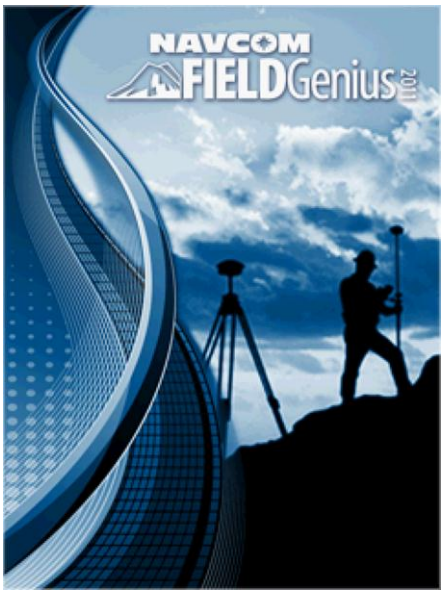
Using StarFire in NavCom FieldGenius



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Introduction

This guide introduces you to the StarFire QuickStart system within NavCom FieldGenius.

StarFire

The StarFire™ global subscription service provides real-time accuracy typically better than 10cm (4 inches). Its globally corrected signal is available virtually anywhere on the Earth's surface on land or sea, from 76ºN to 76ºS latitude.

To accomplish this, StarFire™ utilizes a network of more than 60 GPS reference stations around the world to compute GPS satellite orbit and clock corrections. Two completely redundant processing centers and multiple communication links ensure the continuous availability of StarFire™ GPS corrections. These corrections are broadcast via three geostationary satellites, providing worldwide coverage and enabling precise real-time navigation without the need for local ground base stations.

RTK Extend

An industry exclusive, RTK Extend™ allows for continuous RTK positioning during radio outages by allowing StarFire™ to take over when the RTK radio communication signal is blocked or out of range.

Traditionally, when an RTK rover loses communication with the base station, it is unable to provide position updates for more than a few seconds, resulting in user down time and reduced productivity. With the revolution of RTK Extend™, centimeter-accurate positioning is maintained for up to 15 minutes during communication loss. RTK Extend™ allows users to work without costly interruptions and frees them to concentrate on the work instead of the tools.

With RTK Extend™, once the communication link is restored, the rover automatically and seamlessly switches back to the standard RTK solution. The break in communications and the seamless mode transitions of RTK Extend™ will be transparent to the user with the exception of a mode flag indicating that the receiver is operating in the StarFire™-aided RTK Extend™ rather than standard RTK.

RTK Extend™ is a software option available with all StarFire receivers enabled with RTK and running software version 3.0.0 or higher.

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StarFire Button Introduction

This section explains how to access the 5 StarFire buttons and the FOM icon.

StarFire Alternate SV: This button accesses a screen that allows you to switch StarFire satellites. The default setting is set to ***Automatic***.

StarFire Status: This button accesses the StarFire Status screen.

StarFire QuickStart: This button accesses the Select QuickStart Point screen. In this screen you select a point that you wish to be used as a QuickStart point. **Important Note**: At this time, only measured points can be QuickStart points. So you must plan ahead in determining what points you would like to be future QuickStart points.

StarFire Cancel QuickStart: When QuickStart has been activated, use this button to stop QuickStart.

StarFire Reset QuickStart: Use this button to cancel StarFire QuickStart that is in progress, and causes a full reset of the StarFire navigation.

FOM: This icon displays the StarFire Figure of Merit. Think of this value as a position quality indicator (in centimetres). This value represents the estimated position and clock errors, valid only when the navigation engine has found a valid solution. The code creates the FOM by using the 2D RMS horizontal error estimate.

