



Overview of the Software Processes & Timelines Required to Bring into Effect Major Changes to the GA Handicap System

GA Handicap System: Software Overview

GOLF *Link* is not a single system. GOLF *Link* consists of a series of systems. These systems all work together in order to administer handicapping in Australia for golfers, clubs, State Associations, and Golf Australia. Below is a brief summary of the systems maintained by GOLF *Link*:

- **Base Handicapping Modules** – These form the main section of GOLF *Link*'s system that manages handicapping calculations. The modules interact with the database which holds a record of every golfer's handicap and handicap history.
- **Tier 1** is an internet-based system which provides membership and competition management facilities for those golf clubs that prefer not to purchase a more advanced third party software package.
- **Tier 3** refers to companies who provide commercial software packages to golf clubs. These Providers are accredited by GA and GOLF *Link* to allow their software to interact with GOLF *Link*'s handicapping systems. There are approximately a dozen Tier 3 Providers. There are two options GOLF *Link* has available to Tier 3 Providers to enable them to access the GOLF *Link* systems. The first is quite old technology created when GOLF *Link* first began. GOLF *Link* continues to support this system for those Tier 3 Providers whose business depends on it and in turn, for the clubs who rely on those Tier 3 Providers.

The second option is based on a more modern technology called “Web Services.” Several Tier 3 Providers use this method to access GOLF *Link*.

- A complete clone of parts of the GOLF *Link* systems is also maintained to allow Tier 3 Providers to test their software before they release it to clubs.
- Another component of the GOLF *Link* suite of operations is *golflink.com.au* which is Australia's most visited golf website. This is the public website that provides golfers with access to their current handicap and handicap history.
- In addition, GOLF *Link* maintains administrative sites used by clubs, state associations and GA. There are also various data back-up systems and systems designed to manage the distribution of GOLF *Link* cards, secure hosting, and other test systems.

Software Development Best Practices – In the Context of the Handicap System

Any software updates that require significant change to the handicap regulations have an impact across all GOLF *Link* systems. Any major software update project is subject to a best-practice process called the Software Development Lifecycle. This typically consists of the following steps:

- Definition of the *Vision & Scope* to determine what the project is setting out to achieve and what solutions are required to deliver those outcomes. **This process typically takes 1 to 2 weeks.**
- Investigation and identification of all the technical requirements that are necessary in order to bring the new handicapping regulations into effect. This process results in the production of a document called a *Requirements Specification*. **Over a period which can be more than a month**, GOLF Link conducts workshops with representatives from GA and Tier 3 Providers to source and document the information needed to give those involved in the project a clear understanding of what the final outcome should achieve.
- Having determined what the solution should be, GOLF Link's engineers will spend **a few weeks** carrying out *Technical & Graphic Design* which produces the blueprints for how the project will be implemented.
- Once the requirements are defined and the solution design is clear, GOLF Link begins the actual *Software Development* to implement the changes. **This is the most time consuming phase of these projects and can take a minimum of several months.**
- In cases where the *Tier 3 Providers'* method of interacting with GOLF Link needs to change to accommodate new handicap regulations, the group of Tier 3 Providers needs a significant amount of time to modify their software through their own development processes. There are approximately a dozen Tier 3 Providers with a range of technical expertise. Many of these still rely on the older technology option to interact with GOLF Link's systems. **It would be expected that Tier 3 Providers would collectively need approximately 9-10 months to make their changes and have their software tested and re-accredited by GA and GOLF Link.**
- When all software changes are implemented, all systems (including the Tier 3 Provider software) are submitted for *System Testing*. GOLF Link operates a test suite of real world scenarios to verify results across all aspects of GOLF Link's systems. This involves testing each of the following; security, integration (ie to ensure each GOLF Link system still properly integrates with the others), regression (ie to ensure those areas that have been untouched still do what they are meant to), functionality (ie to make sure everything does what it is meant to) and loading (ie to make sure there is no disruption to service at peak times). **Including time for bug-fixing by both GOLF Link and the Tier 3 Providers, this process generally takes around 2 months.**
- Once GOLF Link's test team has signed off on the software, it is handed over to a sample group of people who are familiar with using the system at the coalface (eg club officials, State officials, GA officials) to perform *User Acceptance Testing* in various scenarios. This is for a **period of up to a month** with a view to verifying that it meets the project requirements as outlined in the original Requirements Specification.

- *Customer Service Team Training & Documentation* occurs parallel to these testing phases, to ensure GOLF Link's customer service team is fully trained on any new regulations and their implementation in GOLF Link's systems.
- *Planning and Execution of Communications* also occurs parallel to the testing phases. GA and GOLF Link jointly produce communications that are distributed to State & District Associations, Tier 3 Providers, Clubs & the golfing public to help coordinate the rollout and to educate relevant parties on handicap regulation and system changes.
- After all systems in their revised state pass the testing phases and are given authority to 'go live', it is sometimes appropriate, depending on the nature of the changes, to carry out a *Pilot Program* at a small number of clubs. The pilot will run for a sufficient period of time to experience a full cycle of golf related activities (generally 4-6 weeks). Once the pilot is completed, the software is *fully deployed* to the rest of the clubs over a 5-7 day period.
- Additional GOLF Link customer service staff are retained for about a month after launch for *Post Deployment Support*.
- At the completion of all major projects, GOLF Link carries out a *Post Implementation Review* to gather feedback used to improve the process for future projects.
- The entire process is overseen by a formal *Project Risk Management plan* to keep the project on track and to report on progress to GA.

Conclusion

The systems infrastructure maintained by GOLF Link to support the handicapping of all rounds of competition golf played in Australia each year is robust and comprehensive. It is also flexible enough to provide several essential but different methods of accessing the core handicapping system. Any significant project which changes the core handicapping system requires a coordinated effort from a range of organisations including GA, state associations, clubs and, importantly, all Tier 3 Providers, each of whom have their own complex and sophisticated software systems to change.

The Tier 3 system in particular is the method through which the bulk of Australian golf handicaps are managed. Any project requiring changes to the core handicap system that affect the Tier 3 systems will take a considerable amount of time to implement. Such a project must be responsibly-managed through software development best practices to ensure a smooth continuity of the handicapping service to Australian golf clubs and their members.