SAPIENT v7 – BSI Flex 335: changes and differences

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The Science Inside

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Introduction
The purpose of this document is to provide SAPIENT developers a convenient summary of the differences between version 7 (v7) of the SAPIENT Interface Control Document (ICD) as approved by the SAPIENT Interface Management Panel (released April 2023), and the BSI Flex 335 version 1 of SAPIENT (released July 2023). Although Flex 335 is based on SAPIENT v7, there are a number of mostly small differences between the two versions, which are listed in the following section. There are regrettably a few ambiguities between the v7 ICD and .proto files and some typographical errors in the v7 ICD, these are not noted below unless they result in technical ambiguity, and thus clarification is given.   In summary, the use of non-SI units is not allowed in BSI standards documents, thus imperial units such as 'feet' which were used in the v7 ICD are no longer used. There are some exceptions permitted, such as the use of degrees for angular units, and minutes and hours for time. Early versions of SAPIENT were ambiguous regarding the frames of reference to be used for reporting velocity. Version 7 of SAPIENT introduced a number of frames of reference that could be used, but with the exception of ENUVelocity (East-North-Up), these have been withdrawn in the Flex 335 version to enable further consultation with the User community since support for all frames of reference could place a significant implementation burden on developers.

Summary of differences		
BSI Flex 335 v1	**SAPIENT v7**	**Comments**
Table 3	Section 4.3.1	A 'utm_zone' field has been added in Flex 335 to enable the reporting of detections in a different UTM Zone from where the reporting Node is situated.
Table 4	Section 4.3.1.1	Units of 'feet' have been removed in Flex 335.
N/A	Section 4.3.2	Message LocationList is described in location.proto but not the ICD. Section 4.3.2 should report a (mandatory list) field with a name of 'locations' of type 'Location'.
Table 9	Section 4.3.3.1	Units of 'feet' have been removed in Flex 335
N/A	Section 5.1	There is an ambiguity between the v7 ICD and .proto files in the structuring of the 'node_type' and 'node_sub_type' fields in the Registration message. The definition in registration.proto should be taken as the correct interpretation.

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Table 18	Section 5.1.1	In Flex 335, NodeType's of 'LDEW' and 'RFDEW' have been added to enum NodeType in registration.proto
Table 21	Section 5.3.1	In Flex 335, the Field Name 'value' has had its Type changed from 'int32' to 'float'.
Table 22	Section 5.3.2	Units of 'Days' have been removed in Flex 335.
Table 43	Section 5.3.4	GHCVelocityUnits, RYPVelocityUnits, RAEVelocityUnits, and SHPVelocityUnits have been removed in BSI Flex 335. ENUVelocityUnits can continue to be used in Flex 335.
Table 50	Section 5.6.5	'EQUALS' (v7) has been renamed to 'EQUAL' (Flex 335)
Table 56	Section 6.1.1	In Flex 335 the Status message can no longer report a status of 'Tamper' (enum System in status_report.proto)

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Report documentation page

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7a.	**Abstract: ***
	The purpose of this document is to summarise the differences between version 7 of the SAPIENT Interface Control Document (ICD) as approved by the SAPIENT Interface Management Panel, and the BSI Flex 335 version 1.0 of SAPIENT published by the British Standards Institution. Although the BSI version of SAPIENT is based on the previous version 7, the structure and language used in the two documents is very different, the technical content with a few small changes is the same. This document notes the differences between the two versions of SAPIENT for the convenience of those upgrading to the BSI Flex version.

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