spot.

Setting up your 3G/4G Connection

Before pressing the 3G/4G button, ensure the SIM card has been inserted properly.





Press 3G/4G button to power on the 3G/4G function

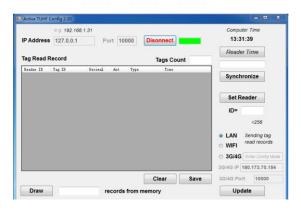
The 3G/4G indicator light will function as followed when your SIM card has been inserted appropriately:

- 1. Blink once in green: Initialization of 4G module is OK
- 2. Light turns red: 4G module boot OK
- 3. Light turns green: Connecting to the server
- 4. Light blinks green: Server is connected

A yellow 3G/4G LED light indicates that there is something wrong with the 3G/4G configuration and may need to be modified using the following steps:

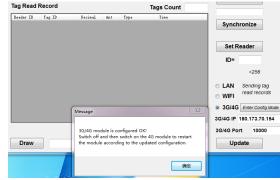
Note: Make sure your PC and TUHF reader are located in the same IP subnet.

- 5. Connect PC to Reader by Ethernet cable
- 6. Run Active TUHF Config 2.80.exe software
- 7. In IP Address field, enter TUHF Reader IP Address
- 8. Select Connect
 - Note: If successful, the red status bar will turn to green



- 9. On TUHF device, select 3G/4G button
- 10. Select 3G/4G radio box and
- 11. Within 15 seconds, click Enter Config mode button
 - **Note:** If successful, the 3G/4G indicator will blink in red and the current 3G/4G configuration (IP address/ port no. of the remote server) will show in the software
- 12. In text box, modify IP address and port number of new remote server
- 13. Select Update
 - Note: If successful, a message box will pop up

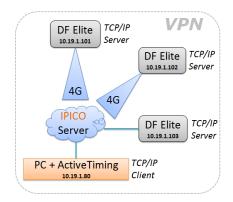




14. Restart the 3G/4G module **Note:** The module will boot according to the updated setup

Network Configuration During Event

The figure below shows how the IPICO DF Elite readers construct the network during an event. All of the Elite readers and the PC share a same VPN. Each reader or PC has a unique IP address to distinguish its position on the marathon route. The Elite readers work as a TCP/IP server. They listen to the application for socket connection from TCP/IP client of ActiveTiming software.

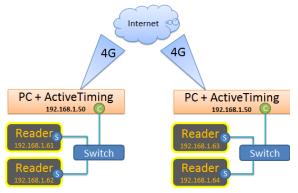


We've found that VPN is not easy to setup and is frequently unstable. So the TUHF readers do NOT use VPN any more.

The following Network Configuration Options could be used to connect the TUHF Reader:

I. Switch and 4G USB Dongle

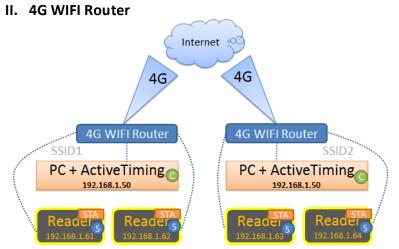




- PC and TUHF readers share a wire LAN connection in each split.
- TUHF readers must use LAN to send tag reads

Active TUHF C	onfig 2.30					
	e.g. 192.168.1.3	1				Computer Time
P Address	192.168.1.66	Port 10	000	Disonnect		14:33:51
						Reader Time
ag Read R		Decinal Ant		Tags Coun	t	2016-05-19 14:32:49
header 1D	Tag ID I	Jecinal Ant	Type	Tine		Synchronize
						Set Reader
						ID= 66
						<256
						LAN Sending tag
						WIFI read records
						3G/4G Enter Config Mod
						3G/4G IP 180.173.70.154
				Clear	Save	3G/4G Port 10000
Draw		records	from r	nemory		Update

- TUHF readers work as a TCP/IP server. They listen to the socket connection from TCP/IP client of ActiveTiming software.
- ActiveTiming software distinguishes which split the readers are located in by using the IP addresses.



• The 4G WIFI Router works as a WIFI Access Point. With an internal battery that can usually



sustain 4 to 6 hours, the router generates a wireless LAN signal with a configured SSID.

- TUHF readers must be configured into "STA" mode. Be careful to input the appropriate router SSID into the red box below.
- PC and TUHF readers share a wireless LAN connection in each split.
- TUHF readers must use **WIFI** to send tag reads.
- TUHF readers work as a TCP/IP server and listen to the socket connection from the TCP/IP client of the ActiveTiming software.
- ActiveTiming software distinguishes which split the readers are located in by using the IP addresses.

