

# LandStar8 FAQ Series: Setup a Base at a Known Position

More FAQ's like this one are available here: [LandStar8\_FAQ] Date: 9/24/2022

Filename:LS8\_FAQ\_SetupBaseKnownPosition\_R002.docx

#### DESCRIPTION

A common question is:

How do I setup a Base (UHF, APIS, NTRIP) at a Known Position. This FAQ shows exactly how to configure an Instrument Profile to do this.

## Version

This FAQ was written using version 8.1.0.4.**20240923**. You should use this version or higher to obtain similar results and slider defaults.

# Quick Note / Executive Summary

1. If you already have an **Instrument Profile** configured for the Base and LandStar does not request a starting position, then this single setting:

Start at known position

is turned off.

If you move the slider to the right, then LandStar will ask you to provide a position for the Base when starting the Base.

You may be able to edit the existing profile by dragging the profile to the right and clicking on the edit pencil:



then click **Next-Next** and find the **Start at known position** slider, enable it and save the updated profile.

2. When you start a base, you will have an opportunity to Add the point to the point list:

Add the point to the point list.



**ALWAYS** enable this option. This option is enabled by default. If you disable this option, an automatic base will be added to the point list at the Phase Center (PC) of the Base receiver's antenna instead of the Ground Mark (GM).



# The Known Position

You can enter a known position using one of several methods:

**Point list**: import or manually enter a coordinate for the base.

From CAD: select a point, line endpoint, intersection, midpoint from the CAD view.

Read GPS receiver: get a measurement (AUTO, DGPS, Fixed) from the receiver.

For this example, a single point has been added to the Point list:

←	BaseKnown-1-Points (1)				
	Points	Points	to stake		
All 🔻	Name 🔻				
Name	North (N)[USft]	East (E)[USft]	Elevation[US		
1	3490700.000	2280592.000	5667.000		

The position has been rounded to the nearest integer foot to make comparing values easier.

## Adding an Instrument Profile for a Known Position Base

From the Config tab of the Main Menu:



Click on Instrument Profile.



If there is an existing profile and you would like to edit it, drag it to the right and click on the gray edit pencil. Otherwise, click on New:

÷	ments profile	BaseKn	
Androi d	Internal GPS CHC - Internal Andro	oid device location -	0
T Rover	i <b>83 Rover</b> CHC - RTK - CHCI83 BT - GNSS-4021230		0
<b>T</b> Rover	i83UHFRover_461 CHC - RTK - CHCI93 WF - GNSS-3738992	1.025 NONE	0
	<u></u>		C
	New	Accept	

### Click on **GNSS base** to make a new Base profile:





The connection dialog for the new profile will be shown:



Chose an appropriate **Name** for the profile.

Select the **Brand** (typically **CHC** or **iGage**).

Select the **Type**, **Model** and **Antenna type**. For a **Base** the **Connection type** will usually be **Bluetooth**. Click **Next**.

The **Datalink** destination dialog will be shown:

•	- vn-1-Instrumen	ts profile	
'n	Internal radio Receiver internal radio	selected.	0
ò	External radio External radio selected.		0
	Receiver cell networ Receiver internal GSM I	<b>k</b> network selected.	0
۲	Receiver cell networ Receiver internal GSM r fallback selected.	k + external radio network and radio	0
a <mark>×</mark>	UAV base Transfer differential dat Wi-Fi.	ta to UAV controller via	0
	Back	Next	



Typically, you will select Internal radio, then click Next.

