Abstract

Industrial wireless sensor networks (IWSNs) play an important role in monitoring the industrial equipment and creating a highly reliable industrial system. To query of the network to gain useful information from anywhere and anytime, we need to integrate the IWSNs into the Internet as part of the industrial Internet of Things (IoT). In this case, it is crucial to design an access control scheme that can authorize, authenticate and revoke a user to access the IWSNs. In this paper, we first give a certificateless signcryption scheme and then design an access control scheme for the IWSNs in the context of the industrial IoT using the certificateless signcryption. Compared with existing two access control schemes using traditional signcryption, our scheme achieves public verifiability, ciphertext authenticity and insider security. In addition, the computational cost of the sensor node in our scheme is reduced by about 62% and 77%, respectively and the energy consumption of the sensor node in our scheme is reduced by about 64% and 75%, respectively.