



SCOUTS | TERRAIN

Development Update

11/08/20

Scouts | Terrain is our brand-new digital system designed to support the delivery of our new program. It has been a part of the vision since the early conceptual days of the program. The functional requirements were created by the program team to match the program (not other systems). We knew it would take time to develop the new digital system therefore, in the interim it was decided to use Pioneer Tracker as a 'short term fix'. This provided a number of benefits for Branches as they started the rollout of the program.

Data transfer was a requirement for our new digital system. We ensured that our contract with Pioneer Tracker enabled data dumps at critical times so as much data as possible would be transferred into our new system.

It was a complex job. Our contract with Pioneer Tracker had caveats including that the new developer could not have access to their system (this meant immediate contract termination). A data dump from Pioneer Tracker happened early on and Two Bulls spent a lot of time exploring idea after idea to allow the successful transfer of data. In the end we had to be careful that all of our development time wasn't consumed by trying to find a suitable method to input data. The budget for Scouts | Terrain is finite, sadly we don't have a pot of gold.

In the early days Two Bulls also had to consider our diverse needs for the digital system, project ahead (our future needs) and thus decide on the best platform.

The data input wizard

Although not providing the best option for data transfer, the creation of the wizard has some long-term benefits for Scouts | Terrain.

- Down the track, leaders can use the wizard to on-board new Scouts to the Youth Program without having to mess around with CSV imports.
- It can be used by members who used Record Books instead of Pioneer Tracker.
- The wizard allows us to do some validation on the data being entered, to avoid breaking our model and provide a better user experience.

Scouts | Terrain structure

- Scouts | Terrain uses what is called **relational data**, stored in a **NoSQL database**.
- What does this mean?
 - **Relational data:** The pieces of information inside Scouts | Terrain are used to reference and support each other (imagine different parts of the Achievement Pathways fitting themselves together like a jigsaw to display whatever information the user wished to examine)
 - **NoSQL database:** Instead of all of these pieces of information being arranged very carefully and rigidly, in a series of highly structured data tables, the pieces of information are arranged in a flexible table that will adapt to the request of the user and the data inside the table.
- Why this approach?
 - **Scalability:** We're expecting a large number of users when we launch Scouts | Terrain, and we're expecting 'traffic' to be patchy, because of the nature of Scouting. For example, we are expecting significant usage between 5 – 10 pm most weeknights, but early mornings and during the day fewer people will be using Scouts | Terrain.
 - We are using software that scales how much it costs and is in 'use' depending on how many people are using Scouts | Terrain. It's like having a hot water system that only provides hot water when you need it, for the right amount of people.

- We have chosen to make sure the system can scale and adapt to the way that our members will use Scouts | Terrain.
- **Flexibility:** Scouts | Terrain is owned by Scouts Australia, and therefore we need to be able to make changes rapidly and dynamically, with maximum reach.
- The pieces of information that make up the Achievement Pathways ‘forms’ in the system are entirely customisable by Scouts Australia, allowing for an evolving system and Youth Program without the need for developer intervention. We also knew up front that we’d have lots of similarities, but not precisely, structured data (SIAs vs OAS stages vs Adventurous Journeys, etc.).
- If we had used a traditional database, we would have either had a very complex table structure or would have had to migrate this database every time Scouts Australia required a change to the Achievement Pathways or Scouts | Terrain, or we would have had an incredibly slow system because all the data was stored inefficiently.
- Simply – the technology & database choices we have made allow for a flexible system.

Challenges with providing database access to volunteers that may be able to support the migration of data from Pioneer Tracker to Scouts | Terrain:

- The benefits we have outlined above for making the system flexible and scalable also have a flip side, *it’s riskier to allow third parties (other developers/volunteers) to interact freely with the same database that Two Bulls are currently creating our system in.*
- To successfully make changes in Scouts | Terrain’s database, you have to write your changes in a certain way. Changes to a database have to use a unique ‘key’ so that the system trusts the changes and knows they are correct. Scouts | Terrain uses a series of keys to allow successful changes to specific parts of the single table that makes up our database.
- To make successful changes, you have to understand the key structure in Scouts | Terrain perfectly. Otherwise, Two Bulls run the risk of having their work damaged or damaging your work as a developer trying to help.
- Many databases historically have been able to put rigid ‘constraints’ on tables within their database, but this is challenging because our database comprises of only one table – it’s much harder to maintain system efficiency, scalability and flexibility, while also putting constraints on the database.
- Especially during the period of development, some of the issues that we could run into are:
 - An attempt to reference a record in another table that doesn’t exist.
 - The creation of a record that incorrectly references another record in the table.
 - The deletion or modification of part of the currently existing references, i.e. right now a **member** belongs to a **group**, and there’s a **group member** record that references both of these.
- Enabling our community of volunteers (who are developers outside of Scouting) to interact with Scouts | Terrain’s database to improve efficiency for leaders on the ground might be viable in six months’ time. It’s not viable right now, whilst there is still active development going on. This would likely result in data clashes between the efforts of Scouting volunteers & our developers.

Scouts | Terrain will be an exciting tool to grow Australian Scouting. It won’t please everyone instantly but if we take the time to learn about it and adapt how we do some things it will improve the delivery of our new program and create a more enjoyable Scouting experience for all. It is a brand new, custom built product (we looked at many off the shelf learner management systems, but they weren’t targeted at our audience). Elements will be missing at the start but bit by bit they will be added and Scouts | Terrain will mature into a dynamic part of Australian Scouting.