| INTEROPERABILITY UNIT | | |
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| **EUROPEAN CENTRALISED VIRTUAL VEHICLE REGISTER (ECVVR): EVALUATION OF THE PILOT PROJECT** | | |
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The following document has been produced by the European Railway Agency as Final Report on the issues raised in paragraph 2.2 of the Annex of the Commission Decision 2007/756/EC of 09/11/2007 adopting a common specification of the National Vehicle Register concerning the EU global NVR architecture.

This document is intended to inform the Committee established by Art. 21 of Directive 96/48/EC on the work carried out. This document is the basis for the Agency Recommendation on the updating of the NVR Decision

## AMENDMENT RECORD

| Version | Date | Section number | Modification/description | Author |
|---|---|---|---|---|
| 0.1 | 2008-12-19 | All | Creation | NTT |
| 0.2 | 2009-04-23 | 1.2;2;3.2;4 | Updating | CLL |
| 1.0 | 2009-05-15 | 2; 3; 4; Annexes | Draft Final report for presentation to the RISC | CLL + FA |
| 2.0 | 2009-10-23 | All | Final Report | CLL + FA |
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# 1. INTRODUCTION

## 1.1. SUBJECT

Commission Decision 2007/756/EC of 09/11/2007 adopting a common specification of the national vehicle register (NVR) requires (the following list is not exhaustive):

- the NVR of a Member State (MS) to contain all vehicles authorised in that MS. However freight wagons and passenger cars should be only registered in the NVR of the MS where they are first placed in service.
- Each MS to establish a computer-based NVR.
- The European Railway Agency (ERA) to carry out a pilot project on a European Centralised Virtual Vehicle Register (ECVVR) with at least 3 MSs' NVRs connected to it, including a successful connection of an existing NVR using a Translation Engine (TE).
- An evaluation of the pilot project and where appropriate an updating of the Commission Decision 2007/756/EC.
- Publication by the ERA of the specifications to be used by MSs to connect their NVRs with the central VVR.
- The MSs to connect their NVRs to the central VVR once the effective functioning of the VVR has been demonstrated.

This final report has been established in accordance with the above-mentioned Commission Decision and provides the evaluation of the ECVVR pilot project.

## 1.2. PILOT PROJECT

The ECVVR pilot project has been managed according to the following steps:

- the design and development phase - between 01/2007 and 08/2007- where the use cases defined in the Annex to the Commission Decision have been developed in cooperation with the three pilot MSs: FR, IT, NL and an ERA IT sub-contractor (infeurope).
- The deployment and evaluation phase of the pilot project by the pilot team (ERA, FR, IT, NL and infeurope) between 08/2007 and 02/2008.
- The extension of the deployment and evaluation phase to the other MSs between 02/2008 and 04/2009.
- The final evaluation of the ECVVR system between 04/2009 and 05/2009.

During the different steps of the pilot projects, adjustments and modifications have been brought to the applications: sNVR and VVR. The last version 1.08 was released on 28/04/09.

The version 1.08 of the application takes into account the modifications required by the users during the test and evaluation phase.

The software updating will be released when necessary.

# 2. ECVVR COMPONENTS AND RELATED DOCUMENTATION

All related documentation mentioned in this chapter is attached as Annex 1. However, due to security reasons the access to it is restricted to the Registration Entities (REs).

## 2.1. STANDARD NVR (sNVR)

The standard National Vehicle Register (sNVR) is a subsystem of the ECVVR.

The job of the sNVR is to manage information about vehicles at a national level. So it means in detail that it will be able to

- perform vehicle registrations/authorizations and also
- manage applications for vehicle registrations/authorisations.

The different roles and functionalities of the subsystem are described in the following documents:

- the "sNVR administrator guide", which provides technical information on how to log in, to manage its own account and to configure the sNVR.
- The "sNVR user guide", which provides technical information from the user's point of view on how to log in and to manage both the applications for vehicle registrations and authorizations.
- The "sNVR COMMA SEPARATED VALUE-CSV import" and the "sNVR CSV export", which detail how to perform the CSV import/export of massive data from/to a sNVR, by an EXCEL application (e.g. if two Registration Entities need to exchange such data between their NVRs).
- The "sNVR deployment guide", which defines how to install the sNVR component of the ECVVR, as well as the components which are necessary for the communication.
- The "sNVR DB" documentation and the "sNVR sources", which contain the whole sNVR database as well as its sources.

