Transcription is often regulated at the level of initiation by the presence of transcription factors, nucleoid proteins or by changing concentrations of metabolites. These can influence the kinetic properties and/or structures of the intermediate RNA polymerase-DNA complexes in the pathway. Time-resolved footprinting techniques combine the high temporal resolution of a stopped-flow apparatus with the specific structural information obtained by the probing agent. Combined with a careful quantitative analysis of the evolution of the signals, this approach allows for the identification and kinetic and structural characterisation of the intermediates in the pathway of DNA sequence recognition by a protein, such as a transcription factor or RNA polymerase. The combination of different probing agents is especially powerful in revealing different aspects of the conformational changes taking place at the protein-DNA interface. For example, hydroxyl radical footprinting, due to their small size, provide a map of the solvent accessible surface of the DNA backbone at a single nucleotide resolution; modification of the bases by potassium permanganate can reveal the accessibility of the bases when the double helix is distorted or melted; crosslinking experiments report on the formation of specific amino-acid-DNA contacts and DNaseI footprinting results in a strong signal to noise from DNA protection at the binding site and hypersensitivity at curved or kinked DNA sites. Recent developments in protein footprinting allow for the direct characterization of conformational changes of the proteins in the complex.