

# Cliqon Version 4 - marketing notes

## Contents

Introduction

System Requirements and Installation

About Us

Partners

Administration

Standard Features

Extended Features

System Builder

Application Builder

Templates and Themes

Modules and Plugins

Support Resources

## Welcome to Cliqon

Cliqon is a website development system and application development system, created with PHP server-side scripts plus a combination of HTML, CSS and Javascript files to power a content management and administration system. It utilises the latest programming methodologies. It allows designers and developers to create web sites and applications for customers, extremely quickly and without many of the limitations that appear prevalent in competing systems.

It has been designed to resolve four key issues in modern European web site design and development:

- dynamic database driven
- fully multi-lingual
- presentational design independent
- flexible and feature rich

Any of these items, when taken on their own, is a justification for choosing Cliqon as your preferred web site development environment or framework but when combined, they represent a compelling case for choosing Cliqon for the infrastructure and framework for your next web site.

## Open source

Cliqon Version 4 is released as Open Source software. We believe that many hands can deliver powerful outcomes. The collective power of a community of talented individuals working in concert delivers not only more ideas, but quicker development and troubleshooting when issues arise. You get full visibility into the code base, as well as all discussions about how the community develops features and addresses bugs. Because there are more eyes on it, the reliability of open source code tends to be superior as well. In fact, open source code now powers about 90% of the internet and is being rapidly adopted across major enterprises for this reason.

Although open source solutions should be thought of as more than just free software, the fact that they require no licensing fees remains a decisive advantage when looking at the total cost of deploying a solution.

## Community

Building a community around a piece of open source software can be slow, hard work and success is contingent on many things. Nevertheless, without a community, there simply is no project. Community building does not happen automatically and has to be carefully managed. All communities start with users, attracted by the software's packaging and branding, or word-of-mouth recommendations. Once they arrive, however, the challenge then is living up to these high expectations.

The paragraph above is a summarised extract from Karl Fogels's book on Producing Open Source Software. Our job as the original authors and maintainers is to provide a collaborative environment which has benefits for all contributors. This web site has the links to the web based tools that support our new community.

Please read our:

- Open source license
- Contributing guidelines and information
- Code of Conduct

## Support

In common with many open source software projects, the Authors of Cliqon have adopted a model for providing support to developers and users that involves both the community and the author Company, Webcliq.

This website provides a link to the Community Forum which will be the best place for dealing with all manner of issues including providing advice, solutions to problems, patches and release of information about what the Authors, other contributors and the Community, in general, is doing with Cliqon.

If some major activity or aspect of the project occurs we can always give it its own menu entry off the main website.

In principle we would like to think that most support can be provided free of charge. However when the Authors or Contributors are asked to undertake major activities to support a particular situation, the option to charge for the service is provided.

Cliqon is made available by the Webcliq Company and organisation and it has the facilities to charge for its services, issue invoices and receive payments via PayPal and Credit Card.

If you want to say "thank you" to us as the original Authors of the software, there is a "Buy us a beer" link on the footer of each page of the website.

## Projects

Webcliq has the Authors of Cliqon are pleased to undertake a wide range of projects related to Cliqon and beyond.

We of Webcliq describe our Company as an "internet presence provider", that is, we are happy to undertake any projects that relate to hardware or software and the internet. Webcliq is based on Mallorca, an island in the Mediterranean Sea. Mallorca is a multi-lingual and multi-cultural island and, according to the European Commission, has the widest range of different language speakers in Europe.

Webcliq has been in existence since 2002 and originally started the writing the software that we call Cliqon in 2003. It has been the basis of hundreds of projects and websites since that time. Webcliq has developed a local Business Directory, called Ojored, a local Classified Advertising program, web software for hotels, luxury boats and tourism.

What could we do for you? Use the Contact Us page to make contact with your request or email [info@webcliq.com](mailto:info@webcliq.com).

## System Requirements and Installation

Cliqon is a framework and web application development system written in PHP, available under an open-source license. It is written in an object-oriented idiom that uses the MVC pattern and TOML configuration files, aiming for flexibility and extensibility. It uses an enhanced entity-attribute-value (EAV) database model to store data.

### *Server environment*

In principle Cliqon will run on any web server that supports PHP. We have tested Cliqon on Apache 2.4 running on different types of Linux including Debian (Ubuntu, Mint etc.) and Redhat (CentOS and Mandriva etc.); also Apache on Windows. We have also tested Cliqon Microsoft Internet Information Server (IIS) version 7 and upwards. As Cliqon uses and we supply a .htaccess file, an IIS developer will need to use the URL Rewrite facility within IIS Manager and import the rules in the .htaccess file into web config. We have also successfully compiled Cliqon with Phalanger for use with the .NET Framework.

Cliqon writes to /cache, /tmp, /config and various upload directories. You will be advised by the installation routine about the status of these directories.