## 2.2. TRANSLATION ENGINE (TE)

The following documents deal with the integration of existing IT systems at national level into the ECVVR, through an interface named TE:

- the "NVR-TE integration guide" providing an overview of the translation engine;
- the "NVR-TE deployment guide" describing how to install the NVR-TE component of the ECVVR;
- the "NVR-TE sources" containing the whole set of sources.

## 2.3. VIRTUAL VEHICLE REGISTER (VVR)

The Virtual Vehicle Register (VVR) is the other subsystem of the ECVVR. It allows all its users to access information relating to the registrations and authorisations of railway vehicles in the EU.

Therefore the VVR makes the distributed National Vehicle Registers (NVRs) transparent to the users and permits information to be retrieved in an efficient manner.

The following documents support VVR:

- the "VVR administrator guide" providing technical information on how to manage its own account, and other users, how to configure the VVR and monitoring NVR connections.
- The "VVR deployment guide" describing how to install the different components of the European Vehicle Register (ECVVR), as well as the components which are necessary for the communication.
- The "VVR user guide" explaining in detail the main functionalities that can be performed by the VVR User such as managing accounts, searching for registrations and authorizations across all available NVRs, managing reports etc.
- Finally, The "VVR sources" contains the whole mass of sources.

## 2.4. ECVVR SECURITY SETTINGS

Two types of communications occur with the VVR, both requiring security:

- access to the ECVVR Web Application from user's side
- access to the ECVVR Web Services from other NVRs.

In order to allow users to secure the VVR systems communications an updating has been introducing on the basis of the relative pilot phase outcomes.

Nevertheless, neither the security of the server on which the application is installed nor the network to access it are covered by this application. This depends highly on the technical environment and on the policies in place in the organisation.

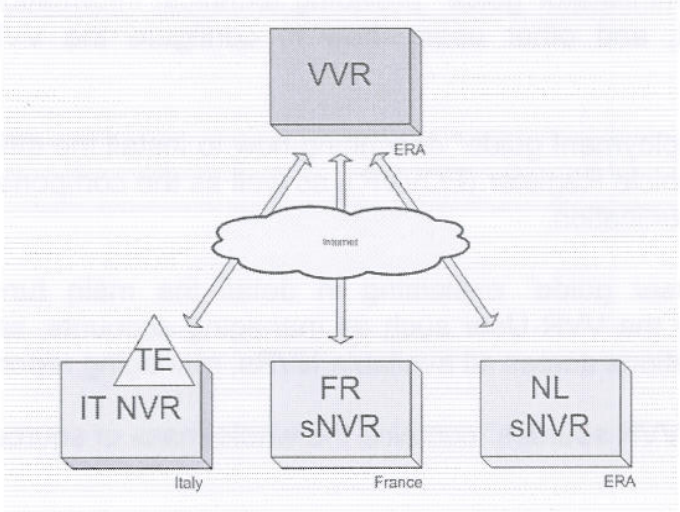
The related document details how to secure the ECVVR components (VVR, sNVR and TE).

# 3. ECVVR IMPLEMENTATION STATUS

## 3.1. SYSTEM ARCHITECTURE

The ECVVR system architecture is based on a decentralised solution, where by a search engine implementation, users are allowed to retrieve data from the local register (NVR) hosted by each MS through the central VVR hosted by ERA.

NVR data are stored at national level and they are accessible by using a web-based application.




## 3.2. TECHNICAL SOLUTIONS OF DIFFERENT MEMBER STATES

Two workshops have been organised by ERA with the NSA/RE during the pilot project:

- A first one on 12/02/08, where the other MS were invited to test the application after a successful test phase with the three pilot MS.
- A second one on 19/11/08, where all the MS were invited to connect their NVR to the VVR developed and modified according to the results of the test phase.

