

# Workflow Bulletin

GEOSPATIAL  
JUNE 2020

## HS2 Survey Grid

### Purpose

This document outlines the various configuration options that are offered to a user in order to enable and configure the newly made HS2 Survey Grid published by HS2 Organization. The new grid is implemented in Trimble's core geodetic database and as such, should be available as a choice in most of Trimble Geospatial survey products. Below is an outline on how to enable, set up, and configure the HS2 survey grid in Trimble Business Centre and Trimble Access.

### Trimble Business Center

The new HS2 Survey grid was implemented with database version 89 and/or with Trimble Business Center version 5.20. In order to check what version of the Coordinate System Database is currently active on your computer, start Trimble Business Center (TBC), run the coordinate system program and check under Help/About. The latest released version is version 91 (Figure 1).

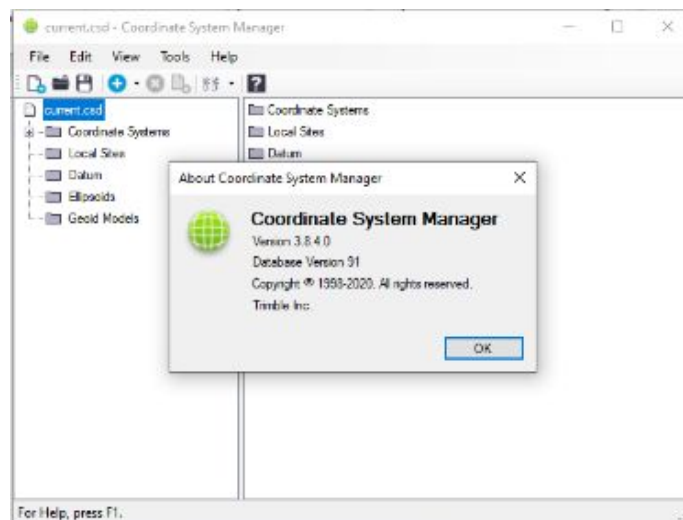


Figure 1: Coordinate System Database version, as seen in TBC

If you have an older version of TBC (older than 5.20), you possibly have an older version of the database. In order to update to the latest released database go to Help / Check for updates, and then install the update available. If you run TBC 5.20 or later, or have updated your coordinate system database, the new HS2 survey grid should be available as a choice in the coordinate system listing. You will see the new system as a separate section under *United Kingdom* . The two new grids can be found under the HS2 tab, and there, you will be able to see the HS2TN02 and the HS2TN15 (Figure 2).

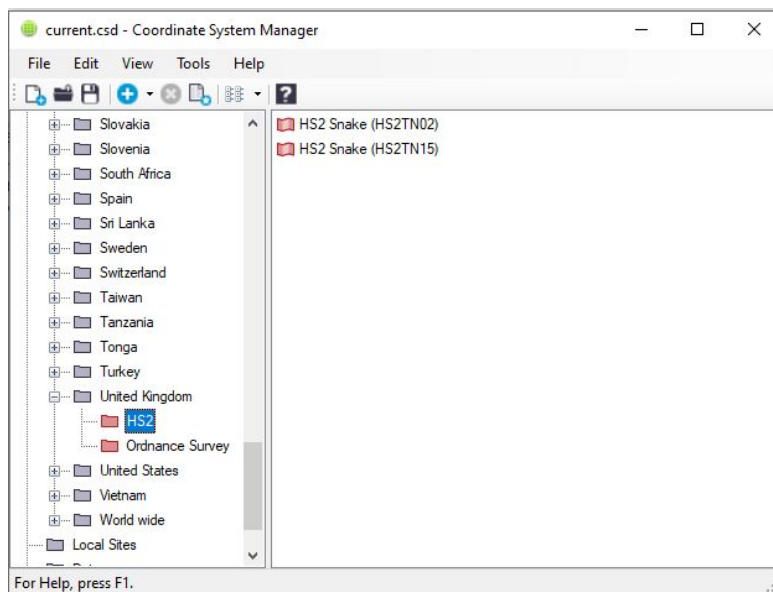


Figure 2: HS2 Grid in Coordinate System Manager

Both grids include the new HS2 specific Geoid, which is listed in the coordinate system database as HS2GM15 and HS2GM02 (Figure 3).