The Datalink, Static recording settings will be shown:

← Basek	(nown-1-Interna	al radio
l Data link parar	ns	
Differential fo	rmat	
CHC516		
Protocol		_
SATEL_3AS		~
Channel band	width	_
12.5 KHz		×
Baud		
9600		
Transmitting	power	_
2 W		
Channel		
1 (461.0250 N	1HZ)	
Frequency	_	
461.0250 MH	Z	
Sensitivity		
High		
Call Sign		
WQDN367		>
FEC	Ļ	ĻŌ
Elevation mas	ik 🔪	
10	$\sim$	
10 Start at known	position	
10 Start at known	position	
10 Start at known I GNSS static re Start logging	position	
10 Start at known I GNSS static re Start logging Automatically turned on	position cording	eiver is
10 Start at known I GNSS static re Start logging Automatically turned on HCN	position according	eiver is
10 Start at known I GNSS static re Start logging Automatically turned on HCN Enable	log when the reco	eiver is
10 Start at known I GNSS static re Start logging Automatically turned on HCN Enable RINEX	log when the reco	eiver is
10 Start at known I GNSS static re Start logging Automatically turned on HCN Enable RINEX Disable	log when the reco	eiver is
10 Start at known I GNSS static re Start logging Automatically turned on HCN Enable RINEX Disable Interval	log when the reco	eiver is
10 Start at known I GNSS static re Start logging Automatically turned on HCN Enable RINEX Disable Interval 1 HZ	log when the rece	eiver is
10 Start at known I GNSS static re Start logging Automatically turned on HCN Enable RINEX Disable Interval 1 HZ Session durat	log when the reco	eiver is
10 Start at known I GNSS static re Start logging Automatically turned on HCN Enable RINEX Disable Interval 1 HZ Session durat 1440	log when the reco	eiver is
10 Start at known I GNSS static re Start logging Automatically turned on HCN Enable RINEX Disable Interval 1 HZ Session durat 1440 Station name	log when the reco	eiver is
10 Start at known IGNSS static re Start logging Automatically turned on HCN Enable RINEX Disable Interval 1 HZ Session durat 1440 Station name 3234396	log when the reco	eiver is
10 Start at known I GNSS static re Start logging Automatically turned on HCN Enable RINEX Disable Interval 1 HZ Session durat 1440 Station name 3234396 Antenna heigl	log when the reco	eiver is
10 Start at known I GNSS static re Start logging Automatically turned on HCN Enable RINEX Disable Interval 1 HZ Session durat 1440 Station name 3234396 Antenna heigi 6.562 USft	ion (mins)	eiver is
10 Start at known I GNSS static re Start logging Automatically turned on HCN Enable RINEX Disable Interval 1 HZ Session durat 1440 Station name 3234396 Antenna heigl 6.562 USft Antenna heigl	ion (mins)	eiver is
10 Start at known I GNSS static re Start logging Automatically turned on HCN Enable RINEX Disable Interval 1 HZ Session durat 1440 Station name 3234396 Antenna heigl 6.562 USft Antenna heigl Vertical H	ion (mins)	eiver is

Set values appropriately, however, **MAKE SURE YOU ENABLE Start at known position** (highlighted above). Click **Save** to save the modified or new profile. Don't click on **Save & Accept**, just **Save**.

Return to the Main menu (any tab) and click on the Instrument select button at the top:





Select the GNSS Base profile that we just modified or added:

Cancel		33-3234390	Accort	
UHF Base Known 461.025 CHC - RTK - CHCIBASE				
○ GNSS rover				

then click on Accept.

The Static recording setting defaults will be shown:

← atic recording Basel	Kr
Start logging	
Automatically log when the receiver is turned on	
HCN	
Enable	~
RINEX	
Disable	~
Interval	
1 HZ	~
Session duration (mins)	
1440	
Station name	
3234396	
Antenna height	
6.562 USft	
Antenna height measurement method	
Vertical H	~
Elevation mask	
10	
Next	

Make any needed changes (like the Antenna height), then click Next.

Note: this **Antenna height** is **NOT** the **RTK height**, it is the height that is listed in and exported RINEX file. The RTK height is a separate value (this is required for some configurations, normally you will make them the same.)



