**ManageNationalValues**

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**Reviewers:**

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**Date and version:**

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**Input documents:**

* Subset 26 §3.18.2 §3.A.3.2

**Description**

This function is in charge of the management of National Values.

These values are provided to on-board by trackside in Packet 3 via Balises or RBC.

The values shall be stored to be provided to the others functions.



**DesignChoices**

1. 4 set of National Values are stored:

* Default National Values
* Values stored in a permanent memory
* Currently applicable National Values
* Not yet applicable National Values: we assume only one set of NotYet ApplicableNationalValues is stored at any time.

1. We assume information on current Train Localisation and LRBG are provided by other functions

**Functions**

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| **Name** | **Occurrence** | **Type** | **Description** |
| Name | 1 | T\_Text | **ManageNationalValues** |
| Definition | 1 | T\_Definition | The global function in charge of the management of NationalValues |
| *Input* | *0..n* | *T\_Variable* | *DefaultValues, StoredNationalValues, Packet3, CurrentVersionSystem, TrainLocalisation, BGinformation (id of LRBG and country o LRBG)* |
| *Output* | *0..n* | *T\_Variable* | *NationalValues, NotYetApplicableNationalaluesV (for BrakingCurves Management), StoredNationalValues* |
| *Local* | *0..n* | *T\_Variable* |  |
| *Parameter* | *0..n* | *T\_Constant* |  |
| *Requirement* | *0..n* | *T\_Requirement* |  |
| *Block* | *1 (optional)* | *T\_FunctionalBlock* |  |
| *Parent* | *0..1* | *T\_Function* |  |
| *Allocation* | *1* | *T\_System* | Kernel |
| Safety | 1 | Boolean |  |

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| **Name** | **Occurrence** | **Type** | **Description** |
| Name | 1 | T\_Text | **RestoreNationalValues** |
| Definition | 1 | T\_Definition | Call at initialisation only, in charge to restore the set of last used NationalValues |
| *Input* | *0..n* | *T\_Variable* | *StoredNationalValues, DefaultValues* |
| *Output* | *0..n* | *T\_Variable* | *NationalValues* |
| *Local* | *0..n* | *T\_Variable* |  |
| *Parameter* | *0..n* | *T\_Constant* |  |
| *Requirement* | *0..n* | *T\_Requirement* | *SA-1* |
| *Block* | *1 (optional)* | *T\_FunctionalBlock* |  |
| *Parent* | *0..1* | *T\_Function* | **ManageNationalValues** |
| *Allocation* | *1* | *T\_System* | Kernel |
| Safety | 1 | Boolean |  |

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| **Name** | **Occurrence** | **Type** | **Description** |
| Name | 1 | T\_Text | **SaveNationalValues** |
| Definition | 1 | T\_Definition | Called at each cycle, to store in the permanent memory the last used National Values |
| *Input* | *0..n* | *T\_Variable* | *NationalValues* |
| *Output* | *0..n* | *T\_Variable* | *StoredNationalValues* |
| *Local* | *0..n* | *T\_Variable* |  |
| *Parameter* | *0..n* | *T\_Constant* |  |
| *Requirement* | *0..n* | *T\_Requirement* | *SA-2, SA-3, SA-4* |
| *Block* | *1 (optional)* | *T\_FunctionalBlock* |  |
| *Parent* | *0..1* | *T\_Function* | **ManageNationalValues** |
| *Allocation* | *1* | *T\_System* | Kernel |
| Safety | 1 | Boolean |  |

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| **Name** | **Occurrence** | **Type** | **Description** |
| Name | 1 | T\_Text | **UpdateNationalValues** |
| Definition | 1 | T\_Definition | Called at each cycle, in charge to update the set of current applicable National Values |
| *Input* | *0..n* | *T\_Variable* | *DefaultValues, CurrentVersionSystem, TrainLocalisation, BGinformation (id of LRBG and country o LRBG), NotYetApplicableNationalValues, NationalValues* |
| *Output* | *0..n* | *T\_Variable* | *NationalValues* |
| *Local* | *0..n* | *T\_Variable* |  |
| *Parameter* | *0..n* | *T\_Constant* |  |
| *Requirement* | *0..n* | *T\_Requirement* | *SA-2, SA-3, SA-4* |
| *Block* | *1 (optional)* | *T\_FunctionalBlock* |  |
| *Parent* | *0..1* | *T\_Function* | **ManageNationalValues** |
| *Allocation* | *1* | *T\_System* | Kernel |
| Safety | 1 | Boolean |  |

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| **Name** | **Occurrence** | **Type** | **Description** |
| Name | 1 | T\_Text | **ReceiveAndStoreNationalValues** |
| Definition | 1 | T\_Definition | Called at each cycle, in charge to receive and store the Values from packet 3 |
| *Input* | *0..n* | *T\_Variable* | *Packet3, CurrentVersionSystem* |
| *Output* | *0..n* | *T\_Variable* | *NotYetApplicableNV* |
| *Local* | *0..n* | *T\_Variable* |  |
| *Parameter* | *0..n* | *T\_Constant* |  |
| *Requirement* | *0..n* | *T\_Requirement* | *SA-2* |
| *Block* | *1 (optional)* | *T\_FunctionalBlock* |  |
| *Parent* | *0..1* | *T\_Function* | **ManageNationalValues** |
| *Allocation* | *1* | *T\_System* | Kernel |
| Safety | 1 | Boolean |  |