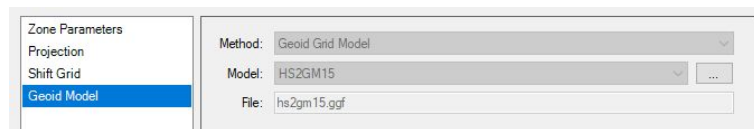


Figure 3: HS2 Geoid in Coordinate System Manager

To configure or set up a template with the HS2 survey grid, start a *New Project*, then go to the project's *settings/coordinate system* and choose the new HS2 Grid (Figure 4). When it is stored, go to *File / "Save As Template"* and the new project will be set up with the HS2.

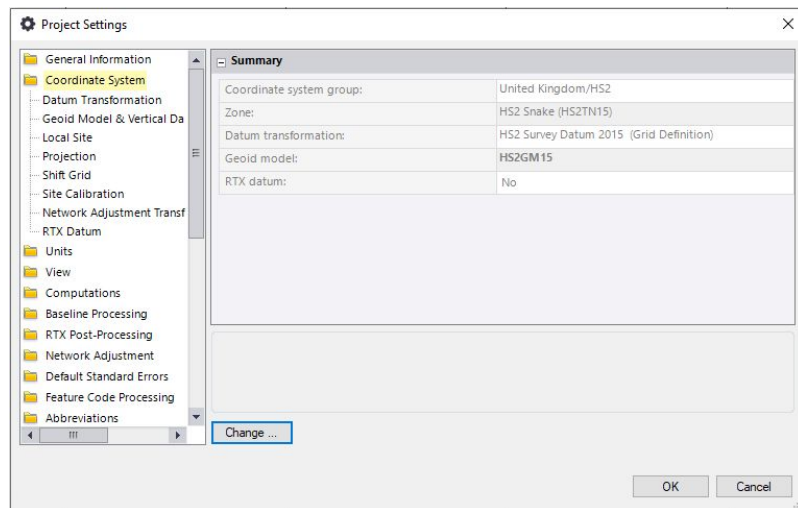


Figure 4: Defining Coordinate System in Project Settings in Trimble Business Center

## Trimble Access

There are currently two versions of Trimble Access that support the HS2 Survey Grid (Figure 5). The one to the left is the new version introduced in 2018. The one to the right is the older traditional version active up until release of TA 2018.

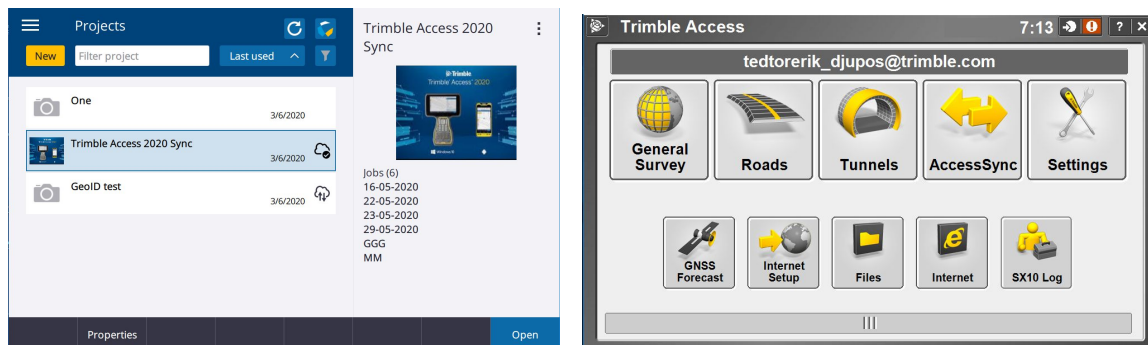


Figure 5: Newer (left) and older (right) versions of Trimble Access that support HS2 Grid

## Trimble Access 2018 and later

The new version of Trimble Access was released in September 2018 including a new UI (Figure 5, left). However the HS2 survey grid was first included into Trimble Access with version 2019.XX. The system and zone should be listed as part of the geodetic database, as depicted in Figure 6. However, similar to the nationwide OSTNXX system, you need the grid files and geoid files updated separately.