Cliqon requires PHP Version 5.6 upwards and works well Version 7.0 and 7.1.

Cliqon can work with any database for which PHP provides a PDO driver. However in practice we use and recommend MySQL. We have tested Cliqon with SQLite but cannot imagine it being suitable for a production environment.

For development purposes we have successfully tested Cliqon with the embedded PHP web server, with Mongoose and we have created a Docker image.

Cliqon does not use a PHP orientated dependency manager such as Composer as Cliqon has its own framework and there are only a few third party libraries that would benefit from involving Composer.

### *Client requirements*

Cliqon is a web application, that is, to implement the application, the operator uses a browser that attaches to the web server. However the word browser can be used in a broad context. It can mean a web browser such as Edge, Chrome and Firefox. Equally it can mean an App (application) that has been created from the HTML, CSS and Javascript that is used for the web client, using a conversion package such as Apache Cordova or Webdgap. We use the latter for our projects. The support files for Webdgap are also available from our download server.

Cliqon uses HTML5, CSS3, Bootstrap4 with SASS and Vue2 with jQuery3 for all aspects of the supplied administration system. Virtually every action within the Cliqon back end system is either retrieved or posted between client and server using AJAX. Every AJAX activity can use JSONP if required. This allows the Developer to design, develop and/or replicate functions for the administration system and main application as cross domain Apps via the REST API built into Cliqon. Cliqon support JSON Web Tokens (JWT) for security in this type of situation.

### *Knowledge level*

Cliqon was not designed or intended for use as a web development system by persons without a good level of understanding of how to create a traditional website from scratch. Cliqon distances itself from the type of website builder that states that "No coding is required, it works right out of the box".

An end user Customer considering Cliqon for a project will need two sorts of skillsets to build a web application with Cliqon. The Customer will need a web designer who can create a HTML template that suits the needs of the Customer. If the Customer requires facilities and functions that are not already available from the authors of Cliqon or the Cliqon Community, then a PHP programmer will be required.

## ***Installation***

When you click on the button to download a copy of Cliqon, you are downloading the latest stable production version with which you can build your own web site, web application or an application for an environment or device other than a laptop or desktop PC using a web browser.

Among the listings for modules, themes, templates and plugins, you will find several other versions of Cliqon which are demonstration and training systems. The process for installing these other versions of Cliqon will be the same as the Production version unless specific caveats and exclusions are displayed.

We cannot imagine that any professional developer would choose to download and unzip the production version of Cliqon directly to a production server. We anticipate that they will download the Production Zip file for decompression onto a local development server.

We include no limitations or restrictions to prevent a Development version being copied to a Production server on completion of the development process. We also anticipate that many Developers will be using an external Repository facility such as Github and there are no restrictions in the Cliqon code to prevent developments in that direction.

Cliqon provides an installation wizard and also supports a manual installation. Both methods for installing Cliqon are fully documented in the manual.

When you have completed the installation process, you will be in a position to log into the Administration system in order to manage the content that the Customer is making available and the design Team are providing for in the web or application design and template.

## About Cliqon

The original concept for Cliqon can be traced back to 2002. We were given a challenge to design, develop and operate a multi-lingual internet based Business Directory for the island of Mallorca. As part of the marketing plan, we realised that businesses that we approached related to advertising in the directory, might also be interested in a web site. No one deliberately sets out to write a software program from scratch if there is something already on the market. However in 2002, no web site builder or content management system that was properly multi-lingual existed. Thus the web software that we know as Cliqon was born.

We at Webcliq have been writing web sites and applications for customers since 2003. The first version of Cliqon was written in Microsoft ASP. We converted to PHP in 2007 with the launch of Cliqon Version 2. This was also the date when the brand name Cliqon and various derivatives made an appearance. The Webcliq business suffered badly during the economic crisis in Europe at the end of the first decade of the century. It is now recovering which gives us the time and the opportunity to write a new version of Cliqon and launch that as an open source software product.

Publishing and promoting Cliqon as an open source software product means creating a Community and sharing control of the future and the development of Cliqon with that Community.

Cliqon software is not perfect but as Karl Fogel remarked, if you wait for a perfect product the launch will never happen. We have worked hard to provide the Community all the necessary tools to start work. The rest of the story is yours.

## Partners

The Cliqon audience is a growing community of web professionals and customers who are looking for development, hosting and professional support.

Official Cliqon partners get a prominent link in the Partner Directory and a detailed profile page. The profile page displays a business description, optional map, showcase of previous projects and imagery. A partner's profile page will be listed on this website forever, so you can refer to it from your website and get recognition as a platform expert.

If you are a developer and can create new templates, themes for existing templates, new applications, modules and plugins, for Cliqon you can share your products on the software directory.

The core Cliqon framework must remain open-source and freely available to download. It contains code from other developers who have made their code open-source and therefore we see no necessity, opportunity or requirement to monetise the Cliqon core offering. However the opportunity exists for those who wish to take advantage, to monetise the additional software that can be downloaded from the software directory.

