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P2.035 Unified Signal Identifier for Globally Unique Signal-Addresses

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Wendelstein 7-X (W7-X) stellerator has been designed to support a long-term and continuous operation. In that concern, corresponded scientists have access on the archived data (signals) anytime-anywhere, where archived signals can be referenced via project-specific unique identifiers, referred to as signal-addresses.
At the same time, different projects in the fusion research such as W7-X and ITER use different address-schemes for addressing the archived and measured signals. Even in the same project, different development groups such as for desktop and web-applications may use different forms of addresses for referencing the same signals. However, (1) scientists in a project should be able to access an archived signal locally as well as remotely using the same signal-address and address-scheme; (2) scientists using data of different projects should be able to use the same addressing scheme for referencing the required signals. The main requirements for achieving this purpose can be summarized in two main points: (1) globally unique signal-address, independent of the storage media and location as well as the research project and organization; (2) unified address format (syntax) and semantic, as standard for all projects in the field of fusion research.
This paper represents the first step to unify the addressing schemes in fusion research for archived signals depending on experience gained and results achieved in the project W7-X and based on the well-known Uniform Resource Identifier (URI) standard. Accordingly, a novel concept is proposed for a Uniform Signal Identifier (USI) as a domain-specific address scheme for fusion research; the USI uses the URI standard as well as the addressing schemes of Java-API and Web-API of W7-X as basis. Additionally, this paper presents the USI terminology as well as syntax and semantic, suggests a system architecture and provides an integration example based on the current development of W7-X Archive.

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