The following table summarises the MSs' technical solution as well as their current implementation status.

| MS | Technical solution | Connection with the VVR |
|---|---|---|
| AT | sNVR | Planned for 2009 |
| BE | TE | Planned for 2009 |
| BG** | TE | Connected |
| CZ | TE | Planned for 2009 |
| DE | TE | Planned for 2009 |
| DK* | sNVR | Connected |
| EE | TE | Planned for 2010 |
| ES | TE | Planned for 2009 |
| FI | TE | Planned for 2010 |
| FR* | sNVR | Connected |
| GR** | sNVR | Connected |
| HU | TE | Planned for 2009 |
| IE* | sNVR | Connected |
| IT* | TE | Connected |
| LT | sNVR | Planned for 2009 |
| LU* | sNVR | Connected |
| LV | TE | Planned for 2010 |
| NL* | sNVR | Connected |
| NO* | sNVR | Connected |
| PL | sNVR | Planned for 2009 |
| PT* | sNVR | Connected |
| RO | sNVR | Planned for 2009 |
| SE** | TE | Connected |
| SI* | sNVR | Connected |
| SK | sNVR | Planned for 2009 |
| UK | TE | Planned for 2009 |

* MS connected to VVR Production Environment

** MS connected to VVR Test Environment

# 4. CONCLUSIONS ON THE EVALUATION OF THE PILOT PROJECT

According to the table of section 3.2:

- nine MSs are successfully connected to VVR (Production Environment), out of which eight with a sNVR and one with a TE;
- three MSs are connected through the VVR Test Environment, out of which one with an sNVR and two with a TE;
- twelve MSs plan to connect their NVRs/TEs to VVR by December 2009;
- Finland plans to connect its TE in 2010;
- Estonia has already chosen its IT technical solution; the date for its implementation has not been communicated to ERA yet.

As conclusion of the pilot phase, it could be considered that the ECVVR system is implemented with a significant number of MSs' NVRs/TEs connected to VVR.

Furthermore, ERA recommends the following issues:

## IT aspects

According to the figures of the table of section 3.2, by December 2009 twenty-four MSs will be connected to the VVR.

Feedback from the users should be collected by ERA from now until 2010 to be taken into account for the new releases of the system.

## Business aspects

During the workshop organised on 19/11/08 with the NSAs/REs, a list of questions related to the understanding and implementation of the Commission Decision were dealt with (see Annex 2). Then many other comments and requests of clarifications have been collected.

Since most of the questions are linked to definitions and procedures, in order to clarify them, ERA considered useful to develop an application guide of the Commission Decision on the NVR and the ECVVR. At the present, ERA collaborates with the REs in drafting this Guide.

One year after the decision on connecting the NVRs to the VVR comes into force, ERA will prepare a report on the return of experience gathered during this first year of operation of ECVVR.

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# 5. LIST OF ANNEXES

1. ECVVR TECHNICAL DOCUMENTATION (restricted to Registration Entities)
   - 1.1. The standard NVR (sNVR)
     - 1.1.1. sNVR administrator guide
     - 1.1.2. sNVR CSV import and export
     - 1.1.3. sNVR deployment guide
     - 1.1.4. sNVR user guide
     - 1.1.5. sNVR DB documentation
     - 1.1.6. sNVR sources
   - 1.2. The translation Engine (TE)
     - 1.2.1. TE integration guide
     - 1.2.2. TE deployment guide
     - 1.2.3. NVR-TE sources
   - 1.3. The Virtual vehicle Register (VVR)
     - 1.3.1. VVR administrator guide
     - 1.3.2. VVR deployment guide
     - 1.3.3. VVR user guide
     - 1.3.4. VVR sources
   - 1.4. ECVVR Security settings
2. INTERPRETATION RESULT CHART