All the information that you will require to contribute to Cliqon or leverage it for your own purposes are included in the Cliqon Documentation.

We have added the facility to require a donation via PayPal as a precursor to the download process. We can also support the linking of a paid module or plugin to an individual domain. This is explained in more detail in the manual.

We can assist regular and active contributors with their own support forums, categories on the knowledge base, download areas and content delivery network subfolders.

To sign into your Partner account use the Administration link in the Footer.

## Administration

The Cliqon administration facilities are built in exactly the same way and using the same tools that we provide for designing a website. The hierarchy and content of the admin subdirectory is functionally equivalent to the views subdirectory. The templates are built using the common template engine, common PHP classes, Javascript tools and frameworks provided for a frontend website.

### Menu

Cliqon administration uses the popular CoreUI administrative template, which is in turn based upon the Beta version of Bootstrap 4. The CoreUI template provides four menu opportunities – one on each side of the screen. All the menus and footer are programmable. The basic production version of Cliqon uses two of the menus plus a couple of entries in the footer. Access to a menu and any of the menu items is managed through the ACL system so that entries are hidden from view for certain groups of users.

### Dashboard

The admin system provides an operator configurable Dashboard, which allows the creation and inclusion of widgets, such as charts and tables.

### Data display and entry

The primary purpose for the administration system is to display the data held in all the Collections of the system and provide the means to maintain that data. As a general rule of thumb we divide data into two types – data that is part of the structure of the system, including menus, configuration files, the data dictionary and language strings for the administrative parts of the system. The ability to manage the content of these data collections will be restricted to users who have administrative privileges. The second type of data are collections that are specific to that web site or application. One might call this user data. It will include news articles, documents, useful links, calendar events, gallery images and main web site sections, blocks components and strings. Access to the user data collections will also be controlled at a fine level, so that users who have managerial and operational access facilities can manage this data.

If the Cliqon system is used as an application, such as a business directory, auction system or catalogue and ecommerce system, the data that is a fundamental part of the application will be classified as user data.

We have designed different mechanisms for displaying different types of data and managing that data. We provide, as standard, grids, tables, lists, cards and trees. Different display mechanisms suit different types of data. As an example, menus are displayed in tree structures whilst language strings are displayed on grids. Some types of data require very specific display types, such as a calendar for diary events and a gallery for images.

The administrative system supports three types of data entry display or forms. Forms can be displayed in a column alongside the data, in popup dialogues and full page.

We provide a limited range of reports, for the production system. However a fully operation application created with Cliqon will probably require an increased number and range of management reports. A Report Designer is provided to help with the generation of these reports.

### Help and Documentation

We have created our own stand-alone documentation system which developers may download and use for their own purposes. Menu entries in the administration system provide access to the Cliqon production system documentation and potentially to the documentation for your application.



In addition to a wiki style documentation system, we also provide a simple on-line popup help system for both the administration system and that can be created and used for a main web site or application.

## *Utilities*

One way to look at the utilities facilities is to think of them as the application to manage and augment the Cliqon base application. We provide facilities to manage the API security keys to support a OAuth method of user access control to the system. We provide facilities to export to and import from CSV files. We provide facilities to view and modify the data-dictionary – the data collections within the generic database tables. We provide a mechanism to create and display a site map. We provide facilities to delete and clear down the contents of the cache and also log files. We provide facilities to create new language, manage existing languages and delete languages from the system. We offer various facilities to convert TOML files JSON arrays or import TOML formatted arrays of data into the system. We provide a generic database records editor which is a quick way to add new records to the system or carry out minor modifications to the system. Finally we have the facility to compare, download and update the core Cliqon source programs.

## Standard Features

The primary purpose for Cliqon is the development of multi-lingual presentational websites that are independent of any pre-provided themes or templates, the management of the content for such a website and the development of administrative applications that may or may not require a frontend website.

## Installation

When you download a production version of Cliqon you will create and check a proposed directory structure, have the opportunity to use an installation wizard to assist in the setup of the new website and the import the essential structural data. The installation wizard is only an aid and comprehensive instructions are provided in the document to assist with the manual installation of a Cliqon system. In addition there is no fundamental reason why an existing Cliqon website cannot be cloned to a new instance. This is particularly important as it allows the three versions of an application website to exist concurrently (development, training and production), using the same database if required.

## MVC Framework

The use of the wording Model – View – Controller (or its acronym MVC) is a much interpreted definition. We describe Cliqon as a MVC framework as it has Models for the data, Controllers to start the processes and the possibility for several Views subdirectories. We use the plural of subdirectory because Cliqon needs to support more than one Views subdirectory because the Admin system is a View and has its own heirarchy of subdirecties such as CSS, Javascript, Components and Partials.