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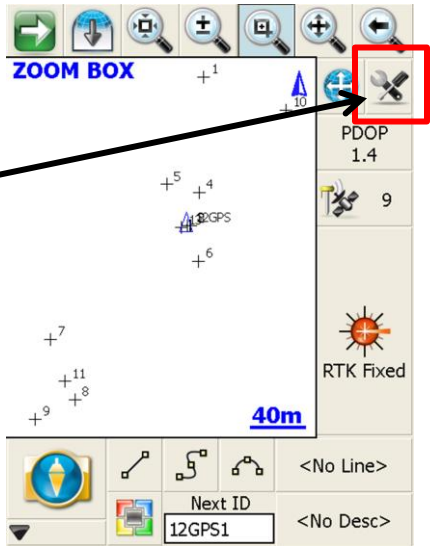
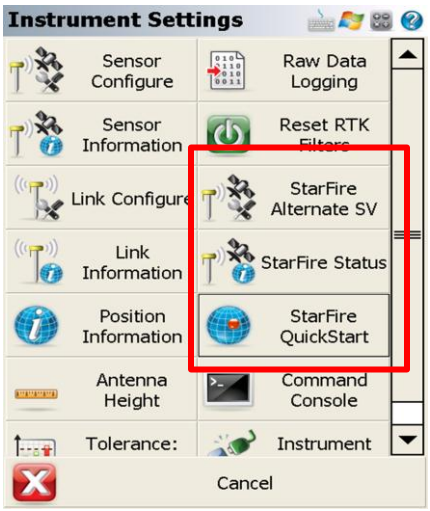
Step	Action	Display
1	Starting from the MapView screen of NavCom FieldGenius: • Tap on the **Instrument Settings** button. This takes you to the Instrument Settings screen.	
2	In the Instrument Settings screen: Notice that there are three StarFire buttons. You will always see the **StarFire Status** and **StarFire Alternate SV** buttons displayed. The **StarFire QuickStart** button will not be displayed if StarFire has already started. This step continues on the following page.	

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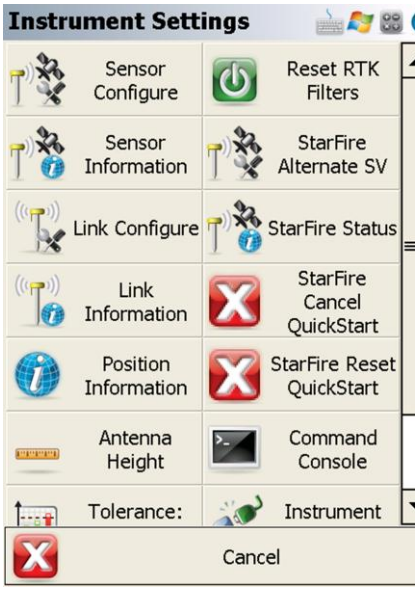
Step	Action	Display
2	This step continues from the previous screen: When QuickStart has started, you will see new buttons in the Instrument Settings screen. Notice the two new buttons with the large red X (**StarFire Cancel QuickStart** and **StarFire Reset QuickStart**). These will only appear after QuickStart has begun.	

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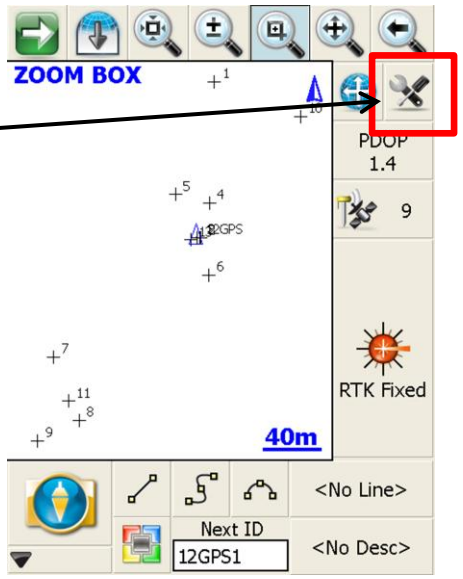
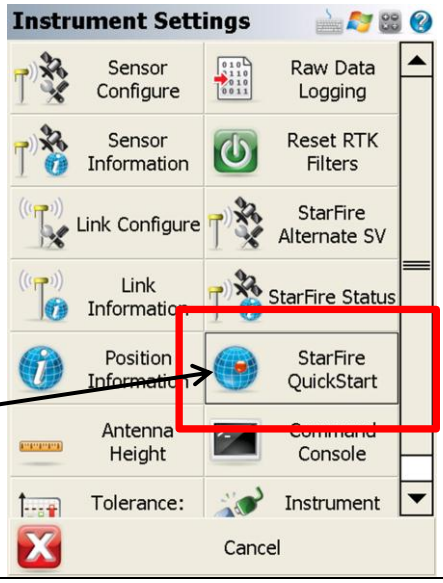
Starting StarFire QuickStart

This section explains how to manually start QuickStart.

