Solution to redmine #6830

### sDs11, sDs12, sDsN4, sDsN5

July 22, 2024

Tests sDs11, sDs12 and sDsN4 and sDsN5 are testing creation of persistent and non-persistent DataSets. They all refer to use od SCL DynDataSet. But is possible for IEDs to have different capability for maximum number of persistent and non-persistent which is why we have PIXIT entries:

Ds2 : How many persistent data sets can be created by one or more clients (this number includes predefined datasets)

Ds3 : How many non-persistent data sets can be created by one or more clients

20240725: Adding DynDataSet.max as minimum setting for Ds2 and Ds3

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| **sDs11** | **Create maximum persistent data sets with maximum number of members** | Passed  Failed  Inconclusive |
| IEC 61850-7-2 Subclause 13.3.4, 13.3.5  IEC 61850-8-1 Subclause 14.3.3, 14.3.4  PIXIT Ds2 | | |
| Expected result  1. Every data set can be created. In case data sets are already pre-configured the total number of data sets are equal to the maximum number of data sets (Ds2) and equal or greater than ICD DynDataSet - max.  2. Each created data set can be deleted  3. Every data set can be created. In case data sets are already pre-configured the total number of data sets are equal to the maximum number of data sets (Ds2) and equal or greater than ICD DynDataSet - max.  4. Each created data set can be deleted | | |
| Test description  1. Client requests CreateDataSet for maximum number of persistent data sets (as specified in PIXIT Ds2) with the maximum number of **FCDAs** (as specified in ICD DynDataSet - maxAttribute)  2. Client request DeleteDataSet with all just created data sets  3. Client requests CreateDataSet for maximum number of persistent data sets (as specified in PIXIT Ds2) with the maximum number of **FCDs** (as specified in ICD DynDataSet - maxAttribute)  4. Client request DeleteDataSet with all just created data sets | | |
| Comment  Minimum value for PIXIT Ds2 and Ds2 is ICD DynDataSet.max.  DUT should accept dynamic creation of at least DynDataSet.max number of persistent and non-persistent dataset. | | |

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| **sDs12** | **Create maximum non-persistent data sets with maximum number of members** | Passed  Failed  Inconclusive |
| IEC 61850-7-2 Subclause 13.3.4, 13.3.5  IEC 61850-8-1 Subclause 14.3.3, 14.3.4  PIXIT Ds3 | | |
| Expected result  1. Every data set can be created. In case data sets are already configured the total number of data sets is  equal to the maximum number of data sets (Ds3) and equal or greater than ICD DynDataSet - max.  2. Each created dataset can be deleted  3. Every data set can be created. In case data sets are already configured the total number of data sets is  equal to the maximum number of data sets (Ds3) and equal or greater than ICD DynDataSet - max.  4. Each created dataset can be deleted | | |
| Test description  1. Client requests CreateDataSet for maximum number of non-persistent data sets (as specified in PIXIT Ds3) with the maximum number of FCDAs (as specified in ICD DynDataSet-maxAttribute)  2. Client request DeleteDataSet with all just created data sets  3. Client requests CreateDataSet for maximum number of non-persistent data sets (as specified in PIXIT Ds3) with the maximum number of FCDs (as specified in ICD DynDataSet – maxAttribute)  4. Close the association to delete all non-persistent datasets | | |
| Comment  On closing the association, the non-persistent datasets are already deleted by the server.  Minimum value for PIXIT Ds3 and Ds3 is ICD DynDataSet.max.  DUT should accept dynamic creation of at least DynDataSet.max number of persistent and non-persistent dataset. | | |

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| **sDsN4** | **Continue to create persistent data sets until a response-** | Passed  Failed  Inconclusive |
| IEC 61850-7-2 Subclause 13.3.4  IEC 61850-8-1 Subclause 8.1.3.4.3.3  PIXIT Ds2 | | |
| Expected result   1. The DUT responds with a CreateDataSet response+ for every successful created data set and for the failed request DUT responds with a CreateDataSet response- with errorClass=resource and errorCode=capability-unavailable; The total number of data sets (including datasets configured in SCL, and datasets created by CreateDataSet service request) shall be equal or greater than the value in PIXIT Ds2 and equal or greater than ICD DynDataSet – max. | | |
| Test description   1. Client continues to request persistent CreateDataSet till a response- is received 2. Client deletes all created data sets | | |
| Comment  NOTE: Value of SCL attribute ConfDataSet.max is checked in system/IED configuration tool conformance test thus is out-of-scope of server conformance test.  Minimum value for PIXIT Ds2 and Ds2 is ICD DynDataSet.max.  DUT should accept dynamic creation of at least DynDataSet.max number of persistent and non-persistent dataset. | | |

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| **sDsN5** | **Continue to create non-persistent data sets until a response-** | Passed  Failed  Inconclusive |
| IEC 61850-7-2 Subclause 13.3.4  IEC 61850-8-1 Subclause 8.1.3.4.3.3  PIXIT Ds3 | | |
| Expected result   1. The DUT responds with a CreateDataSet response+ for every successful created data set and for the failed request DUT responds with a CreateDataSet response- with errorClass=resource and errorCode=capability-unavailable; The total number of data sets (including datasets configured in SCL, and datasets created by CreateDataSet service request) shall be equal or greater than the value in PIXIT Ds3 and equal or greater than ICD DynDataSet – max. | | |
| Test description   1. Client continues to request non-persistent CreateDataSet till a response- is received 2. Client releases the association | | |
| Comment  NOTE: Value of SCL attribute ConfDataSet.max is checked in system/IED configuration tool conformance test thus is out-of-scope of server conformance test.  Minimum value for PIXIT Ds3 and Ds3 is ICD DynDataSet.max.  DUT should accept dynamic creation of at least DynDataSet.max number of persistent and non-persistent dataset. | | |