**Select coordinate system**

System: **United Kingdom/HS2**

Zone: **HS2 Snake (HS2TN02)**

Use geoid model: ☒ Yes

Use datum grid: ☒ Yes

Coordinates: **Grid**

Geoid model: [Empty dropdown]

Datum grid: [Empty dropdown]

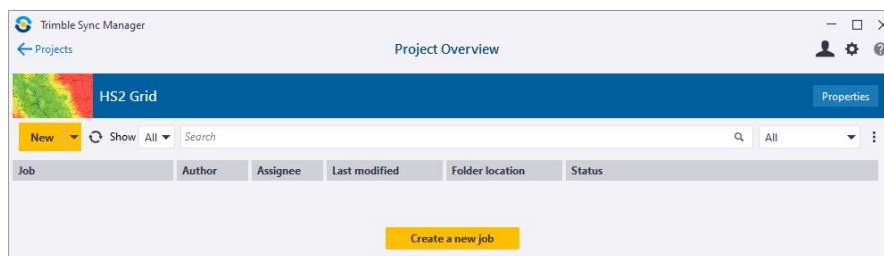
Project height: **10.000m**

*Figure 6: Selecting HS2 coordinate system in Trimble Access*

Next, you need to transfer the grid and geoid files to the data logger. In order to do that, you can either use Trimble Sync Manager or you can download from the web a copy of those files from TBC and then paste these into the data logger, which will be explained in more detail in the following sections. The easiest and most efficient way is to use the Sync Manager, especially if you have more than one logger as this will automatically send the files over for you and place them in the right place. The advantage of the aforementioned process is the fact that you can transfer the same files to multiple loggers once you have configured the required job with the appropriate files in Sync Manager.

### **Sending data to Trimble Access with Trimble Sync Manager**

To use Trimble Sync Manager, run the desktop application, log in, and create a project by clicking on *Create a new job* (Figure 7).



*Figure 7: Creating a new project in Sync Manager*

Under *Coordinate System*, press *Define* (Figure 8).

Coordinate System: **Scale-only system**

Scale: **1**

Scale factor: **1**

**Define**

*Figure 8: Defining a Coordinate System in Trimble Sync Manager*

Use the map to zoom in over the UK. Then, the available coordinate systems will be filtered and only UK related coordinate systems will be shown (Figure 9). You should now see the United Kingdom/HS2 specific systems listed.

Pick the one you need, either 15 or 02 and press *Save*.

