

At the 32nd Conference CIGRE 2015, the paper entitled MADES – Communication Standard by Svetlana Blagojevic, Radovan Delic, Jovana Tekic – Novakovic and Jasmina Licina, was presented on behalf of JP Elektromreza Srbije. According to the authors, the paper aims to demonstrate the key functionalities of MADES, its main components, functions, explain interfaces between components, and clarify the message sending operation in terms of security.

By explaining what MADES actually constitutes, the paper says that from 2012, ENTSO-E (European Network of Transmission System Operators for Electricity) sought to standardize communication among Transmission System Operators (TSOs) and market participants. Technical aspects of this communication (communication channels, protocols, digital signatures and encryption) have become subject to the new ENTSO-E standard called MADES (Market Data Exchange Standard). ECP was designed and developed as a reference for MADES implementation.

The authors note that the primary objective of MADES was to provide secure exchange of documents for transmission system operators with other European electricity market parties. These parties are other Transmission System Operators (TSOs), distribution system operators (DSOs) Balance Responsible Parties, Market Operators and generation companies. MADES, using the best IT practices, aims to facilitate the exchange of business information by creating a standard for data exchange, which includes standard protocols. Where a business process requires the exchange of information between multiple systems or several participants, bilaterally developed solutions can become highly complex, while each interface requires time, money and resources for development and maintenance. The future version is a single interface between all parties inside all areas of the European electricity market according to the paper.

In fact, from the perspective of business applications, MADES defines software interfaces for electronic data exchange with other business applications. Such interfaces usually provide a means to send and receive documents using the so-called MADES network. This network defines all business application services, complexity to localize the recipient and the recipient's connection status. MADES services include directory services, authentication services, encryption, signing, tracking and creating messages. Thus, key functionalities of the MADES network are: exchange of messages, transparency, security, reliability and integration.

As emphasized by the paper, from the perspective of business applications' users, the most important components of the MADES network are endpoints, providing an interface for message sending and receiving by business applications. The gateway component serves a message gateway, which either downloads messages from the endpoint or forwards them to the node, or downloads messages from the node and stores them into the endpoint. The node component actually serves as a central part of the MADES network.

MADES network can contain a large number of interconnected components with nodes in the center. It has no single central component, but a scattered structure. All nodes have equal responsibilities, each is responsible for a part of the network. Each endpoint must be registered at the home node. Several endpoints registered to a common home node can share a gateway registered at the same home node. Information about the contents of a directory of all registered endpoints is regularly shared between nodes, using a node synchronization interface. Gateway can be connected to any node that sends messages, however, it can only receive messages from the home node.

MADES, according to the authors, meets all five postulates of information security: availability, integrity, authentication and non-repudiation – a guarantee that the message sender cannot deny that it had sent a message and that the recipient cannot deny that it had received it.

MADES network security is based on the PKI infrastructure. Such infrastructure also ties network components and parties using the network. Obviously, the components cross-check their identity before information exchange takes place. Certificates use asymmetric cryptography based on private and public keys. Contrary to symmetric cryptography, in this case encoding is performed by using a single key, while decoding uses another, hence the asymmetry, which is explained by the paper.

The authors of the study, based on all the available facts, conclude that the MADES standard, as the basis for the use of ECP platform, would centralize communication between market participants, and make it safer and more reliable. Using a platform for several business processes would reduce development and maintenance costs of several individual platforms, transmits Serbia-energy.eu