| Item N° | original item (standard form ERA) | interpretation group | Answers - Meeting of 19/11/08 |
|---|---|---|---|
| | new registration | "New registration" means the vehicle is in this NVR for the first time. Tractive vehicles that are authorized in several MS have to be registered in several NVR according to Dec. 2007/756/EC, passenger coaches and freight wagons only need to be registered in one NVR. As soon as EC-VVR is operational, multiple registrationof tractive vehicles will no longer be necessary.<br><br>*Hint:*<br>*In Germany, this future situation of EC-VVR in operation is already applied for all kinds of vehicles (multiple registration is not necessary if the vehicle is already registered in one NVR).* | This is a side-effect of the late change made to the Commission Decision on the NVR where some MS required to register both 'authorisation' and 'immatriculation' in the NVR<br><br>Clarification to bring in the ERA report to the Commission on a "unique" registration with possible multiple foreign authorisations |
| | modification | "Modification" means any change of the register data (e.g. keeper, owner, restrictions, additional EIN's, etc.).<br><br>Hint: change of EVN of registered vehicles will need a withdrawal (1.) and a new registration (2.) | Correct understanding |
| | withdrawal | Withdrawals will be coded according to appendix 3 of Dec. 2007/756/EC. A vehicle with registration suspended or de-registered must not operate on the European railway network under the recorded registration. | The correct wording is "may not" instead of "must not" |
| | INFORMATION ABOUT THE VEHICLE | | |
| 0. | European Vehicle number | 12 digit number as defined in annex P of CR TSI OPE.<br><br>*Hint:*<br>*Nothing to fill in when registration for a new vehicle is sought.* | Item N°0 is only for an existing vehicle subjet to a modification of its registration data. See footnote (3) Not applicable for the 1st registration. |
| 2. | member state and the competent NSA where the authorisation is sought | New vehicles: Register MS where this vehicle is registered for the first time and NSA of that MS granting the first authorization.<br><br>*Open Point:*<br>*For existing vehicles, there are two different options: MS and NSA where vehicle was authorized for the first time or MS and NSA where vehicle will be registered from now on.* | For existing vehicles, there is only one option: the NSA/RE of the country where the vehicle was previously registered (section 4,2 of the Annex to the Commission Decision) |
| 2.1. | member state | MS coded according to Annex P.4 of CR TSI OPE, for example: Germany = 80, France = 87<br><br>*Open Point:*<br>*Two options: MS of first authorization / registration or MS of current authorization / registration.* | Only one option the MS where the vehicle is currently registered |

| | | | |
|---|---|---|---|
| 2.2. | name of NSA | Full name of NSA.<br><br>*Open Point:*<br>*Two options: NSA of first authorization / registration or NSA of current authorization / registration.* | See above-comment |
| 3. | Manufacturing year | Year of manufacturing of the vehicle. In case of uncertainties for existing vehicles, estimations should be made. A new frame means a new vehicle, therefore a new manufacturing year. | For existing vehicles to be registered in the NVR, estimates can be made in case of uncertainties.<br>For renewed or upgraded vehicles (example given: new frame), the MS/NSA may allocate a new manufacturing year. |
| 4. | EC reference | Entity applying for the placing in service --> EC declaration | |
| 4.1. | Date of the declaration | Date of EC-declaration issued by the applicant for the process of placing vehicles in service according to the interoperability directive(s). | Correct understanding |
| 4.2. | EC reference | The individual number/sign/mark of the EC-declaration of verification assigned to it by the issuing body (RU, keeper, manufacturer, contracting entity or commissioner). | Correct understanding |
| 4.3. | Name of the issuing body | Full name of the body issuing the EC-declaration (Possible: RU, keeper, manufacturer, contracting entity, commissioner) | Correct understanding, in addition to the list: the applicant |
| 4.4. | Registered business number | Registered business number of the body issuing the EC-declaration.<br><br>Hint:<br>Format of this number differs from MS to MS. | Correct understanding. This is why the format of this item is left "free" |
| | Adress of the organisation | Full address of the body issuing the EC-declaration. | Correct understanding |
| 4.5. | Street and Number | Street and Number | |
| 4.6. | Town | Town | |
| 4.7. | Country code | Country code | |
| 4.8. | Postcode | Postcode | |
| 5. | Reference to the register of rolling stock | Link to the RRS, allowing to find data concerning the vehicle in the relevant RRS. Position remains blank in the NVR for the time being, will be replaced by a link to European Type Register in future.<br><br>*Open Point:*<br>*Not clear where this link should lead to now. The RRS has been deleted in the new interoperability directive, therefore the European Type Register has been introduced.* | The proposals from the ERA WP Registration of RST on the RRS have been taken into account by the Commission in the recast Interoperability Directive. The MS/NSA on the basis of the type authorisations they have granted should have the data available under a certain format.<br>This item cannot be left blank but should give the possibility to retrieve the related data (e.g. NSA PT indicated that in PT the reference to the RRS was the EVN) |
| 5.1. | Entity in charge of the register | Should remain blank until the European Type Register is in force.<br><br>*Hint:*<br>*Should be a link to the entity in charge of the Type Register in future* | See above-comment |
| | Adress of the entity | | |
| 5.2. | Street and Number | Blank. | |
| 5.3. | Town | Blank. | |