III. Standalone

- No laptop is needed at the split.
- After the TUHF Reader establishes a 3G/4G connection, ActiveTiming will use the configured IP address and Port for listening.
- There isn't a fixed IP address for the TUHF readers on the internet. So, ActiveTiming cannot initiate a socket connection. ActiveTiming will act as a TCP/IP server and listen to the socket connection initiated by the TCP/IP client in the TUHF readers
- IP addresses cannot be used to distinguish the location. ActiveTiming should relate Reader IDs to the locations or splits.

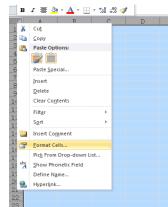
Reader ID can be found in every read records. Such as the above line, 0x64 means Reader ID = 100.

Create Tag ID List by Spreadsheet (Not using Barcode Scanner)

In Excel, ensure that cells are formatted in text form and not scientific notation. To change the Cell Format, follow the steps below:

- 1. Open Microsoft Excel
- 2. Select the Entire Table
- 3. Right Click and select Format Cells...



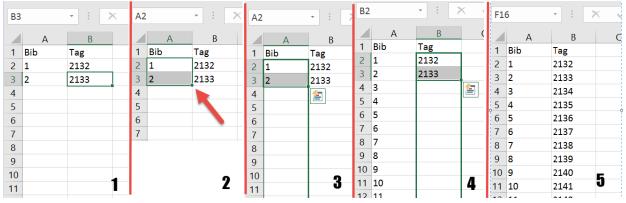


- 4. Under Category section, select Text
- 5. Select OK

Once you have followed the steps above, you can begin to create your Tag List via the spreadsheet. Start by relating the first Bib No. to the first Tag No.

To create your Tag List by Spreadsheet, you will need to start by relating the Bib No. to the Tag No. Use the following steps to relate your Bib No. to the Tag no:

- 1. Label Column A in Row 1: Bib No.
- 2. Label Column B in Row 2: Tag No.
- 3. In Column A/Row 2, enter the first Bib No. Value
- 4. In Column B/Row 2, enter the first Tag No. Value
- 5. Repeat Steps 3-4 for the second Bib and Tag No.
 - a. Note: Your spreadsheet should look similar to Image 1 in figure below



- 6. Click and drag A2 and A3 to select both cells (Image 2 above)
- 7. Click bottom right corner of selected cells and drag down to autofill Bib No. entries (*Image 3 above*)



- 8. Click and drag **B2** and **B3** to select both cells (*Image 4 above*)
- 9. Click bottom right corner of selected cells and drag down to autofill Tag No. entries (*Image 4 above*)

Note: If done correctly, your spreadsheet will look similar to #5 of the figure above

Once the Tag ID and Bib ID are related you must create a Tag ID in Column C. In order to complete this, you will need the Batch No of the tags as well as the Tag ID equation.

The **Batch No.** is a 6-digit number that can be found on the front of the Tag packages, such as "491416" or "490104".

The **Tag ID equation** to copy and paste is: = "*Batch No*"&*REPT(0,6-LEN(DEC2HEX(Tag NoCell))*)&*DEC2HEX(Tag NoCell)*)

Follow the steps below to create the Tag ID equation in Column C:

- 1. Label Column C as Tag ID
- 2. In **C2**, enter: = "Batch No"&REPT(0,6-LEN(DEC2HEX(Tag NoCell)))&DEC2HEX(Tag NoCell)
 - Note: Please see figure below. Batch No will be same for all tags from the same package, so where equation notes Batch No value will be entered exactly as it appears on the Tag package into the equation

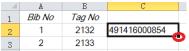
	Clipboar	d Di	Font		Es	Aligni	ment	Es.	Numbe	er 🕞
SU	Μ	•	$\times \checkmark f_x$	= "49141	<mark>l6</mark> "&REPT(0,6-LEN(DE	C2HEX(Ta	g No) <mark>))</mark> &DE	C2HEX(Tag	g No)
	А	В	С	D	E	F	G	Н	I	J
1	Bib No	Tag No	Tag ID							
2	1	2132	= "491416"&R							
3	2	2133								
	-									

• Note: Tag No will be different for each pair of tags, so if you have completed the steps to create Bib No. and Tag No. above, the cell location will replace Tag No in text (e.g., Tag No Cell = B2)

B2		- :)	$\times \checkmark f_x$	f_x = "491416"&REPT(0,6-LEN(DEC2HEX(B2)))&DEC2HEX(B2)						
	А	В	С	D	E	F	G	DEC2HEX(number,		
1	Bib No	Tag No	Tag ID							
2	1	2132	2DEC2HEX(B2)							
3	2	2133								
4	3	2134								

