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# OPC Unified Architecture



## Synopsis

Motivation for This Book The OPC Foundation provides specifications for data exchange in industrial automation. There is a long history of COM/DCOM-based specifications, most prominent OPC Data Access (DA), OPC Alarms and Events (A&E), and OPC Historical Data Access (HDA), which are widely accepted in the industry and implemented by almost every system targeting industrial automation. Now the OPC Foundation has released a new generation of OPC specifications called OPC Unified Architecture (OPC UA). With OPC UA, the OPC Foundation fulfills a technology shift from the retiring COM/DCOM technology to a service-oriented architecture providing data in a platform-independent manner via Web Services or its own optimized TCP-based protocol. OPC UA unifies the previous specifications into one single address space capable of dealing with current data, alarms and events and the history of current data as well as the event history. A remarkable enhancement of OPC UA is the Address Space Model by which vendors can expose a rich and extensible information model using object-oriented techniques. OPC UA scales well from intelligent devices, controllers, DCS, and SCADA systems up to MES and ERP systems. It also scales well in its ability to provide information; on the lower end, a model similar to Classic OPC can be used, providing only base information, while at the upper end, highly sophisticated models can be described, providing a large amount of metadata including complex type hierarchies.

## Book Information

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## Customer Reviews

The best comments I can make about this book can be taken from the book itself:From the Preface:

The [OPC UA] specification primarily defines how to do things and to a lesser extent explains why it was designed that way. This is the way specifications have to be written to be widely applied by many developers and to guarantee interoperability between different applications. As a result, the OPC UA specification is hard to read for someone new to OPC UA. This is also true for other specifications such as SQL or UML. With this book, we want to fill this gap and provide an easy to understand introduction to OPC UA. We will not provide the same detail as the specification, but rather introduce and explain the main concepts of OPC UA.--> The book has delivered on this. From the Acknowledgments: Thanks to [...] the native speakers who greatly improved our English.--> The grammar is annoying at times, especially when you need to read a sentence twice to understand it.

I was almost tempted to give it five stars. Not that it's a perfectly five-star book, but considering that there's literally nothing else on OPC, it's good enough to get high ratings. The book covers UA OPC on the conceptual level pretty extensively and clearly, and considering the fact that the specs for this purportedly "open" standard are not freely accessible (the corporate take on the word "open", I guess), this is the book to go to if you work with OPC. I agree with the other reviewers that the book is under-proofread, but the problems are not so bad as to impede comprehension. I also notice that the price just went up twenty percent overnight -- don't you wish something like this happened to your salary? I bought it less than a month ago for about forty-seven, now it's about fifty-seven. On one hand, as far as prices for this sort of literature go it's not that bad, but for christ's sakes, publishers appear to have lost their minds in the last couple of years. How can you jack up something twenty percent overnight? Is it their way to maintain income during bad economy? Get the book in the library or at least get your employer to pay for it. Naturally search the net for best prices. Overall, if you need OPC, you have no other choices, and this one (amazingly) is totally adequate for a comprehensive conceptual overview. This is rarely the case: usually esoterica like that are either completely uncovered or covered exceptionally badly. This book is not bad though; I feel no remorse giving it four stars.

This book was written by technically qualified authors who have been involved in developing the OPC UA specification, so I'm assuming the information it contains is correct. Unfortunately I think this is the only thing I can say in it's favour. The book only covers the concepts. There are no details, in fact there are insufficient details to even be able to troubleshoot a UA system effectively, let alone implement one. Of course this book is intended as a handbook, not a detailed spec, so to a limited extent that is acceptable. On the other hand it is written and laid out as a specification, and is just as

unreadable. The official OPC UA specifications are not generally available and I am not able to see them. However I can't help get the feeling that if I could see them there would be a haunting familiarity. I get the impression that the book has been written by taking the specifications and changing any detailed information into vague and general statements. Then extra info, such as historical info or other background stuff, has been thrown in for good measure. The book appears to list the concepts in a linear manner, rather than explain the big issue in a drill down manner, as a handbook should do. The quality of the English is understandable, but very poor. This is really a reflection on the translation rather than the original text, as I believe the original was German. I find it difficult to recommend this book, and the high price tag adds insult to injury. On the other hand there does not appear to be any alternatives, and perhaps the real problem is that there is simply insufficient market to justify a book written by a professional author.

I regard this book as the first one you should read if you are new to OPC UA. It explains the concepts good and is understandable if you are a technical IT person (bear in mind that it is intended for IT specialists). It lays the concepts well and has a few examples that make things a lot easier. For the information it delivers it is well priced. Do not be frightened if you are at the middle of the book and things are still a little blurry, as things will start to clear out. Maybe the only thing that is a little troublesome is the organization of the chapters. The author shows a little bit of architecture in the beginning but jumps to modelling and services/transport. Only at the last quarter of the book more architecture is explained, I think that he should have kept more architecture in the beginning to make a more fluent transition from general specifications to detail.

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