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Facilitating the automatic mapping of IEC 61850 signals and CIM measurements

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Abstract— One of the main interoperability issues in electric power systems concerns the interactions between IEC 61850 and CIM standards. The state of the art includes solutions to facilitate the exchange of configuration files between the two standards. Nevertheless, there are no contributions in the literature aimed at facilitating the run-time interactions between IEC 61850-based and CIM-based systems. Thus, at present, the signal mapping between these systems must be carried out manually. This paper presents a new methodology that helps to automate this process by utilizing ontology matching techniques. The proposed methodology was successfully evaluated with case studies based on four representative substation architectures.

Index Terms— Energy management, automation, IEC, standards, ontology matching,signal mapping

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