| | | | |
|---|---|---|---|
| 5.4. | Country code | Blank. | |
| 5.5. | Postcode | Blank. | |
| 5.6. | E-mail address | Blank. | |
| 5.7. | Reference to the register of RS | Link to the RRS, allowing to find data concerning the vehicle in the relevant RRS. Position remains blank in the NVR for the time being as RRS do not exist yet.<br><br>*Hint:*<br>*Should be a link to the entity in charge of the Type Register in future.* | See above-comment |
| 6. | Restrictions | | |
| 6.1. | **Restrictions (code)** | Should remain blank for the time being.<br><br>*Open Point:*<br>*It has to be discussed again what restrictions should be reported here, taking into account the Type register and other European Databases as WIMO or RSRD. NVR is not an operational register.* | This can not remain blank until the other solutions cover this point. The ERATV as well as the WIMO and RSRD do not yet exist.<br>It would be good to know **exactly** what do the MS require? |
| 6.2. | **Restrictions (text)** | Should remain blank for the time being.<br><br>*Remarks to 6.1 also apply here.* | See above-comment |
| | INFORMATION ABOUT THE ENTITIES RESPONSIBLE FOR THE VEHICLE | | |
| 7. | Owner | | |
| 7.1. | Name of the organisation | Full name of the owner of the vehicle. Not mandatory. | Correct understanding |
| 7.2. | Registered business number | Registered business number of the entity owning the vehicle. Not mandatory.<br><br>Hint:<br>Format of this number differs from MS to MS. | Correct understanding |
| | Address of the organisation | Full address of the owner. Not mandatory. | Correct understanding |
| 7.3. | Street and Number | Street and Number | |
| 7.4. | Town | Town | |
| 7.5. | Country code | Country code | |
| 7.6. | Postcode | Postcode | |
| 8. | Keeper | "Keeper" means the person who or entity that, being the owner of a vehicle or having the right to use it, exploits it as a means of transport and is registered as such in the NVR (Def. of keeper in new Interoperability directive 2008/57/EC).<br><br>Hint: The keeper's VKM has to be marked on the vehicle according to CR TSI OPE, Annex P. | Use the definition of the recast Interoperability Directive |
| 8.1. | Name of the organisation | Full name of the keeper. | Correct understanding |
| 8.2. | Registered business number | Registered business number of the keeper. Format of this number differs from MS to MS. | See comment on item N°4,4 |
| | Address of the organisation | Full address of the keeper. | |
| 8.3. | Street and Number | Street and Number | |
| 8.4. | Town | Town | |
| 8.5. | Country code | Country code | |
| 8.6. | Postcode | Postcode | |