## Folder structure

We hope that the heirarchical subdirectory system that we have chosen for Cliqon is intuitive and straightforward. The installation wizard checks that the folder structure is correct and warns of any missing subdirecties or incorrect folder permissions.

## Routing - Controllers

The use of .htaccess or web.config files is not essential to the operation of the system but are advised for reasons of security. The appendices contain notes about installing Cliqon on webserver with different Control Panels. A good example is CentOS Webpanel which needs a particular setup of folders and permissions and our installtion notes are provided for that purpose.

Cliqon Framework supports a RegEx Router. The Routes are configured as a TOML array. The Router interrogates the routes configuration and hands off serving the URL to a suitable Controller as configured in the Routes file. The Router and Controller can differentiate between different types of Request protocol – GET, GET\_XHR (via AJAX), POST and POST\_XHR. Usin PUT and DELETE are optional.

In turn the Controller invokes the appropriate Class and Method to handle the requirement. The Class and Method called could be a standard Cliqon facility or a Module or Plugin that you have written for yourselves. As long as you clone certain conventions as to how Cliqon Routing works, almost anything is possible.

## Configuration

You will be familiar with the software design paradigm called “convention over configuration”. Our configuration files follow that convention but as we cannot call these files or database records anything but “configuration” files, we will use a different term for the heirachy and say “cascading”. You will be used to the term Cascade with reference to Style Sheets. All the Configuration values in Cliqon Cascade in a similar manner.

As an example, it takes three sets of configuration values to create a grid displaying language strings – the first set we call a service, thus a grid is a service, the second is a table that corresponds to a table in the database and finally a model or collection which configures a type of record, in this case a string.

Each of these configuration containers with TOML formatted values can exist in three places (the third is automatic). The container could exist as a file or it could exist as a database record. Once in existence and required it will automatically create a cached version as a file, which will be used until one or other of the containers is changed, upon which event, the cached version will be refreshed.

The idea has been developed within Cliqon for many years and versions but has come to maturity with Version 4 and is now used throughout the system.

## ***Generating HTML or JSON via API***

The concept and process of generating content and data as a JSON stream instead of returning HTML to a browser was completed with version 4. At this moment in time Cliqon 4 contains the facilities support both mechanisms for publishing content – rendering a template containing HTML or returning a JSON stream (local browser or remote device [JSONP]). As and when we get to a Version 5 of Cliqon all mechanisms to render HTML will be removed.

We consider that the mixed approach is the correct approach as not every developer has had time to make the conversion. At this time we support five mechanisms – publish a page of HTML, generated from a page template; render a component of HTML generated from a component template; add a JSON stream of data to either of these which is consumed in the correct place (before end of body) by the page template; render a stream of JSON that can be consumed as a page template by the client and finally render a stream of JSON data that can be rendered as a component.

## ***Authorisation and security - User sessions and JWT***

Following on from the above section, we needed to augment our facilities for statement management and security. We have always supported database driven sessions and Cookies. Thus UserNames, IDs' and Access Level Controls have always been available for the purposes of managing User, Operator and Administrative access, at a fine level – that is using Read, Write and Delete controls, across menuitem, service, table, collection and field.

This level of security is enhanced by the provision of support for JSON Web Tokens (JWT) for all JSON local and remote communications. The raw facilities to support OAUTH are provided but the final development of this must be part of an end-user application.

## ***Multiple languages***

When we first developed the forerunner to the packaged Cliqon, which is now nearly fifteen years ago, the fact that we built into our framework, support for multiple languages was completely new and almost unique. Over the years we have tested our ideas on countless numbers of websites. For a long time, different language versions of a thing, such as a label string or document, would be held in different records. For some time now, we have kept alternate language versions within one record as JSON.

Thus one would expect to find a series of document fields where the system expects there to be a subarray structure within the JSON with language code and language string pairs. The following snippet is a good example: `{"d_text":{"en":"Text", "es":"Texto"}}`. Whilst there is no limit to the number of languages that

could be installed and maintained, a practical limit of five is proposed. Once the language is in place it is easy to manage. Adding and deleting languages is automated but takes a while to achieve.

### ***Templates - Razr or Javascript***

As explained previously, Cliqon supports the use of template engine to render HTML. As Cliqon will gradually be moving away from all types of server side templating it makes no sense to provide any form of incredibly smart template engine such as Smarty or Twig. In any event, we have found the Razr template engine (which was originally developed by the Pagekit project team ) to be entirely adequate for Cliqon. It takes its idea from Razor templates within Microsoft.

Details and documentation for the Razr template language are provided in the manual.

Some years ago, we did our forward looking research and chose the Vue Javascript reactive framework for the administration module in Cliqon, as it worked well with both Bootstrap and jQuery which continue as essential aspects of the Cliqon project. Using Vue with PHP is like looking at two sides of grid or ladder. We can choose to connect the two components at almost any rung on the ladder – low or high. We can render a template with PHP and let Vue animate it with a data stream. Equally we can render just a JSON stream and let Vue create the template and then animate it. Both situations exist in Cliqon administration at this time.

