

TMS WEB Core  
Web Application Development with Delphi  
2nd Edition  
*Foreword by Bruno Fierens, TMS Software*

Dr. Holger Flick

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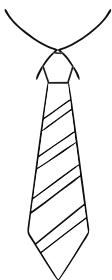
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*For my wife Kristin – I ❤ u.*

'You either get better, or you don't progress.'  
In memory of Lance Reddick.





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# Preface



At the time Dr. Holger Flick was writing the very first TMS WEB Core book, the TMS WEB Core product was at version *v1.4*. The first edition of the book helped numerous Delphi developers to make the first steps into web client application development with Object Pascal from the Delphi IDE. The inputs and feedback from Holger as well as so many developers using TMS WEB Core, helped shape the product to what it is today with the *v2.1* release just behind us. A lot has happened between TMS WEB Core *v1.4* and the release *v2.1*. In numerous ways, the product evolved, among which:

- Delphi language compatibility substantially increased via the *pas2js* transpiler and its RTL
- TMS WEB Core framework was significantly extended with new components and new features
- Support for easier asynchronous programming via promises
- More browser APIs and DOM access was exposed via the framework via easy-to-use Object Pascal classes
- New Delphi IDE integrations targeted at increasing productivity, especially in the area of using HTML templates or JavaScript libraries
- A new framework Miletus was added to offer lightweight cross-platform desktop application development
- TMS WEB Core can now also be used from the free & cross-platform Visual Studio Code IDE

So many improvements in every area of the product cried for a new edition of the book. You now hold in your hands the result of this enormous work from Dr. Holger Flick. No part of TMS WEB Core is left uncovered in this new book and its sheer size immediately tells it. And that is not all. The book also goes further on several topics related to web development in general. There is a new chapter on deployment and introduces how you can use Docker in connection with TMS WEB Core web apps for easy deployment.

I'm truly happy, thankful and delighted there is now a new and up-to-date resource to take the Delphi developer by the hand and introduce the many aspects of web client application development step by step by means of a book. I still strongly believe in the concept and added value of a book written by a knowledgeable author.

It allows to bring content gradually in well thought out chapters so its readers can really understand and learn the whole process of creating web client applications with Object Pascal. It is a completely different process from just starting to work with a project and jump almost randomly from one online component reference page to another. With the book from Holger, you, the reader gets the full story, the ideas behind it and the why and how of development techniques possible with TMS WEB Core. This way, I'm sure you'll be productive quicker, write more solid code easier and create quality web client apps faster.

It is my hope and wish that the new TMS WEB Core book will help making the learning curve for TMS WEB Core less steep and enjoyable at the same time. I hope it will spin off a new and large group of Delphi developers no longer afraid to choose a web development project and take advantage of the many benefits it has: no-deploy, cross-platform, one code-base, no software update hassles, usable from almost any device on the planet, reusing easy-to-get existing HTML templates to offer beautiful UIs and much more...

Finally, I want to thank all people involved in the TMS WEB Core project:

- **Mattias Gaertner & Michael Van Canneyt** responsible for the pas2js transpiler & RTL
- **Roman Kassebaum** for Delphi IDE integration
- **José Leon Serna** for Visual Studio Code integration
- **Pieter Scheldeman** for TMS WEB Core support for the entire TMS FNC component suite
- **Tünde Keller & Bart Holvoet** for several TMS WEB Core framework components
- **Wagner Landgraf** for creating the XData backend integration
- **Holger Flick** for QA, brainstorms, documentation, videos, consulting, and also this book

This book is a cherry on the cake for all the hard work that went into TMS WEB Core *v2.1*. It is at the same time an inspiring milestone to continue the road to many more versions!

A handwritten signature in black ink that reads "Bruno Fierens". The signature is fluid and cursive, with the first name "Bruno" on the left and the last name "Fierens" on the right, connected by a single stroke.

Wevelgem, Belgium  
April 2023

## It's been a loooong time!



A while ago, I looked at pictures of me presenting in front of Delphi developers. Due to recent world events, the last presentation was at the end of November 2019 in Düsseldorf, Germany. If you compare it to recent pictures of me, my hairline and simple arithmetic will yield that it has been a long time; almost 4 years ago when you read this!

Writing this, TMS and I are in the process of planning an in-person event again. Finally! We will be able to show the magic that goes on in the TMS world every single day.

Before reading this book, you will certainly browse

the content first. You will notice a lot of passages that are marked with the *New* icon you see here. All content that has been added or changed with regard to the first edition of this book has been highlighted that way. This makes it accessible for existing readers to glimpse at the new content.