In this example, we have already acquired an NTRIP RTK fix to measure our QuickStart point. After the point is measured, we will give QuickStart a try.

Step	Action	Display
1	From the MapView screen: • Tap on the **GPS Instrument Settings** button. **Note**: Notice in this screen that we have an RTK fix. StarFire Quickstart will automatically begin shortly because we have a fix. But for this example, let's pretend that we must manually start QuickStart. This takes you to the Instrument Settings screen.	
2	In the Instrument Settings screen: **Remember**: Before manually using StarFire QuickStart, you must have already measured a QuickStart point. This can be any GPS measured point in the NavCom FieldGenius database. • Tap on the **StarFire QuickStart** button. This takes us to the Select QuickStart Point screen.	

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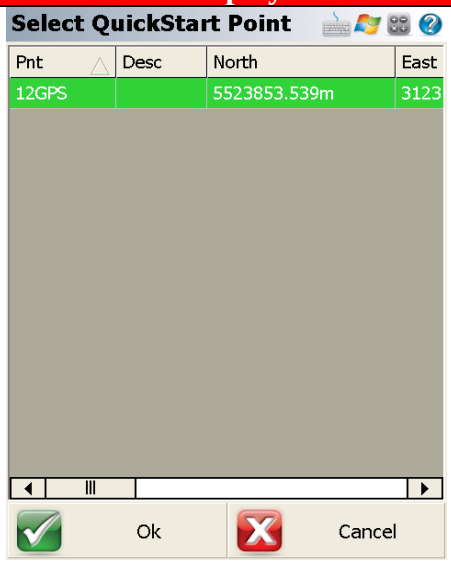
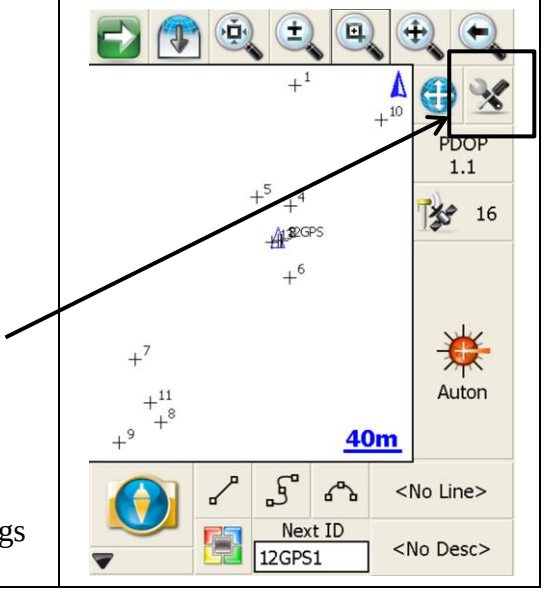
Step	Action	Display
3	In the Select QuickStart Point screen: • Select the point that you wish to use for QuickStart. • Press the **OK** button. **Note**: Don't be alarmed if you do not have the same point as in the image on the right. You will have to measure your own point first. This takes us back to the MapView screen.	
4	In the MapView screen: Now, let's see how our QuickStart progress is. • Tap on the **GPS Instrument Settings** button. This takes us to the Instrument Settings screen.	