**Variables**

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| **Name** | **Occurrence** | **Type** | **Description** |
| Name | 1 | T\_Text | NationalValues |
| Definition | 1 | T\_Definition | Set of current applicable National values |
| Source | 1 | T\_SourceDocument |  |
| Nature | 1 | T\_VariableNature | T\_NationalValues + BGID (NID\_BG + NID\_C) + distance (D\_VALIDNV) |
| MinimalValue | 0..1 | T\_Text |  |
| MaximalValue | 0..1 | T\_Text |  |
| SpecialValue | 0..n | T\_Text |  |
| Allocation | 1 | * Interface * Packet * Internal |  |
| *Requirement* | *1..n* | *T\_Requirement* | *A.3.2* |
| Store | 0..1 | T\_Variable |  |
| Resolution | 0..1 | T\_VariableNature |  |
| Safety | 1 | Boolean |  |

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| **Name** | **Occurrence** | **Type** | **Description** |
| Name | 1 | T\_Text | NotYetApplicableNationalValues |
| Definition | 1 | T\_Definition | Set of National values received and stored but not yet applicable |
| Source | 1 | T\_SourceDocument |  |
| Nature | 1 | T\_VariableNature | T\_NationalValues + BGID (NID\_BG + NID\_C) + distance (D\_VALIDNV) + flag indicating new values available |
| MinimalValue | 0..1 | T\_Text |  |
| MaximalValue | 0..1 | T\_Text |  |
| SpecialValue | 0..n | T\_Text |  |
| Allocation | 1 | * Interface * Packet * Internal |  |
| *Requirement* | *1..n* | *T\_Requirement* | *A.3.2* |
| Store | 0..1 | T\_Variable |  |
| Resolution | 0..1 | T\_VariableNature |  |
| Safety | 1 | Boolean |  |

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| **Name** | **Occurrence** | **Type** | **Description** |
| Name | 1 | T\_Text | DefaultNationalValues |
| Definition | 1 | T\_Definition | Set of default National values |
| Source | 1 | T\_SourceDocument |  |
| Nature | 1 | T\_VariableNature | T\_NationalValues |
| MinimalValue | 0..1 | T\_Text |  |
| MaximalValue | 0..1 | T\_Text |  |
| SpecialValue | 0..n | T\_Text |  |
| Allocation | 1 | * Interface * Packet * Internal |  |
| *Requirement* | *1..n* | *T\_Requirement* | *A.3.2* |
| Store | 0..1 | T\_Variable |  |
| Resolution | 0..1 | T\_VariableNature |  |
| Safety | 1 | Boolean |  |

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| **Name** | **Occurrence** | **Type** | **Description** |
| Name | 1 | T\_Text | StoredNationalValues |
| Definition | 1 | T\_Definition | Set of National values stored in permanent memory |
| Source | 1 | T\_SourceDocument |  |
| Nature | 1 | T\_VariableNature | T\_NationalValues + BGID (NID\_BG + NID\_C) + distance (D\_VALIDNV) |
| MinimalValue | 0..1 | T\_Text |  |
| MaximalValue | 0..1 | T\_Text |  |
| SpecialValue | 0..n | T\_Text |  |
| Allocation | 1 | * Interface * Packet * Internal |  |
| *Requirement* | *1..n* | *T\_Requirement* | *A.3.2* |
| Store | 0..1 | T\_Variable |  |
| Resolution | 0..1 | T\_VariableNature |  |
| Safety | 1 | Boolean |  |

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| **Name** | **Occurrence** | **Type** | **Description** |
| Name | 1 | T\_Text | CurrentVersionSystem |
| Definition | 1 | T\_Definition |  |
| Source | 1 | T\_SourceDocument |  |
| Nature | 1 | T\_VariableNature | T\_NationalValues |
| MinimalValue | 0..1 | T\_Text |  |
| MaximalValue | 0..1 | T\_Text |  |
| SpecialValue | 0..n | T\_Text |  |
| Allocation | 1 | * Interface * Packet * Internal |  |
| *Requirement* | *1..n* | *T\_Requirement* |  |
| Store | 0..1 | T\_Variable |  |
| Resolution | 0..1 | T\_VariableNature |  |
| Safety | 1 | Boolean |  |

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| **Name** | **Occurrence** | **Type** | **Description** |
| Name | 1 | T\_Text | TrainLocalisation |
| Definition | 1 | T\_Definition |  |
| Source | 1 | T\_SourceDocument |  |
| Nature | 1 | T\_VariableNature |  |
| MinimalValue | 0..1 | T\_Text |  |
| MaximalValue | 0..1 | T\_Text |  |
| SpecialValue | 0..n | T\_Text |  |
| Allocation | 1 | * Interface * Packet * Internal |  |
| *Requirement* | *1..n* | *T\_Requirement* |  |
| Store | 0..1 | T\_Variable |  |
| Resolution | 0..1 | T\_VariableNature |  |
| Safety | 1 | Boolean |  |