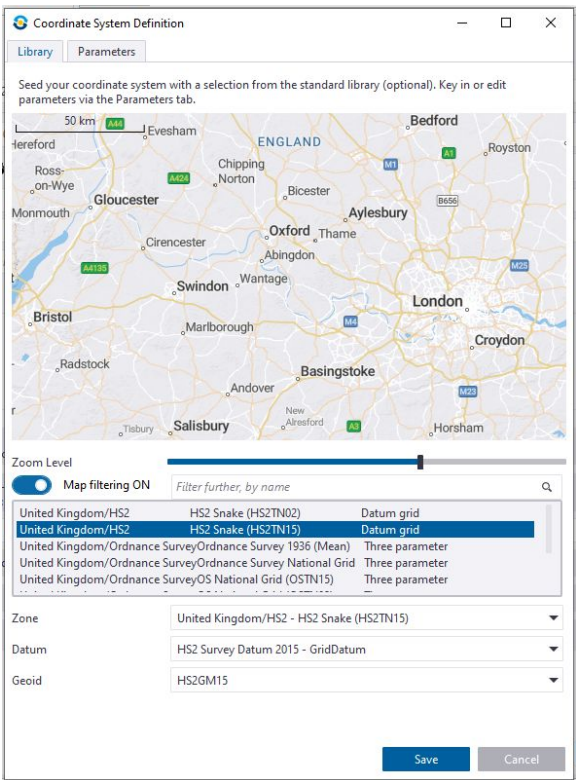


Figure 9: UK coordinate systems in Sync Manager

The correct datum grid and geoid files are copied to the project and are ready to be sent to the data loggers in the field. When this process is complete, go back to the main menu and press *Create* (Figure 10-11).

Trimble Sync Manager

Project Overview Create a Job

Project HS2 Grid

Job name 03-07-2020

Folder location

Reference number

Description

Assignees Search users and groups

Job files

Project files

hs2gm15.ggf 1.8 MB

HS2 Survey Datum 2015.cdg 3.3 MB

Units Metric  
Distance and grid: Meters

Coordinate System  
Projection: HS2 Snake (HS2TN15)  
Datum: HS2 Survey Datum 2015  
Geoid: hs2gm15

Project height

Coordinate System Summary

System	United Kingdom/HS2
Projection	HS2 Snake (HS2TN15)
Datum	HS2 Survey Datum 2015

Projection

Create Cancel

Figure 10: Creating a job in Trimble Sync Manager

Trimble Sync Manager

Projects Project Overview

HS2 Grid

New Show All Search

Job	Author	Assignee	Last modified	Folder location	Status
03-07-2020	Tor-Erik Dj...		03/07/2020 18:31	\	New

Figure 11: Project in Trimble Sync Manager

Start Trimble Access on your data logger, and connect to the sync system through the connection set-up. When connected, you should see your new job as indicated below. Press *Download* (Figure 12).