3. Click bottom right corner of highlighted cell and pull down to autofill Tag ID entries

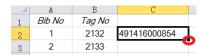




• Note: Afterwards, the spreadsheet will look like the following image:

C2		-	: 2	< -	<	f_x	= "
	А		В		С		
1	Bib No	Tag	No	Tag I	D		
2	1	2132	2	4914	1600	0854	
3	2	2133	3	4914	1600	0855	
4	3	2134	ļ	4914	1600	0856	
5	4	2135	5	4914	1600	0857	
6	5	2136	5	4914	1600	0858	
7	6	2137	7	4914	1600	0859	
8	7	2138	3	4914	1600	085A	
9	8	2139)	4914	1600	085B	
10	9	2140)	4914	1600	085C	
11	10	2141	L	4914	1600	085D	
12	11	2142	2	4914	1600	085E	
13	12	2143	3	4914	1600	085F	
14	13	2144	Ļ	4914	1600	0860	
15	14	2145	5	4914	1600	0861	
16	15	2146	5	4914	1600	0862	
17	16	2147	7	4914	1600	0863	
18	17	2148	3	4914	1600	0864	
19	18	2149)	4914	1600	0865	

- 4. Select Column C
- 5. Copy Column C
- 6. Click bottom right corner of highlighted cell and pull down to autofill Tag ID entries



• Note: Afterwards, the spreadsheet will look like the following image,

C2		- : >	$\langle f_x \rangle$	= "
	А	В	С	
1	Bib No	Tag No	Tag ID	
2	1	2132	491416000854	
3	2	2133	491416000855	
4	3	2134	491416000856	
5	4	2135	491416000857	
6	5	2136	491416000858	
7	6	2137	491416000859	
8	7	2138	49141600085A	
9	8	2139	49141600085B	
10	9	2140	49141600085C	
11	10	2141	49141600085D	
12	11	2142	49141600085E	
13	12	2143	49141600085F	
14	13	2144	491416000860	
15	14	2145	491416000861	
16	15	2146	491416000862	
17	16	2147	491416000863	
18	17	2148	491416000864	
19	18	2149	491416000865	

- 7. Copy Column C
- 8. In Column B, right-click and use Value Paste Options to replace with Column C data





- 9. Delete Column C
- 10. Delete Row 1
 - Note: Afterwards, the spreadsheet will look similar to the figure below

	А	В	
1	1	491416000854	
2	2	491416000855	_
3	3	491416000856	
4	4	491416000857	
5	5	491416000858	
6	6	491416000859	
7	7	49141600085A	
8	8	49141600085B	
9	9	49141600085C	
10	10	49141600085D	
11	11	49141600085E	
12	12	49141600085F	
13	13	491416000860	
14	14	491416000861	
15	15	491416000862	
16	16	491416000863	
17	17	491416000864	
10	10	ANA AACOOOCT	

- 11. Save file as CSV (Comma delimited) (*.csv) file type
 - Note: The saved file can be used for importing tag IDs in ACTIVE Timing

Bib numbers	Tag ID	Divisions	5	Waves	Data	Export
SYNC 0	Import Scan Mode	9	68	Total		

Create Tag ID List by Spreadsheet Using Barcode Scanner

While using barcode scanner to scan tag IDs in spreadsheet, the sheet will always look like the following image:

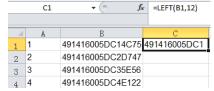
	A	В	С
1	1	491416005DC14C75	
2	2	491416005DC2D747	
З	3	491416005DC35E56	
4	4	491416005DC4E122	



The last four digits of the scanned ID must be removed using the following equation: **Tag ID** = *LEFT*(**Scanned result**, 12)

Once all Tags have been scanned in, use the following steps to complete your Tag List setup:

- 1. In column **C**, enter = *LEFT*(*Scanned result*, 12)
- 2. In equation, replace Scanned result text with cell location



- Click bottom right corner of highlighted cells and pull down to autofill entries in column C
- 4. Copy column **C**
- 5. In column **B**, **Paste** data to replace previous data in column **B**.
 - Note: When Pasting data, use "Value" option as shown in the figure below.