Believe me, it has not been an easy decision whether to update or add a second book with just the new features. After grinding our brains for multiple days, we decided to update the existing book. To be more precise, this book does not only come with new content that has been added, a large chunk of the text has been rephrased to be current with the latest release. This means you have the complete foundation for software development with TMS WEB Core in one book. You might even say 'big' book now. I am quite sure though, the added weight is worth it! A lot of things have happened in the world of TMS WEB Core. Even though a lot of things have been at a standstill the last couple of years, TMS were definitely not. To me personally, these are the two biggest additions to TMS WEB Core:

- The ability to create cross-platform desktop applications for Microsoft Windows, Apple macOS, Linux, and the Raspberry Pi using a new technology called **TMS Miletus**. From a single IDE, based on one web application, you are able to create binaries for all the platforms. No additional hardware is required on your part to create the versions for the target system.
- **Asynchronous programming** has become much easier using the newly introduced function *await*. In other programming languages *await* has become a keyword as part of parallel programming. TMS were only able to add it as a function to a language that does not support this concept. Not only new components make TMS WEB Core attractive. The team's continuously ongoing dedication to enhance the Object Pascal language to make development



FIGURE 1: Presenting at the TMS Days in Düsseldorf, Germany on November 15, 2019. It was the last in-person, multi-day TMS event before the COVID-19 pandemic. The next event after that one took place on May 11 and 12, 2023, in Bruges, Belgium.

of web applications easier is also key to make the latest versions of TMS WEB Core better and better (↔ section 2.8.11, on page 106).

But those are just two aspects. As I did not have to travel to present in person, I had more time to be creative and create new exciting hands-on examples. There have been lots of video tutorials and even multi-hour video courses in the meantime. Still, there was plenty of time to write down my thoughts about the new versions of TMS WEB Core which resulted in this very book you hold in your hands now. Thus, the last chapters presenting examples have been filled with significantly more content and hands-on use cases. Even deployment using Linux and Docker containers is covered now.

Hopefully, you are just as excited as I was learning about all the new things that are TMS WEB Core. Maybe, we will even meet during the event that we are planning right now... best of all: it will be in person!

A handwritten signature in black ink that reads "Holger Flick". The signature is fluid and cursive, with "Holger" on the left and "Flick" on the right, connected by a flourish.

Esterio, USA

April 2023

## Preface from the first edition, March 2020

More than 15 years ago, at an EKON Delphi conference in Mörfelden, nearby Frankfurt in Germany, I met Holger Flick for the first time. The interest and curiosity of Holger Flick with respect to Delphi software development immediately struck me. It goes without saying we talked for hours and hours about Delphi, the language, the components, its ecosystem...

During all these years, we stayed in contact and it was meanwhile almost 3 years ago that our conversations led to a more intense collaboration. It was around the time the first internal TMS WEB Core versions saw the light. Seeing the first experimental versions of TMS WEB Core, Holger was immediately hooked and saw its huge potential. Since its architecture is based on the single-page application (SPA) model and thus radically different from former Delphi single-stack web solutions, we both had the vision that a lot of education and evangelism would be highly desirable to make Delphi developers efficiently productive with the new tool. And thus the idea was born to produce videos for TMS WEB Core and write blog articles. The idea worked so well that meanwhile many areas of our component products are covered by videos and blog articles written by Holger. But the role of Holger Flick at [tmssoftware.com](http://tmssoftware.com) is much more than just producing video content or writing articles and now writing this book. Maybe even more important than the attention to detail with the production of videos itself, two key characteristics of Holger play an instrumental role in the development of TMS WEB Core and meanwhile many other things we do here on a daily basis. Holger is foremost curious and critical. Holger not only wants to know how something works but also why it was made to work the way it works. And he is very critical and will always raise questions if the way it works is really the best and most logical and intuitive way. Either Holger will learn and appreciate how something works or he will send the engineers back to the drawing board.

It is exactly this attitude that steered the development of TMS WEB Core itself as well as the writing of the book you are holding in your hands. It is quite unique to read a book written by someone who not only deeply and thoroughly understands the topic, but who also played and continues to play a crucial role in shaping this product.

It goes without saying that I'm truly blessed to have the luck and the opportunity to work together with Holger. It is amazing how well our visions align. Time and time again, Holger comes with ideas where I say, sure, this is exactly what we need to do. Time and time again Holger comes with critical remarks where I say, sure, this is exactly what we need to fix or improve. Quite some time ago, Holger suggested that TMS WEB Core deserved a book and sure, Holger was so right.

And now you are holding this result in your hands and are about to embark on a journey reading and discovering a wealth of new possibilities in new territories for Delphi developers. I wish you as much fun reading and discovering new capabilities & directions for your software applications with TMS WEB Core as Holger and I had together during the past years shaping the product!

- Bruno Fierens, December 2019