### The Start on known position dialog will be shown:

← E	BaseKnown-1-Star	t on :
Add the point to	the point list.	
Antenna type		
CHCIBASE		>
Antenna height	t	
6.562 USft		>
Туре	Vertical H	◯ Slant H
Select point	=	8 🛶
Name		
B_3234396		
Coordinate form	nat	
Local N/E/Elev	(Projection grid)	~
Local N		
0.000 USft		
Local E		
0.000 USft		
Elevation		
0.000 USft		
Description		
VH = 6.562 USF	T; ENTERED POS	
Time		
	ОК	

In this case we have point #1 in our **Point list**, so click on the Point list button  $\equiv$ :

÷	← BaseKnown-1-Points (1) :				
	Points		Po	ints to s	take
All 🔻	Name 🔻				
	Name	North (N	N)[USft]	East (E	)[USft]
68	1	349070	00.000	228059	92.000
4					
					C
	Import			Add	

then click on point 1.



The coordinate from the point list will be shown:

← Base	Known-1-Start	on a		
Add the point to the	point list.			
Antenna type				
CHCIBASE		>		
Antenna height				
6.562 USft		>		
Туре	Vertical H	🔾 Slant H		
Select point	:=	8 🛥		
Name				
B_3234396				
Coordinate format				
Local N/E/Elev (Projection grid)				
Local N				
3490700.000 USft				
Local E				
2280592.000 USft				
Elevation				
5667.000 USft				
Description				
5.562 USFT; PN B_3	234396 FROM P	OINT LIST		
Time				
	ОК			

Make sure the **Add the point to the point list** slider is enabled. (It will be enabled by default, don't disable it!)

Enter the **Antenna height** (HI). You can use a **Vertical height** (for example if the receiver is on a fixed height tripod) or a **Slant height** (if the receiver is on a tripod).

Note that most CHC receivers have a **Measure-Up-Bar** that can be placed under the receiver. Then a tape can be used to measure the slant distance from the **Ground Mark** to the **top** of the **Measure-Up-Bar**.

Click OK:



wait for the receiver to be configured.

When configuration has completed, wait for a few seconds and check that the up-down arrows are blinking once per second.



#### After the receiver is configured, you can return to the Point list:

÷	Base	Known-1-Points	s (1) 🕴
	Points	Poir	nts to stake
All 🔻	Name 🔻		
	Name	North (N)[USft]	East (E)[USft]
68	1	3490700.000	2280592.000
li	nport	Export	Add

If the new **Base Point** is not shown (as above), click on the 3-Dot button (top right corner):



Then click on Show GNSS base...



#### The **Point list** will be updated to include the Base positions:

÷			BaseKnown	-1-Points (3)			
	Points	Poir	nts to stake				
All	▼ Name ▼						
	Name	North (N)[USft]	East (E)[USft]	Elevation[USft]	Code	Туре	20
烹	B_3234396	3490700.000	2280592.000	5667.000		Base	
ŝô	1	3490700.000	2280592.000	5667.000	BASE	Enter	41
泵	BASE_0	0.000	0.000	0.000		Base	

Note that a new Base  $B_{3234396}$  has been added with the Ground Mark coordinates matching the Known point.

GNSS RTK observations made using this new base will include this base information.

If you drag the new Base entry to the right and click on the gray edit pencil:

← В	aseKnown-1-Edit point
Name	B_3234396
Туре	Base point
Ground ma	rk position
Coordinate format	Local N/E/Elev (Projection
North (N)	3490700.000 USft
East (E)	2280592.000 USft
Elevation	5667.000 USft
Antenna type	CHCIBASE
Measure to	Vertical H
Antenna height	6.562 USft
Descriptio n	PN B_3234396 FROM POINT LIST
	Clear
N shift	0.000 USft
E shift	0.000 USft
H shift	0.000 USft
Survey	2024-09-24 16:28:48
	Save

The position is listed as a **Ground mark position** and the elevation matches the **Ground mark**, not the **Phase center**. The RTK **Antenna Height** will be shown.