



**SPECTRA**<sup>®</sup>  
GEOSPATIAL

# ORIGIN FIELD SOFTWARE TUTORIALS



## RTK Network Survey Setup (VRS Now)



### About this Tutorial

This tutorial shows how to create and start a Network RTK survey, you will:

- Connect to a GNSS receiver
- Create a new RTK survey style
- Sign In to a GNSS contact to connect to a VRS network
- Connect your Rover via bluetooth

This tutorial will take approximately 10-20 minutes to complete.

### Understanding a Network RTK Survey Style

A GNSS survey is when the controller being used for the survey is connected to a rover or base GNSS receiver. This tutorial demonstrates setting up a Network RTK survey, which involves reference station networks which communicate with a control center to calculate GNSS error corrections. The broadcast format for this tutorial will be the VRS network, which requires an individual Sign In for use.

### What You Will Need

- **Origin Field Software:** Origin Max or Origin GNSS
- **Device:**
  - Computer or data collector
  - GNSS Receiver - this tutorial uses Spectra Geospatial®'s [SP60 GNSS Receiver](#)
- **Geoid:** You will need to have a geoid for this tutorial. This tutorial was made using the *GEOID18 (Conus) (g18us.ggf)* geoid file. Please use the geoid that matches your area. [Here is a link to various geoid files](#). Once you have the geoid file downloaded, the file needs to be moved into the system files folder in the Origin application. Please use the following steps:
  1. Download and copy Geoid file to data collector
  2. Open the Spectra Geospatial Origin folder (or Spectra Geospatial Emulator for a desktop)
  3. Open Spectra Geospatial Data folder
  4. Open System Files folder and paste geoid file





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- **Corrections Service:** You are required to have your own local VRS correction service subscription or VRS Now network subscription, if you are in the VRS Now coverage area. You will need your sign in credentials to complete this tutorial. This will be needed in Step 2.





### Step 1: Create a Project and Job

**Note:** If you have a project folder in Trimble Connect, open the project and create a new job.

1. In Origin, you will be brought to the **Projects** page. Tap **New** in the top left hand corner of the screen.

2. Fill in the project details (not all of the details are required).

**Name** the project *“RTK VRS Network Survey”*

(Optional) Provide a **Description** *“setting up a new survey style”*

(Optional) Include a **Location** *“Westminster, CO”*

3. Tap **Create**

4. In the **New Job: RTK VRS Network Survey/** screen, use **Create from template** and set up the job with these details:

**Job Name** - *“Starting a Survey”*

**Template** - *Metric Scale Only*

Tap **Coord. Sys.**

Tap **Select from library**

**System** - *United States/State Plane 1983*

**Zone** - *Colorado North 0501*

**Geoid** - *Yes*

**Geoid model** - *GEOID18 (Conus) (g18us.ggf)* - use a geoid file for your area

**Project height** - *1524m*; **Tip:** If you know the project height in US Feet, type height XX sft, and it will automatically adjust to meters.

**Units (Dist.)** - *Meters*

**Feature library** - *GlobalFeatures*

Leave all of the other properties to the default (or empty) value.





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## Step 1. Create a Project and Job

← New job: RTK VRS Network Survey/Starting a survey ☆

**Properties**

Coord. sys.	Colorado North 0501 (United States/State Plane 1983)
Units (Dist.)	Meters
Layer manager	None
Feature library	GlobalFeatures
Cogo settings	Ground
Additional settings	Off
Media file	Previous point
Reference	?
Description	?

Esc Accept

5. Tap **Accept**.
6. Once you have opened the project, you are brought to the **Map** screen.





### Step 2: Select and Create a Survey Style

In this step, you will need to have your VRS network sign in credentials ready.

**Note:** You can set up a survey style *before* or *after* you create a job.

1. Tap  .

2. Under **Settings**, tap **Survey styles**.

You will see a list of previously used survey styles and the date it was last modified. If this is your first time, then the list will be empty.

3. On the bottom of the screen, tap **New** to create a survey style. The **Style details** screen will appear, fill in the following properties:

**Style name:** *VRS*

**Style type:** *GNSS*

Tap **Enter** and **Accept**.

4. You will be brought to a **VRS** page where you can configure settings for the survey style.

5. Tap **Rover options**. The **Rover options** page will appear, change the following properties:

**Survey type** - *RTK*

**Broadcast format** - *VRS (CMR)*.

Under **Antenna** settings:

**Note:** An SP60 antenna was used to create this tutorial. Set up your antenna according to your device.

**Type** - *SP60*

**Antenna height** - *2.0m*; **Tip:** If you leave this blank, you will be asked to enter an antenna height when measuring points.

**Store Points as:** *Vectors*





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## Step 2. Select and Create a Survey Style

**Elevation mask** - 10°

**PDOP Mask** - 6.0

Under **GNSS signal tracking**, check *GPS*, *GPS L2C*, *GLONASS*, and *Galileo* are checked. If you would like to use any other satellite constellations, select them.

Tap **Accept**.

**Note:** Steps 6 - 7 involve setting up the survey style with your own corrections service. The following steps show the use of the VRS Now network login.

6. You will be brought back to the **VRS** screen. From here, tap **Rover data link**. This will define the way corrections to the rover are received. Change the following properties:

**Type** - Internet Connection

Tap the arrow for **GNSS Contact**. You will be brought to the **Connections, GNSS contacts** screen. This will define how the corrections (internet connection) will be received and the source of the correction service.

Tap **New**, bringing you to the **Edit GNSS contact** page. Fill in the following properties:

**GNSS contact name** to *VRSNow* (or the name of the local correction source provider)

**Network connection** - *Controller Internet*. This will use the internet connection that is used on your controller.

**Note:** To connect to the internet through an external device modem, tap **Add** and fill in the details.

Contact type - Internet rover

7. Tap **Corrections** tab.

Fill in the NTRIP Configuration information, this is based on your local corrections service, if not using the VRSNow.

You will need your local corrections service information to fill in this page. Enter the **IP address** or **URL, IP port, username and password** for the corrections service you will be using.

8. Tap **Enter** and **Store**.





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## Step 2. Select and Create a Survey Style

This will bring you back to the **Connections** page, where you will now see the **VRSNow** connection. Tap **Accept**.


9. Tap **Accept** and **Store** again.
10. On the **Survey styles** page, tap **Esc** to return to the **Map** screen.







### Step 3: Set Up Bluetooth to Configure Rover

1. Tap  .
2. Tap **Settings** and **Connections**
3. Go to the **Bluetooth** tab on the **Connections** page
4. Tap **Search**


**Note:** If you have connected to your GNSS rover before, it will appear under the **Connect to GNSS rover**

5. A list of **Discovered** and **Paired devices** appears.  
Wait until your device number appears and tap the number and **Pair**.
6. A pop-up will appear and tap **Connect to GNSS rover**  
Tap **Accept**
7. Also on the **Connections** page, tap the **Auto-connect** tab  
Check **GNSS Receivers**  
Tap **Accept**.





### Step 4: Start the Survey

1. Tap  .
2. Tap **Measure**, then **Network RTK**, then **Measure points**.
3. You will be brought to the **Select data source** screen and a pop-up box will appear that says **Building Source List**.
4. Select a mount point that is displayed in the list for your corrections service. Origin will start the survey using the **Network RTK** survey style.
5. After a few seconds, an **Initialization change** pop-up will appear saying **Initialization has been gained**.  
Tap **OK**.
6. You are now ready to begin your survey.

You have completed this tutorial.