As we have said previously, in the longer term we believe that the Server will only generate JSON and the client code will be responsible for all rendering.

### ***Frameworks***

We chose Vue for the backend and we use Vue for our own frontend and application projects. As developers, there is no reason why you should choose to do the same. The way the system is designed allows the Views and Mobile subdirectories containing “views” to use the Framework components that are appropriate for you, as the developer. If you want to use Ember, React or Angular this is perfectly feasible.

### ***Process for building websites***

The basic production version of Cliqon visualises that a website will be created in a particular way and order. However we do believe, from experience, that this is the way that experienced web developers and agencies build websites for clients.

The process starts by installing a production version of Cliqon. Then you can create or select and download a free or paid HTML website template. Full stack developers will not have a problem with the traditional and artificial differences between back-end developers and front-end designers, the latter may!

If the developer or agency has their own in house creative artists, the result you will be looking for is an HTML template, complete with any necessary javascript, images, fonts etc. If the developer has the responsibility for sourcing or producing the template, then the package sought is a straightforward package of HTML. Finally, we offer one suggestion and one aide for the design process. Any of the recent crop of website designers, such as Pingendo, do an excellent job in allowing the developer to produce the required HTML. The editor within Pingendo would allow the introduction of the Cliqon template variables, components and content. Cliqon 4 now offers, as a built in option, GrapesJS javascript layout constructor which also creates the necessary HTML site layout.

As a general rule, the HTML of the template will be copied into the Views subdirectory and the process of animating the template can begin.

## **Methods**

Over the past 10 years that Cliqon has existed, we have developed a wide variety of core methods that you can use in the template. Although it is only an arbitrary definition, we think of a method call as something that returns a simple string of content, usually in the current language, which contains no formatting or element of presentation. One can imagine that a core method is used to access the database for a collection value and maybe format that value as might be necessary for a date or currency.

The list of static methods that can be used in that way is provided in the documentation. It should be obvious that if we do not provide a core method, you can create one yourself as a Developer.

## **Widget**

Over the same timescale of development, we have also developed a number of widgets or components that render a collection of variables and may contain formatting. As a general rule the components will be specific to a modern CSS framework such as Bootstrap or Material Design. Again the list of components is documented and includes complex methods such as menus, lists, tables and trees. We believe that this is an area where Contributors and Partners may make the biggest impact. We ourselves will be developing themes, templates and components as plugins that we will make available by our Cliqon website. Some of these plugins will require administrative facilities and wizards.

## Extended Features

As we have explained previously, Cliqon has a long history and has been used to develop websites and applications for clients for nearly 15 years. In that time and for earlier versions of Cliqon we have developed additional modules and applications. Below is a wish list of applications that we propose to develop ourselves or cooperate very closely with Partners to ensure that the list is developed. The list is in some sort of order of priority.

### *Content management system clone*

Any Developer who imagined that a basic production version of Cliqon could be used to replace a CMS, such as Wordpress, would be dissatisfied with the facilities offered by Cliqon. By default, Cliqon is designed to give Developers the degree of flexibility that Wordpress lacks. The fact that Cliqon can be used to animate any HTML template, whatever its source and without any limitations on what can be achieved by the Developer for the Designer. However some Developers value the ability to generate a CMS style website from a pre-existing and pre-programmed theme by page wizards that are made available through a simplified administration system. Cliqon is not such a system but can be programmed to be one. We would like to make it available during the Spring of 2018.

### *Shopping and Order processing*

An important and integral part of earlier versions of Cliqon was an eCommerce system. We have known for a very long time that the ideal solution for an on-line shopping system is to link an existing Accounting system, used in the office of the final user client, with an on-line catalogue, cart and order processing system developed in Cliqon. For many years Cliqon integrated with the PC server based Omni Accounting system. However the complete lack of joint marketing effort made our involvement with Omni Accounts somewhat one sided. Unfortunately we have been unable to find a well developed, modern and stable web based accounting system with whom to partner and we have come to the conclusion we shall have to write our own.

### *Business Directory*

The earliest application created with Cliqon was a local business directory. This will be on the list to be updated to Cliqon Version 4.

### *Classified Advertising*

The next application created to be updated will be the Classified Advertising application. This was originally designed as an enhancement to the Business Directory.

### *Jobs Board*

The Jobs Board and Recruitment management software that we developed was primarily a specific development of Classified Advertising.

### *Auction System*

Another earlier application that was a development of the Classified Advertising was an Auction House System where the adverts became items for sale in an Auction.

### *Accounting System*

Finally and as we explained earlier, it will be necessary to add a straightforward book-keeping and accounting application to several of the applications mentioned above.

