Abstract: In this document, we present a comprehensive modeling theory for the seamless development of software for embedded systems. We start the document by describing the need for a comprehensive theory to provide a formal and thorough foundation for the software development in different process phases. What exactly a theory should contain, strongly depends on the systems that need to be described. Therefore we characterize the types of systems to be modeled and starting from this we derive a set of requirements that need to be fulfilled by the modeling theory. Based on these requirements, we shortly introduce the core elements of Focus, that is a comprehensive modeling theory for specification of embedded systems. Next, we present how do basic modeling concepts like state machines relate to the core theory.