Record Nr. UNINA9910973788803321 Autore Reisig Wolfgang <1950-> Titolo Elements of Distributed Algorithms: Modeling and Analysis with Petri Nets / / by Wolfgang Reisig Berlin, Heidelberg:,: Springer Berlin Heidelberg:,: Imprint: Springer, Pubbl/distr/stampa , 1998 **ISBN** 3-662-03687-8 Edizione [1st ed. 1998.] Descrizione fisica 1 online resource (XII, 302 p.) 004.0151 Disciplina Soggetti Computer science Software engineering Mathematical models Computer programming Algorithms Theory of Computation Software Engineering Mathematical Modeling and Industrial Mathematics Programming Techniques Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia "With 246 Figures"--Title page. Note generali Nota di bibliografia Includes bibliographical references. Nota di contenuto I. Elementary Concepts -- II. Case Studies -- III. Advanced Concepts --IV. Case Studies -- V. Case Studies Continued: Acknowledged Messages -- VI. Case Studies Continued: Network Algorithms -- VII. State Properties of Elementary System Nets -- VIII. Interleaved Progress of Elementary System Nets -- IX. Concurrent Progress of Elementary System Nets -- X. State Properties of System Nets -- XI. Interleaved Progress of System Nets -- XII. Concurrent Progress of System Nets --XIII. Formal Analysis of Case Studies -- References. Sommario/riassunto Distributed Computing is rapidly becoming the principal computing paradigm in diverse areas of computing, communication, and control. Processor clusters, local and wide area networks, and the information

> highway evolved a new kind of problems which can be solved with distributed algorithms. In this textbook a variety of distributed algorithms are presented independently of particular programming

languages or hardware, using the graphically suggestive technique of Petri nets which is both easy to comprehend intuitively and formally rigorous. By means of temporal logic the author provides surprisingly simple yet powerful correctness proofs for the algorithms. The scope of the book ranges from distributed control and synchronization of two sites up to algorithms on any kind of networks. Numerous examples show that description and analysis of distributed algorithms in this framework are intuitive and technically transparent.