## System Builder

One of the primary purposes for Cliqon is that with it, you can build websites. On the internet you can find, research and download literally hundreds of software systems (most but not all, web based) that make this claim. We hope to provide you with the information about how Cliqon is different to most other systems and when or why you should use Cliqon as opposed to its competitors.

Cliqon is not a simple content management system such as Wordpress, with countless pre-programmed themes and plugins. Cliqon is not a Wordpress clone. However, you can and would use Cliqon to write a Wordpress system. Or to put it another way, you build systems with Cliqon.

## Versatile

Cliqon is designed to be extensible. With earlier versions of Cliqon, we built a business directory, an auction house system, various ecommerce and on-line shopping systems, a classified advertising system, a simple cash-book and accounting system, project management system and a system for promoting golf courses. In that sense, you could describe Cliqon as a Framework such as CakePHP or Codeigniter. It is certainly correct that Cliqon is a framework and contains its own components for routing, database abstraction, templating, html generation, authorisation and image manipulation. Also Cliqon uses a Model – View – Controller topology and heirarchy.

Cliqon is not just a Framework, as it has its own administration modules to handle any structured content. Some of the administration facilities are static, that is you would want to modify them, such Import and Export data. Some of the administration facilities are dynamic, that is they were designed to be modified and enhanced in order to meet the needs of different types of content management. You can modify and enhance all the data entry forms and output reports and display facilities as needed.

In general Cliqon treats data as pages of information. Each page has a header so that it may be placed in a group, category or heirarchical order but the main content of the page is in JSON format and supports multiple language content as necessary. Multi-media images and other source objects are stored in original digital format in the JSON where ever possible, as is the content of library files and electronic documents. This version of Cliqon uses PDO for data handling so it is still reliant on a SQL Server as opposed to a NoSQL server. However the way that Cliqon handles data in generic tables, grouped into collections, is reminiscent of NoSQL systems.

## Version control

Cliqon provides and supports version control for all documents. As documents are modified, earlier versions are archived and maybe restored. Cliqon provides and supports access control by users at a variety of different levels including menus, forms and their formfields, reports, processes, collections and records. Control is managed for read, write and delete activities.

## Templating

Cliqon provides a straightforward server based templating system which mimics the popular Razor templating system in ASP.NET. Equally, Cliqon can generate HTML using a server based HTML generator class or send the instructions as a JSON array so that the client Javascript can generate the HTML. As a direct result of the ability of the Cliqon server framework to return all data and HTML as a JSON array to the web client, all the different possibilities for client devices are supported, including HTTP browsers such as Chrome, Firefox and Edge plus headless browsers, tablets, smartphones and in practice any smart device that can consume JSON. To achieve this comprehensive set of possibilities Cliqon supports and uses two

sorts of routing controller – one that returns a full page of HTML or a snippet of HTML, with or without an appropriate HTML Header – and one that returns JSON utilising either Session security or JSON web tokens.

## ***Support for webserver and other servers***

It is assumed that Cliqon will be mounted on some sort of webserver such as Apache, Nginx or IIS. However it can hand off certain tasks to Node and to Go. Cliqon does use URL rewriting but examples of .htaccess and web.config files and Nginx configurations are provided.

## ***Key components***

We started to use jQuery within earlier versions of Cliqon, at least ten years ago. Therefore with the introduction of the reactive javascript frameworks, such as Backbone and Angular, at first we did consider moving away completely from jQuery. That complete re-factoring was avoided by the launch and dramatic growth of Vue.

Therefore the key Javascript components in use for Cliqon Administration are Bootstrap, jQuery and Vue. With these frameworks, we achieve all that we need to achieve. When we are using Cliqon for our own client website projects we use the same tools. However the website and the administration are completely separated, so if you wish to use a different set of components for your front end website, you are able to do so.

With a Cliqon web development toolset at your command, you will be able to concentrate on the important and remunerative task of developing a website according to any web design that you choose – ranging from downloaded free template to complete bespoke design or even converting an existing template from pre-existing web such as a Wordpress site. You will be able to modify or enhance the administration system to provide just the set of tools needed for the Client. You can manage and include your own manual and on-line help system. In short, you can do absolutely anything you want to do with Cliqon including producing the kitchen sink.

Finally, if as part of these activities, you produce themes, templates modules and plugins, we provide you the opportunity to share these with other developers on a free or paid basis.



## Application Builder

In the previous section, we talked about one primary purpose of Cliqon is the production of web sites in all their different flavours. Another primary purpose is the development of web applications. As a general rule we use the term “system builder” to describe the action of developing a web site for viewing and consumption by the general public. Whereas, we use the term “application builder” to describe the action of developing the existing administration to system to encompass an application with a limited or controlled user or operator base such as a company accounting system.

Clearly the purposes can overlap. For example Cliqon can be used for an on-line shopping system with a backend that carries out all the sales and purchase order processing.