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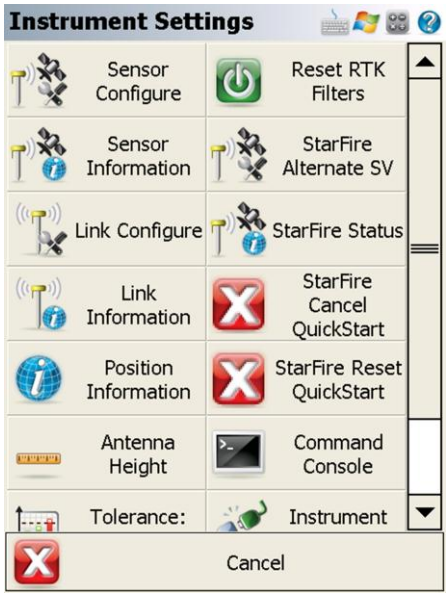
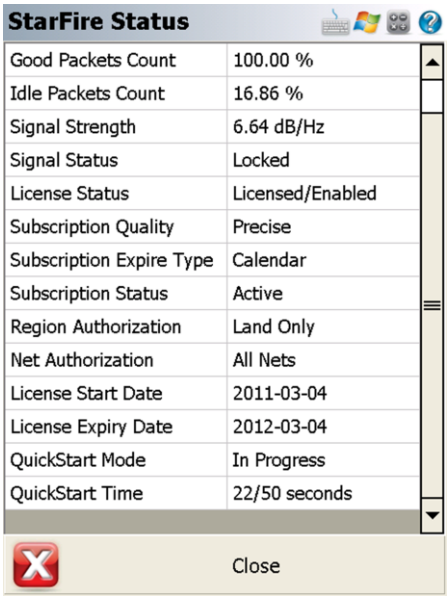
Step	Action	Display
5	In the Instrument Settings screen: We now see the new buttons that appear when QuickStart has started. • Tap on the **StarFire Status** button. This takes us to the StarFire Status screen.	
6	In the StarFire Status screen: In this screen we are presented with a lot of StarFire information. Notice at the bottom of the screen we see **QuickStart Mode** and **QuickStart Time** display fields. When QuickStart has finished, we will see these fields change. This step continues on the following page.	

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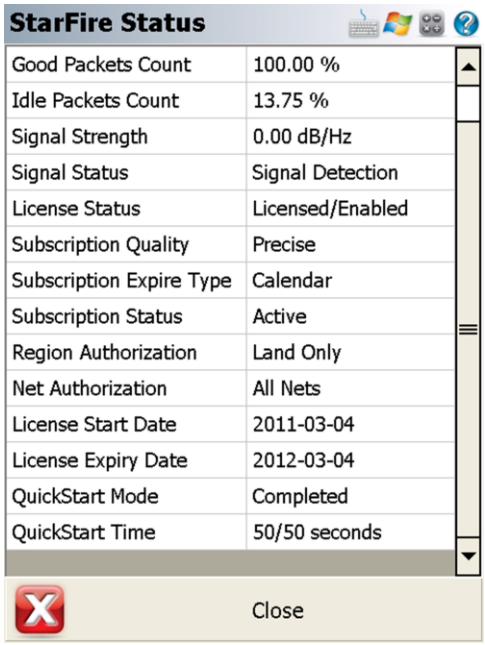
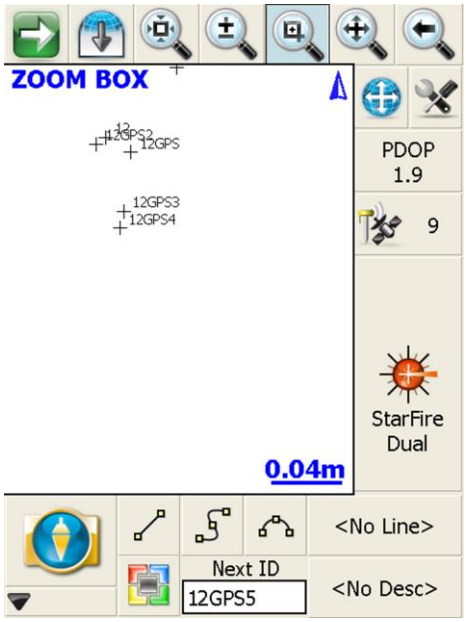
Step	Action	Display
6	This step continues from the previous page: We now see that QuickStart has completed. • Tap on the **Close** button**.** This returns us to the MapView screen.	
7	In the MapView screen: We now see that we have a positional quality of **StarFire Dual**.	

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StarFire What happens when I have a StarFire enabled receiver and I lose my RTK corrections?

Step	Action	Display
1	In the MapView screen: When you lose your RTK corrections, StarFire will automatically kick in and your positional quality will drop to RTK-X (for extended). Notice the Figure of Merrit display button. If you do not see a **FOM** button, tap on it until you do. This will stay in this mode for about 15 minutes before dropping to **StarFire Dual**. After some time this will drop to **StarFire Single**.