	A		
1	Bib No	7. 💑	Cut
2	1	- Pa	<u>С</u> ору
_	2		Paste Options:
3	2	- 1	123 fx 🛃 %
4	3	- 1	
5	4	1	Paste <u>Special</u> ▶
-			

- 6. Delete column **C**
 - Note: Afterwards, the spreadsheet will look similar to the figure below

	А	В	
1	1	491416000854	
2	2	491416000855	_
3	3	491416000856	
4	4	491416000857	
5	5	491416000858	
6	6	491416000859	
7	7	49141600085A	
8	8	49141600085B	
9	9	49141600085C	
10	10	49141600085D	
11	11	49141600085E	
12	12	49141600085F	
13	13	491416000860	
14	14	491416000861	
15	15	491416000862	
16	16	491416000863	
17	17	491416000864	
10	10	404 44 000000	

Upgrading TUHF Reader Firmware



Firmware is software that is loaded onto the hardware components of your TUHF Reader device. ACTIVE regularly releases new firmware versions to improve product performance and add new features. It is highly recommended to check and update your reader firmware version periodically.

To update your TUHF Reader Firmware, complete the following steps:

Note: Remember to set the IP address of your computer to be in the same subnet as reader.

- 1. Connect your PC to the TUHF reader via Ethernet Cable
- 2. Run USR-VCOM software
- 3. Select Search
- 4. Select USR-TCP232-T24



5. In pop up, select the appropriate reader IP

2-T24 series add virtua	l serial port Comp	liant:USR-TCP	232-T24 serie						- 🗆	
MAC	Remote IP	Remote Port	Device Port	Gateway	Net Protocol	BaudRate	COM Parame	ID	Subnet Mask	Version
00 94 1C 77 46 41	192.168.1.1	8234	10000	192.168.1.1	TCP Server	115200	NONE/8/1	00 00 84	255.255.255.0	5.8
00 34 10 11 40 41	132,100,111	0234	10000	132.100.1.1		113200	HONE/0/1	00 00 04	200.200.200.0	0.0
	MAC	MAC Remote IP	MAC Remote IP Remote Port	MAC Remote IP Remote Port Device Port		MAC Remote IP Remote Port Device Port Gateway Net Protocol	MAC Remote IP Remote Port Device Port Gateway Net Protocol BaudRate	MAC Remote IP Remote Port Device Port Gateway Net Protocol BaudRate COM Parame	MAC Remote IP Remote Port Device Port Gateway Net Protocol BaudRate COM Parame ID	MAC Remote IP Remote Port Device Port Gateway Net Protocol BaudRate COM Parame ID Subnet Mask

6. Select Connect Virtual COM



🔍 Add Virtual Serial F	Port	\times
Virtual COM:	COM1 🗸	
Net Protocol:	TCP Client	
Remote IP/addr:	192.168.1.66	
Remote Port:	10000	
Local Port:	8234	
Remarks:		
🕑 ок	Cancel Advanced +	

- 7. Select a free COM Port
- 8. Select OK
 - **Note:** The virtual COM port will be created and shown in the window below. Do NOT close this window before the upgrade is completed.

			ver V3.7.1.520 Chinese Helpi)	-0							
		111	À								
ABLEEM	DelCDN	Connect	Peset Court	Norika	icach inat)						
naka	DUM Name		COM State	Net Photocol	Fiencie IP	Benda Part	 COM Received	Net Received	Net State	Regiti	CloudD
	DIM1		Not used	10°Ciest	19210311.100	10000	a	U	Connected	U	

9. Run STM32F4Update.exe software

STM32F4Update			
Port Name: COM1 💌	Baudrate: 115200	▼ Type: STM32F4	- Boot
File Path:			
Progress:			

10. In Port Name field, select COM port that was used in step #7



11. Select Boot

🔛 Open				×
🗧 🔶 🕤 🕇 🧧 « Firm	n > Firmware Upgrade of	ٽ ~	Search Firmware Upgrad	e of 🔎
Organize 👻 New folder	r		8== 👻	•
E Pictures	Name		Date modified	Туре
a OneDrive	R542_AB_160523.bin		6/23/2016 9:21 AM	BIN File
💻 This PC				
Desktop				
🗎 Documents				
🖶 Downloads				
Music				
Pictures				
📕 Videos				
🎬 Windows (C:)				
🖆 DVD Drive (D:) J_				
	<			
File na	me: R542_AB_160523.bin	~	BIN (*.bin)	~
			Open	Cancel

- 12. In pop up, search and select appropriate Firmware file
 - Note: The firmware file always has the suffix of "bin".
- 13. Select Open
- 14. In the pop up, select Yes

question		\times
?	Are you sure update the	e device?
	Yes	No

- 15. Once the update has finished, in the pop up, select **OK**
- 16. Restart TUHF Reader