We have already explained that Cliqon includes a comprehensive access and version control system, which are extremely important to an application. However there are many other facilities within Cliqon that make it a great tool for developing applications.

## Database

For many years, Cliqon has used a database pattern which can loosely be described as a document database. The idea behind it was inherited from Sharepoint and therefore it predates the modern NoSQL databases such as Mongo and Couch by some years. At the same time, we continue to believe that a traditional SQL client-server database such as MySQL or Postgres is the most reliable, inexpensive and extensible solution for storing data. Therefore the database pattern that we have used for this and the last version of Cliqon is a hybrid pattern which we believe takes the best attributes of the Document pattern but expresses them within the confines of a traditional SQL Server.

The database tables in Cliqon are defined on the basis of what type of information is stored in them and not the specific nature of the information. However we are not so bound to our own rules that when a logical and practical reason exists for having a table specific to a particular purpose, then we can and do create one. The production version of Cliqon is primarily a content management system. A system containing content that is common to all Cliqon systems (primarily involving the administration) and content that will be unique to your system or your type of system. Therefore we have just two primary tables – dbcollection and dbitem. The two tables are almost identical (dbitem supports archival version control which dbcollection does not need). Both have some columns holding structured content, that can be indexed, such as group, category, type, reference, order and parent. Both have one textual field which will hold absolutely any amount of information that you can conceive in key - value pairs in JSON (or TOML) format. This format is so flexible that one can store the content of image files and documents in their raw digitised form rather than storing them as files on the system with references to those files in the database.

As we implied we are not absolutely wedded to document storage. We do provide separate tables for Users, Logs and Session Management. When Cliqon is used to support applications that are more transaction based such as our auction or order processing and stock control, we do add a transactions table, known as dbtransaction.

Therefore we can no longer describe a database table by what it contains, such as the news, blog or menu table. We have to coin another word and for these, for that we use the concept of a Collection. Thus a Collection will consist of a number of the structural or predefined columns together with a variable number of contextual or informational fields which are frequently multi-lingual. In addition Cliqon uses the Redbean PHP ORM which taken together with our Document pattern, makes managing the data dictionary or schema a relatively trivial matter.

## Modules

Cliqon has been designed to allow, permit and encourage the enhancement of existing modules, classes and methods plus the introduction new ones. We have tried to satisfy two competing objectives into the heirarchy of the sub folders and files of a Cliqon system. On the one hand we wish to provide a system where the addition of new facilities is seamless but at the same time, is separated from the existing core facilities. The problem is that we anticipate that we will upgrade core modules from time to time and our Contributors will introduce new classes and methods that on any objective viewpoint will be considered essential and core improvements to the system.

We do not suggest that we have achieved a perfect solution but we do hope that our design strategy will go sufficiently far to provide for most situations. Cliqon is designed to be used in a situation beyond the need and provision of a simple content management system and therefore will be used by serious developers who find the provision of a simple plugin system too constraining.

We anticipate that our developers will be experienced PHP and Javascript developers who appreciate the thousands of hours that have gone into the design and development and will be generally satisfied with what we have provided as a basis for their development.

Such Developers will be used to augment the source code of a web software program – primarily the PHP and Javascript. We hope and expect that they will make their alterations and additions within the heirarchy of the existing system. We will then provide a generic site update facilities that arranges to update only a certain list of files from the central repository. When a Version of Cliqon is declared as Stable, releases for this version will be extensively documented and change managed. Site Update provides the facility to “Diff” the update against current to see differences.

We see little or no requirement to update the data dictionary for the foreseeable future. We hope that we are not required to update the administrative or backend system again for some years. If you need to make changes as part of an Application build, we will do what we can to assist issues of compatibility.

We will be doing everything we can to provide adequate documentation for the system. The process of creating cook books and recipes will be on-going. The source of the documentation will be made available so that you can add your own pages.

## Client server communication

To maintain state and security between client and server has been going through a quiet revolution. Traditionally, the server scripts have generated and sent a string of HTML. For a variety of reasons, this has changed. The primary reason being that the clients that initiated the communications have changed from being just desktops PCs running a web browser, to a wide variety of devices, initiating the communications such as smartphones, tablets and other internet enabled devices. In addition, only some of these devices will use a web browser to consume the communication.

For a long time, servers and web servers could send data in many forms using different protocols. For example, the stream could be formatted as XML or JSON. Cliqon has chosen to follow the general trend and enable, implement and move towards JSON.

At this moment the transition is not not complete, about 10% or traffic is sent as HTML and this is completely confined to the administration area. All communications with the Client are or can by a JSON stream. The Developer will have the opportunity to encapsulate HTML within the JSON or just send JSON data. Then the software running on the client device can be anything – a traditional web browser, an

Android or MacOS application or something completely different. To support this change, we offer both traditional Session management and JSON web tokens.