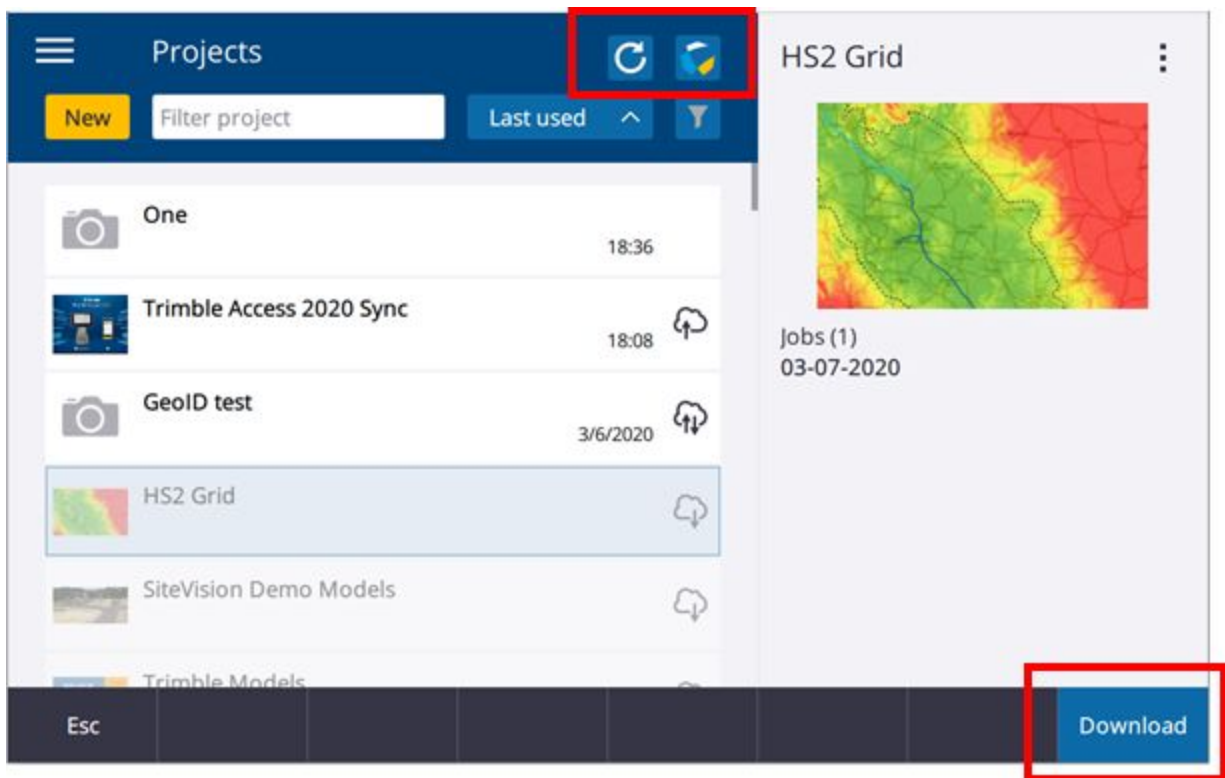


Figure 12: Syncing and downloading data in Trimble Access

When the process is complete, Trimble Access is set up properly with the appropriate HS2 coordinate files and ready to be used in the field.

### Copy data over to Trimble Access manually

It is also possible to copy the data you need to the data logger manually without using the Trimble Sync Manager. For this process, four files are required for making your system work properly in the HS2 Grid coordinate system. It is possible to obtain these files either by contacting your local reseller (KOREC or Survey Solutions Scotland) or by using TBC. The required files can be found in the following directory on your computer: C:\Program Data\Trimble\Geodata. The four files you need are the ones listed below:





 HS2 Survey Datum 2002.cdg	05/06/2020 08:00	CDG File	3,179 KB
 HS2 Survey Datum 2015.cdg	05/02/2020 15:49	CDG File	3,179 KB
 hs2gm02.ggf	05/06/2020 08:00	GGF File	1,768 KB
 hs2gm15.ggf	13/03/2020 07:09	GGF File	1,768 KB

Figure 13: HS2 grid and Geoid files

Copy these files and paste them to your System Files Folder of Trimble Access in your data logger. Then, run Trimble Access, create a new job, and choose the HS2 coordinate system from the library listed. If the process was

done correctly, you should be able to see the coordinate system as depicted in Figure 14. Press *Store* and your logger should be properly configured with the HS2 coordinate system.

Select coordinate system

System: United Kingdom/HS2

Zone: HS2 Snake (HS2TN15)

Use geoid model: ☒ Yes

Geoid model: UK HS2 Geoid 2015 (hs2gm15.ggf)

Use datum grid: ☒ Yes

Datum grid: HS2 Survey Datum 2015

Coordinates: Grid

Project height: 0.000m

Esc Key in Store

Figure 13: HS2 grid and Geoid files in Trimble Access (HS2TN15 example)

### Trimble Access 2017.24 and later

This version of Trimble Access is not supported with the Trimble Sync Manager. Hence, the only way to transfer the HS2 grid and geoid files to the data logger is by following the manual process, as described above. So in that case, you need to copy the required grid and geoid files (Figure 13) from the computer and paste them to the proper data logger directory. Trimble Access 2017.24 has the new system listed, but similarly to other traditional OS coordinate systems, you need the grid and geoid files that are not included by default. When this process is complete, the geoid and datum grid files will be available as a choice in the drop down menus (Figure 14). Next, press *Store* and your logger should be properly configured with the HS2 coordinate system.

Select coordinate system

System: United Kingdom/HS2

Zone: HS2 Snake (HS2TN15)

Use geoid model: ☒

Geoid model: hs2gm15

Use datum grid: ☒

Datum grid: HS2 Survey Datum 2015

Coordinates: Grid

Project height: 0.000m

Esc Key in Store

Figure 14: HS2 coordinate system in Trimble Access 2017.24