| | | | |
|---|---|---|---|
| 8.7. | Vehicle Keeper Marking (VKM) | VKM as provided for in Annex P.1 of CR TSI OPE and contained in the common ERA/OTIF list of VKM. For the time being, not mandatory in exemptional cases foreseen in annex P.1.<br><br>*Hint:*<br>*Should be mandatory in future according to some MS as it is an important information for NSAs.* | The keeper was not initially listed in the items to be recorded in the NVR. It has been introduced on the basis of the WP proposal. This is why this item have been added as optional. If the MS consider it as important, the amendment can be proposed to the Commission? |
| | OPERATIONAL INFORMATION | | |
| 9. | Entity in charge of maintenance | Entity in charge of maintenance (ECM) for this vehicle. Can be an RU, an IM or a keeper according to the amendments foreseen to the Safety Directive.<br><br>*Open Point:*<br>*Some NSAs say this should in general be the keeper of the vehicle, others say that the ECM is in general different from the keeper.* | The ECM can be any of the listed entities. This does not make it an open point even if the tasks assigned to the ECM are still under specifications between the Commission, the MS, the industry and ERA. |
| 9.1. | Name of the organisation | Full name of ECM. | |
| | Address of the organisation | Full address of ECM. | |
| 9.2. | Street and Number | Street and Number | |
| 9.3. | Town | Town | |
| 9.4. | Country code | Country code | |
| 9.5. | Postcode | Postcode | |
| 9.6. | E-mail address | E-Mail address | |
| 10. | withdrawal | A vehicle with registration suspended or de-registered must not operate on the European railway network under the recorded registration. | The correct wording is "may not" instead of "must not" |
| 10.1. | Mode (code) | Withdrawals will be coded according to appendix 3 of Dec. 2007/756/EC. | Correct understanding |
| 10.2. | Date | Date of withdrawal the applicant announces to Registration Entity.<br><br>Hint:<br>See presentation regarding date of withdrawal from RE AT in attachment. | |
| 11. | Member state where the vehicle is already authorised | List of MS where the vehicle is already authorised.<br><br>*Open points:*<br>*- Record the EIN of the authorisations?*<br>*- Only MS where the vehicle has in fact been individually authorized by the NSA in a separate legal act?*<br>*- How to deal with RIC-coaches and RIV-wagons?* | This is a side-effect of the late change made to the Commission Decision on the NVR where some MS required to register both 'authorisation' and 'immatriculation' in the NVR<br><br>Clarification to bring in the ERA report to the Commission on a "unique" registration with possible multiple foreign authorisations |
| | Identification of the entity applying for registration | Full address of the applicant. | Correct understanding |
| | Date | Date of application for registration in the NVR by the applicant. | Correct understanding |

| | | | |
|---|---|---|---|
| | Name of the responsible officer and Signature | Full name of the person authorised to act for the applicant, signature.<br><br>*Hint:*<br>*In Germany, electronic applications do not have to be signed.* | The footnote 1 of the appendix 4 of the Annex to the Commission Decision specifies that the form can be also produced electronically, this implies that an electronic signature is accepted and is not therefore forbidden. |
| | SAFETY AUTHORITY REFERENCES | | |
| 11.1. | Allocated European Vehicle Number | 12 digit number as defined in annex P of CR TSI OPE which has been newly allocated to the vehicle. | Correct understanding |
| 12. | Authorisation number | EIN for the authorization for placing in service of the vehicle in question by the NSA.<br><br>Hint:<br>Former authorisation number of NSAs should also be possible for existing vehicles.<br>Free the format for existing vehicles | |
| 13. | Placing in service | | |
| 13.1. | Date of the authorisation | Date of granting the authorization for placing in service by the NSA. | Correct understanding |
| 13.2. | Authorisation valid until | Date when the authorization becomes invalid (if validation period is restricted).<br><br>*Open Point:*<br>*Update when authorization and registration are withdrawn? Usually authorizations are granted without time limit for validity. For LU, authorization ends when keeper changes.* | This could happen in some cases (HS vehicles or prototypes) where the authorisation might be valid for a given period.<br><br>However, in most of the cases, there is no expiry date for the authorisations. Under these conditions, the expiry date is not compulsory. |
| | Date application received | Date when the application to be registered in the NVR has been received by NSA. Stamp of entry of NSA. | Correct understanding. The stamp of entry of NSA is part of each NSA's process and does not need to be specified here. It should not be understood as complusory (electronic application are allowed) |
| | Date of withdrawal | Date of entering the information concerning the withdrawal into the NVR database by RE.<br><br>Hint:<br>See presentation regarding date of withdrawal from RE AT in attachment. | Correct understanding |
| | Key: | **Text in bold means agreed as common position in Paris on 21 May 2008.**<br><br>*Text in italics means no agreement reached, still open point.* | |