## Themes and Templates

In many situations and websites on the internet the use of the words “themes” and “templates” are interchangeable. On the Cliqon website we make a specific distinction between the two. We are pleased to promote both types of package for our contributors, partners and for ourselves.

### *Theme*

A Theme promoted on this website may require a payment to download or be free of charge. It will utilise a popular CSS stylesheet such as Bootstrap or Material Design, it will contain Javascript libraries that will be used to animate aspects of the theme. It will contain a series of HTML pages from which you will be able to select a series of pages that will satisfy the needs of your site specification or story board. We anticipate that the Theme will consist of pages of HTML, files of Javascript and CSS, plus images etc.

### *Template*

A Template promoted on this website may require a payment to download or be free of charge. It will contain everything in the section above about a Theme but go several steps further. The fixed text of the static HTML pages and menus etc. will have been replaced by RAZR code calls to variables and widgets. In addition, the Template will supply the extra data, classes and methods to provide a head start on developing a Cliqon driven web-site.

### *Partner and Contributor services*

See the page on what we are doing for partners and contributors which is accessible from the link on the footer.

## Modules and Plugins

We believe that the main distinguishing feature between a Module and a Plugin, is one of size and complexity. However there may be some more subtle differences that will develop in our listings over time.

Both Modules and Plugins are packages of source code. As with Themes and Templates they may attract a charge to download or be free. The code may be straightforward source code or it may be obfuscated. We do not have any plans at this time to support facilities such as Source Code Guardian®.

The introduction of a third party Module or Plugin is not monitored or controlled as it with some systems. We recommend that you follow the author's instructions closely to install the additional code. Subsequently, the source code files may be included in the Site Update files list.

## *Partner and Contributor services*

See the page on what we are doing for partners and contributors which is accessible from the link on the footer.

## Support facilities

Managing an adequate support system for an Open Source project can be very demanding. We encourage you to use the right vehicle to obtain support.

### Documentation

We developed our own on-line manual and access to the website on which the Manual is hosted . Cliq.help – is provided from links on a production version Cliqon and this website, in various places. The Manual for Cliqon is written as a Document in Open Document Format. This document may be downloaded from the Knowledgebase, in order that you can make modifications to you to satisfy the needs of your end user clients and possibly to brand it for your own use.

This document has also been converted to PDF format and this is also available from the Knowledgebase. The content of the sections of the manual document are then copied to the on-line manual. It was for this reason, that we were unable and unwilling to use a traditional WiKi such as Dokuwiki as this only utilises Markdown, whilst we want to maintain the content of the Manual in a much wider format.

As you will appreciate, the Manual is and always will be, a work in progress. You can expect regular alterations and additions to it. The more important additions will be notified in the Newsfeed.

### Knowledgebase

Many Developers are familiar with the concept of Stackoverflow. It is a great service and in the future perhaps Cliqon will have the level of exposure that it will feature on Stackoverflow. In any event we have always desired to be self-sufficient and to achieve that end, we have published several excellent support facilities. The first of these is a knowledgebase and frequently asked questions facility at <http://faqs.cliqon.com>. This operates like a Stackoverflow system. It requires Registration to answer a question but not to ask one. We provide this software as a service to our Community. It can be used for questions about Cliqon and third party contributions. Experience of other systems suggests that many of the questions will be about aspects of operating all different types of internet software, of which Cliqon will only be a part.

It is important to note that we will not respond to general questions which we know or deem to not relate to Cliqon in the Forum. Furthermore, we will not respond to and we will delete issues from, the Issues and Bugs system which are not faults, issues and bugs in the production version of Cliqon written and published by Webcliq.

This is the reason that we have published a Question and Answer Knowledgebase so that there is no division between questions that are on and off target.

### Forum

If you have a good look at the how the Knowledgebase software works, you will observe that it is not really moderated, nor does it have the facility to manage uploading of files as attachments or multi-threaded conversations. We provide the Forum for that purpose. We will use the Forum ourselves to manage activities related to the publishing of new updates etc. We will also given important Partners and Contributors their own areas on the Forum.

### Issues and Bugs

An issue or bug is when the Cliqon software does not do what is supposed to do. Questions, feature requests and tasks are not bugs or issues. We are providing an Issues system that will log faults and bugs on

the system. We are trying out a system called Caravela. We need a system that supports not only the base system but third party plugins and modules. A system such as Issues within Github does not do that.

Please note that we reserve the right to redirect any requests that are not really bugs in Cliqon to a more appropriate platform.

### ***Newsfeed***

News items will be collated from all parts of the concern and these will entered onto the newsfeed. You can subscribe to receive the Newsletter from the Subscribe form on the main Cliqon home page. Look for the RSS newsfeed icon on the home page. Click on that icon and you will display the current items in the newsfeed. On the popup newsfeed is another icon which will give you the link to the newsfeed that you can copy into other programs.

### ***Social Networking***

We have setup accounts with Twitter, Facebook and Instagram.