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| **Name** | **Occurrence** | **Type** | **Description** |
| Name | 1 | T\_Text | Information on BG (NID\_BG + NID\_C) |
| Definition | 1 | T\_Definition |  |
| Source | 1 | T\_SourceDocument |  |
| Nature | 1 | T\_VariableNature |  |
| MinimalValue | 0..1 | T\_Text |  |
| MaximalValue | 0..1 | T\_Text |  |
| SpecialValue | 0..n | T\_Text |  |
| Allocation | 1 | * Interface * Packet * Internal |  |
| *Requirement* | *1..n* | *T\_Requirement* |  |
| Store | 0..1 | T\_Variable |  |
| Resolution | 0..1 | T\_VariableNature |  |
| Safety | 1 | Boolean |  |

**Requirements**

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| **Name** | **Occurrence** | **Type** | **Description** |
| Name | 1 | T\_Text | SA-1 |
| Definition | 1 | T\_Definition | If the OBU is started then if a set of StoreNV is available then the set of NationalValues shall become StoredNV else the set of NationalValues shall become DefaultValues |
| Nature | 1 | * Structural * Functional * Definition |  |
| Source | 1 | T\_SourceDocument |  |
| Discussion | 1 (Optional) | T\_Text |  |
| Parent | 0..1 | T\_Requirement | SRS-3.18.2.7, SRS-3.18.2.5 (first dot) |
| Allocation | 0..1 | T\_System | Kernel |
| Safety | 1 | Boolean |  |

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| **Name** | **Occurrence** | **Type** | **Description** |
| Name | 1 | T\_Text | SA-2 |
| Definition | 1 | T\_Definition | If a packet 3 is received and the version given in the message is compatible with the system version then:  Then the NV contained in the packet shall be stored in NotYetApplicableNV (replacing any early stored NotYetApplicableNV)  The reference BGID for the location it shall be applicable, shall be stored NotYetApplicableNV  The distance from the reference BGID where it shall be applicable, shall be stored NotYetApplicableNV  If the distance in the packet has the special value “now” then the NationalValues and the store NationalV shall be replaced by the new received NotYetApplicNV |
| Nature | 1 | * Structural * Functional * Definition |  |
| Source | 1 | T\_SourceDocument |  |
| Discussion | 1 (Optional) | T\_Text |  |
| Parent | 0..1 | T\_Requirement | SRS-3.18.2.3, SRS-3.18.2.4, SRS-3.18.2.7 |
| Allocation | 0..1 | T\_System | Kernel |
| Safety | 1 | Boolean |  |

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| **Name** | **Occurrence** | **Type** | **Description** |
| Name | 1 | T\_Text | SA-3 |
| Definition | 1 | T\_Definition | If NotYetApplicableNV is available and the location given by the reference group IBD + distance (stored in NotYetApplicableNV ) is reached, then the NationalValues are replaced by the  NotYetApplicableNV and stored in the StoredNV. |
| Nature | 1 | * Structural * Functional * Definition |  |
| Source | 1 | T\_SourceDocument |  |
| Discussion | 1 (Optional) | T\_Text |  |
| Parent | 0..1 | T\_Requirement | SRS-3.18.2.3, SRS-3.18.2.7, SRS-3.18.2.8.1, SRS-3.18.2.9 |
| Allocation | 0..1 | T\_System | Kernel |
| Safety | 1 | Boolean |  |

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| **Name** | **Occurrence** | **Type** | **Description** |
| Name | 1 | T\_Text | SA-4 |
| Definition | 1 | T\_Definition | If a LRBG is detected and an NID\_C is not in the list of corresponding Id of NationalValues, then NationalValues shall be replaced by DefaultValues and StoredNV shall be replaced by DefaultValues. |
| Nature | 1 | * Structural * Functional * Definition |  |
| Source | 1 | T\_SourceDocument |  |
| Discussion | 1 (Optional) | T\_Text |  |
| Parent | 0..1 | T\_Requirement | SRS-3.18.2.5 (second dot), SRS-3.18.2.10 |
| Allocation | 0..1 | T\_System | Kernel |
| Safety | 1 | Boolean |  |

#### **Exported Requirements :**

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| **Name** | **Occurrence** | **Type** | **Description** |
| Name | 1 | T\_Text | SRS-3.18.2.11 |
| Definition | 1 | T\_Definition | When a new set of National Values becomes applicable, any on-going supervision involving an overwritten National Value of type time or distance shall continue, but using the corresponding value from the new set. However, the starting location or starting time shall remain unchanged. |
| Source | 1 | T\_SourceDocument |  |
| Allocation | 0..1 | T\_System | Kernel but other functions |
| Safety | 1 | Boolean |  |